What's New in Kentico 8

Introduction

Hi, my name is **Martin Hejtmanek**, **CTO** at Kentico Software, and it's my pleasure to introduce **Kentico 8**.

It has taken us eighteen months to release this new version, and there is a lot of work behind it. Not only have we moved the platform to a whole new level by covering a lot of hot topics for developers, but we have also redesigned the whole UI to better match the current needs of less technical users, and improved the overall user experience.

So, grab a cup of coffee… There are a lot of new and interesting features in Kentico 8!

UI Redesign

No more CMS Desk and Site Manager

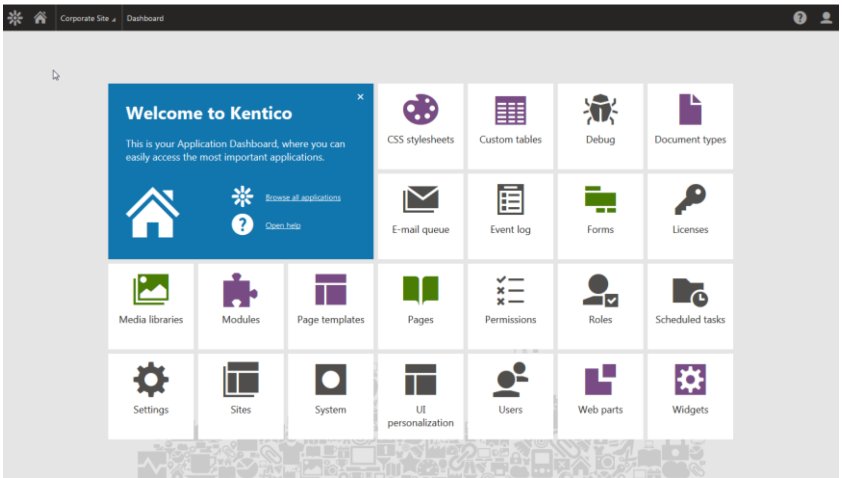
I would like to start with what is most visible, which is a **unified user experience**, regardless of whether you are a content editor, marketer, or an IT guy.

As you know, our solution was growing with new features every year until we reached a point when the UI became a little overwhelming and the features were hard to find.

As we still want to provide new features, and even let our partners provide new modules on their own, it was inevitable to come up with some fresh and reusable concepts that would let the users find everything they need, and keep them focused on their given task at the same time.

This comes with a completely new UI simply called "Administration", or "Admin", which covers all of the modules from the previous CMS Desk and Site Manager. The user doesn't need to think about which UI to go to in the next step.

To access Administration, simply go to **<application root>/Admin**



You may notice that we have simplified the graphics to the latest trends, not only to not overwhelm the user, but also to give better UI response times through simpler output.

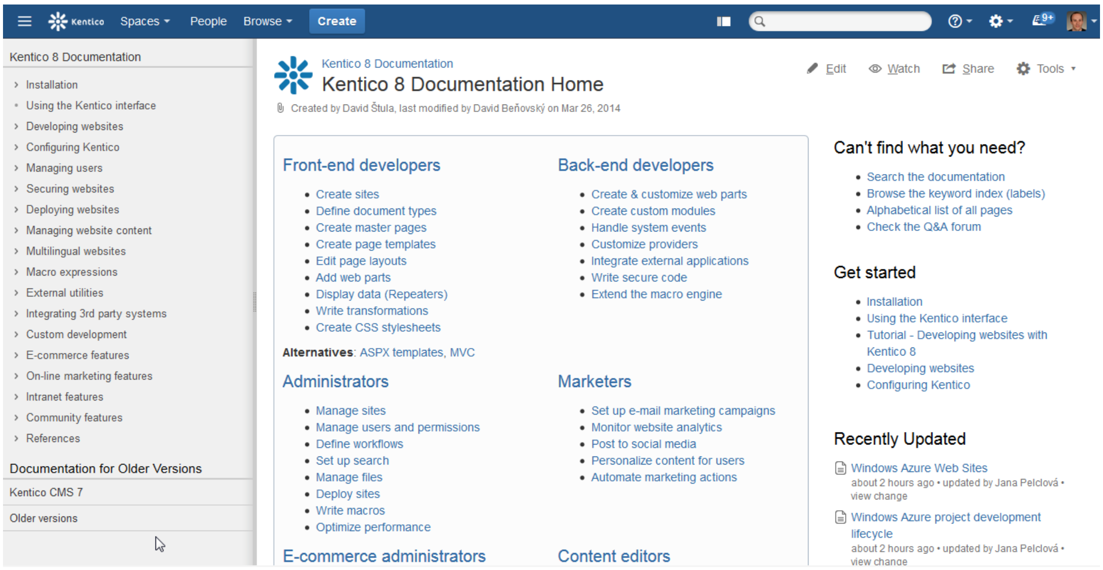
Brand new documentation

Before I continue, I would like to mention one important thing: Our team of technical writers did an amazing job by reviewing every single piece of documentation we had, and make it much better through focus on most important topics and scenarios, rather than just describing the UI. Should you need any details about particular features, do not hesitate to visit our documentation through the DevNet portal at http://devnet.kentico.com/documentation

Alternatively, you can access it via the context help toolbar in admin UI as I will show you in a couple of moments. You will find much more help in there than ever before.

We have taken advantage of Confluence, which is a great tool not only for delivering such content, but also for getting feedback from you regarding particular pages.

I am sure you will appreciate that as well.



Let me now get back to the product, and show you both what has changed and what is new…

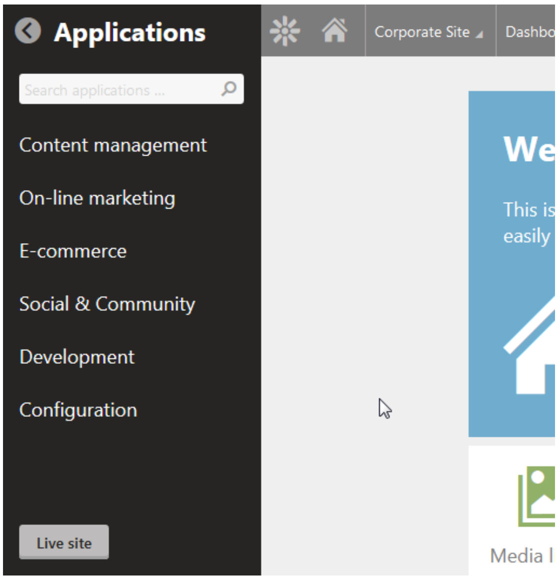
Dashboard

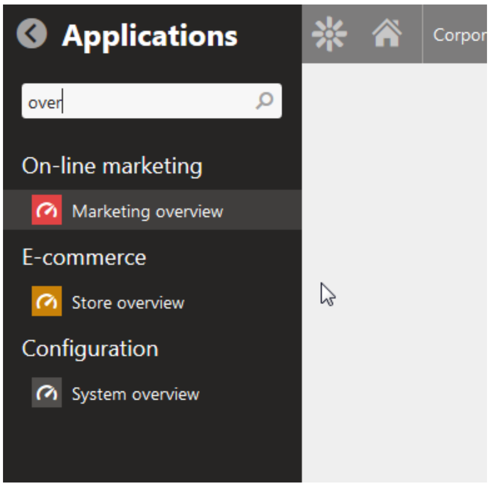
The Dashboard is the very first item that you see when you log into the admin UI; it consists of tiles, which represent typical "applications" that a particular user or role needs most. This is currently configured by the admin and is role-based, but in the future we plan to improve it further. As I previously mentioned, these aplications are just typical for that individual, you can access all other available applications through the application list. Also, the blue "intro" tile can be dismissed.

Application list

The Application list can be displayed in three ways:

- By pressing the F2 key
- By clicking on the Kentico logo icon
- Or, by clicking the link on the blue intro tile





It contains all of the applications divided into groups, and you can easily search through them to find the right one. This makes things much simpler, rather than having to find the right location in the CMS Desk or Site Manager.

Individual categories are color-coded.

I bet many of you asked yourselves earlier—"if the main screen is called a Dashboard, what happened with the previous Dashboards?" Well, these pages are now called "Overviews" for particular parts of the system, as you can see in the picture above.

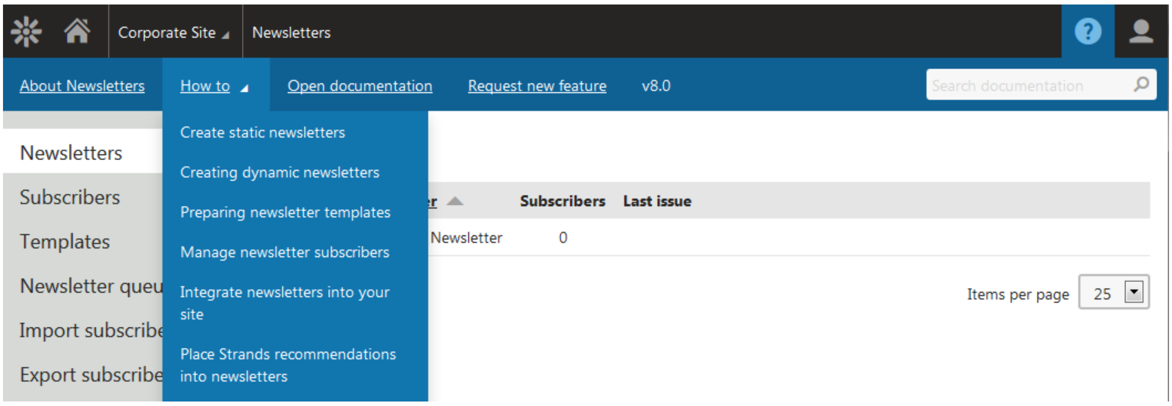
Launch the applications

You launch the application by clicking on its tile on dashboard, or by finding it in the application list. In the application list, you can also use arrows to navigate and launch the selected application by pressing Enter.

Getting help

Rebuilding help is another great new feature of the new UI. By performing either one of these actions:

- By pressing the F1 key
- By clicking on the Help icon in the header
- Or, by clicking on the link in the intro tile

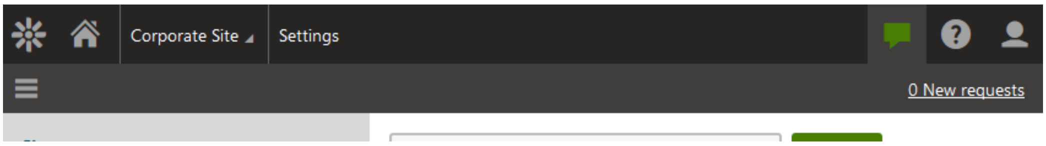


You will get the Help toolbar, which updates its content based on where you are in order to provide you with the best possible source of information that can assist you.

Support chat

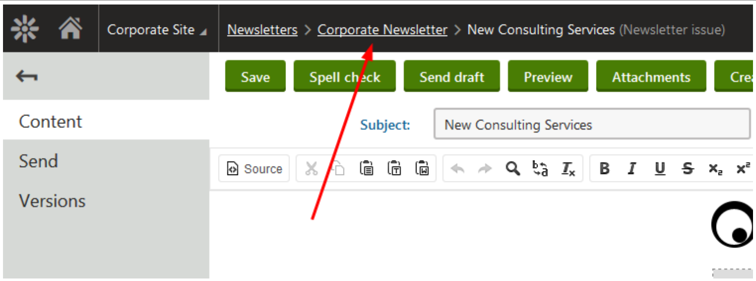
There is another toolbar available if you enable support chat. The Chat itself still has the same old features, it was simply incorporated into the new header in a better way.

The chat notifications also include sound notification now.



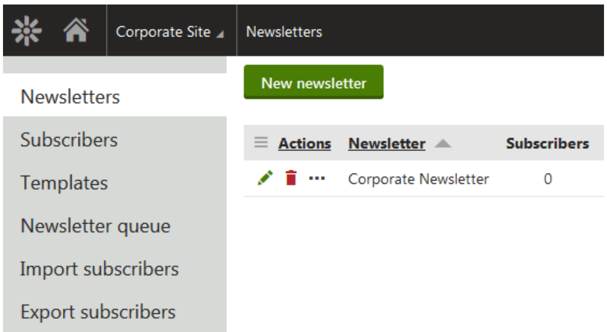
Breadcrumbs

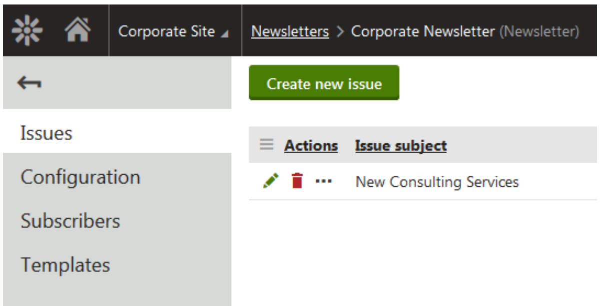
All breadcrumbs have been moved to the header and allow you to easily navigate back from where you are:



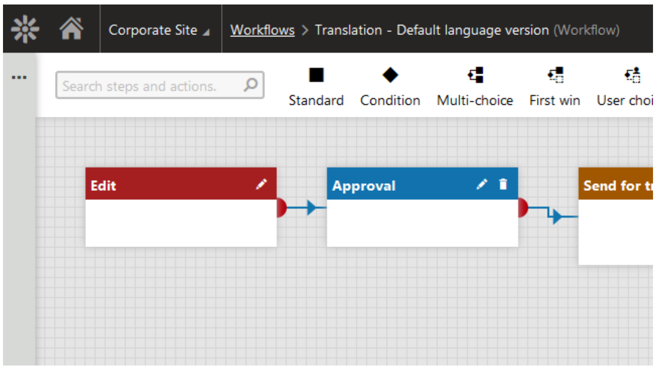
Tabs

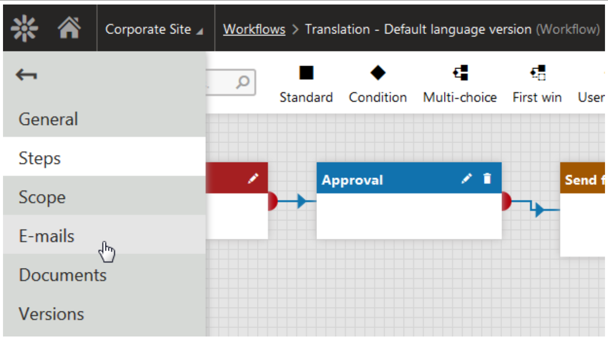
The majority of tabs are now vertical, and display only the last level of tabs with the ability to go back to a previous level. This provides more space to the user and it will also allow us to make the overall UI responsive in the future. The back arrow is always located one level higher in the breadcrumbs (these two actions have the same result).



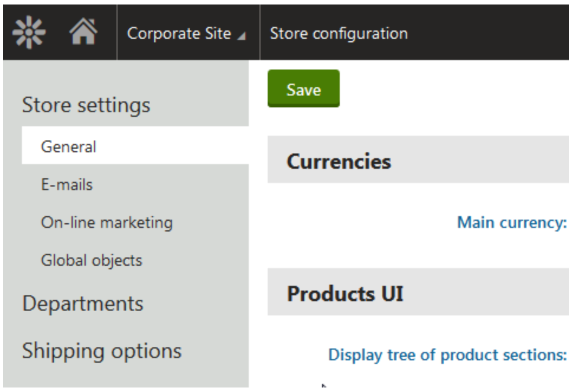


If more space is required, the tabs collapse to provide more space and will display on hover (or click) when needed:



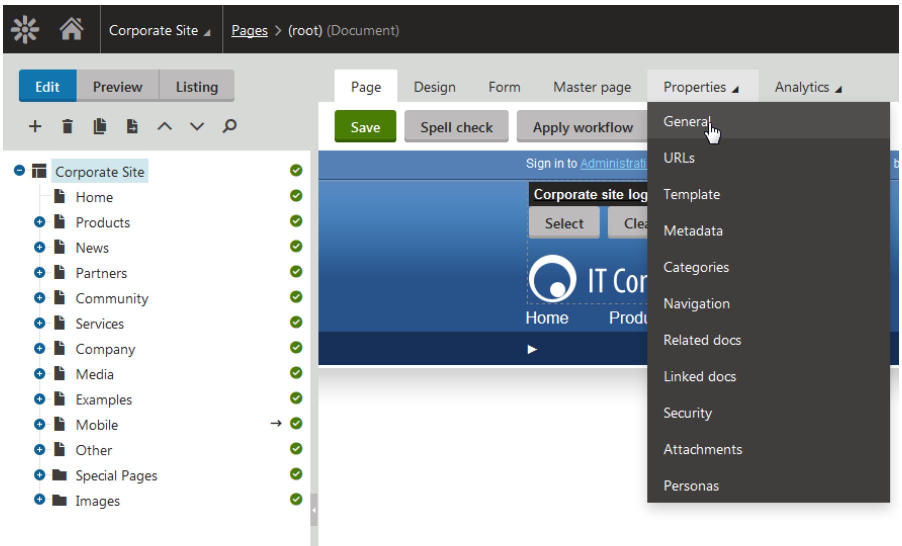


If a particular tab contains only sub-tabs these expand in the tab hierarchy:



Horizontal tabs

Horizontal tabs are used only in special cases, typically when combined with a tree or displayed in a dialog. Similar to vertical tabs, horizontal tabs also provide hierarchy for the items that only have sub-tabs:



You may also notice a redesign of the Pages application (former Content in CMS Desk) to optimize available space and make things less crowded.

Cool things in the UI that you see, but don't really see

There are a couple of things to mention here related to UI redesign:

- The UI styles are based on **bootstrap** (a custom modification of it) and the output **markup is simplified.**

- The majority of icons in the UI are now **font-icons**, which speed up the response times; the rest will be converted in following versions.

- We got rid of the majority of framesets and replaced them with general tab templates (I will cover that later in this document), which use **jQuery layout and iframes** for nested pages. This will allow us to further improve the overal concepts of the UI in the future. This reduces a number of requests needed when navigating through UI.

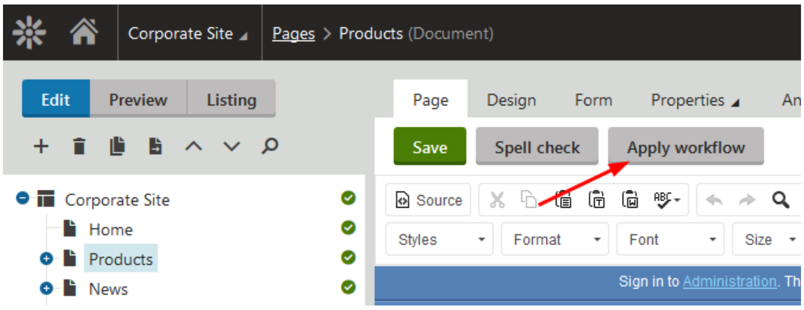
- We have got some nice Javascript communication framework around so that hotkeys work through the whole application like a charm. Of course, we will extend them in future as we plan to make the whole UI more accessible.

Enough of the UI changes, let's dig into the feature improvements.

Content management

Apply workflow to any document on-the-fly

Regardless of whether a particular document is covered by a workflow scope or not, you can apply a workflow to it using this new button:



Workflow for widgets

Document widgets now support workflow to provide the content editor the same experience as with any other content in the document.

Improved integration with Translations.com

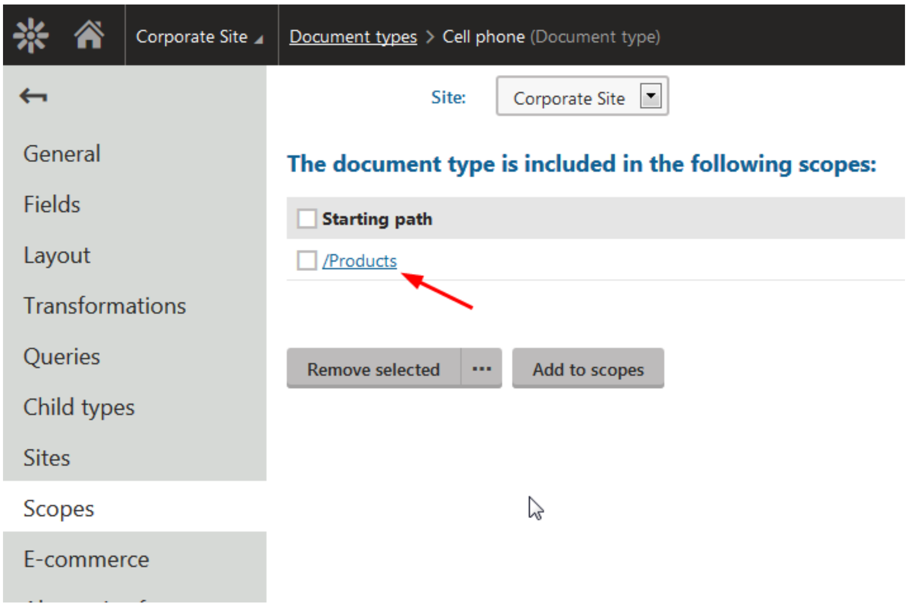
We have revised the integration of Translations.com translation service together with their people, bringing you improved integration and translation processes that better match theirs.

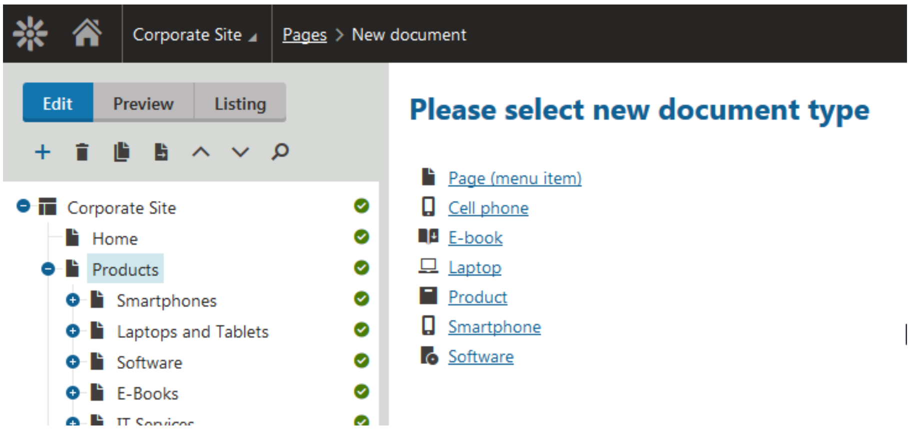
Updated CK Editor

As always, we have upgraded the CK WYSIWYG Editor to its latest version (version 4). This brings some important hotfixes to its functionality, and a couple of new features that it provides.

Document type scopes

Similar to the workflow or template, in Kentico 8 you can apply scopes to a document type to restrict its usage only to particular locations. This way you can easily allow the content editor to only create document types that make sense for the given section of the website:





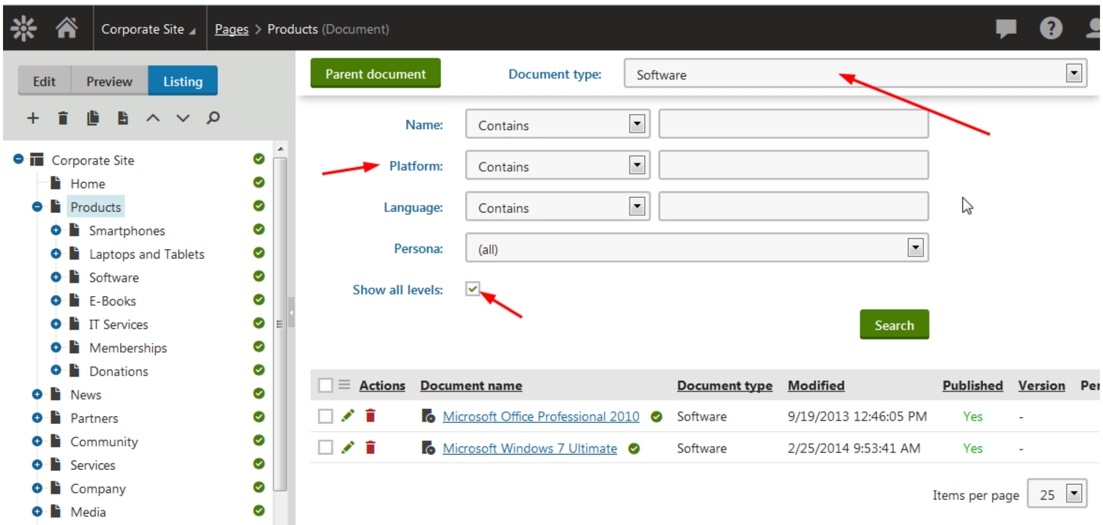
If only a single document type is available in that particular location, you can get to a new page directly without the need to select it.

Enhanced listing mode

There are a couple of new things in the document listing that will simplify the work of a content editor:

- **Filters per document type** – Similar to Custom tables or online forms, you can now define an alternative form named “filter” in document types that is included in case you select only that specific document type in the listing.

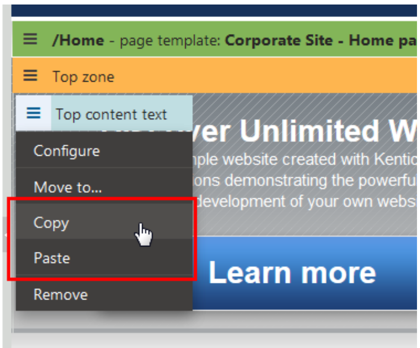
- **Show all levels checkbox** – This allows you to list the documents from the whole sub-tree of the current document, which makes it easier to find whatever document you need based on its parameters.



Portal engine / Design

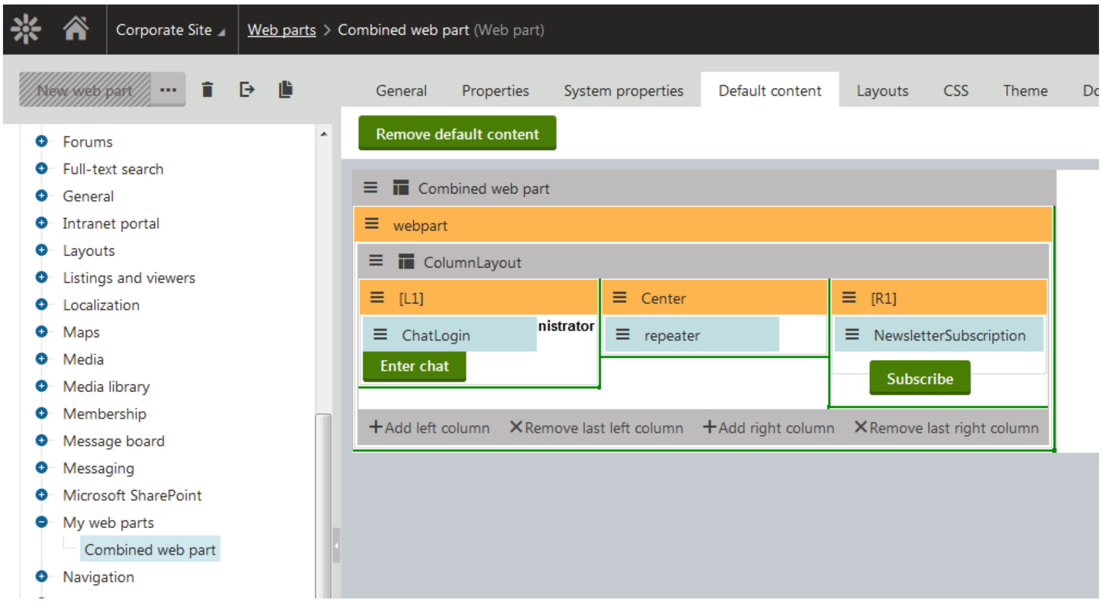
Copy/move web parts between pages

You can now simply copy and paste web parts from one template to another, using web part context menu:



Default content for layout web parts

When you create a web part inherited from the web page layout, you can define its default content. That way, you can easily create preconfigured bulks of web part that you insert to a page in one step. Note, that the web part inserted to the page is a copy of this, further modifications to the default content won't influence it.



Smart search improvements

There are a bunch of improvements that have been made to the Smart search engine, as it is a heavily used feature. The following changes were made:

Update to Lucene.NET 3.0.3 and separation through interfaces

We have updated the default search engine library to Lucene.NET 3.0.3. At the same time, we have prepared an abstract layer between the search index provider (Lucene by default), and the Smart search engine. I will cover more details about this later in a few blog posts, but it has two main effects:

- You will be able to connect the system to an external search provider, such as Google by implementing your own connector.
- As Lucene 3 comes with some changes in default behavior, we will still provide the original connector to the previous version of Lucene in case you would like to keep it.

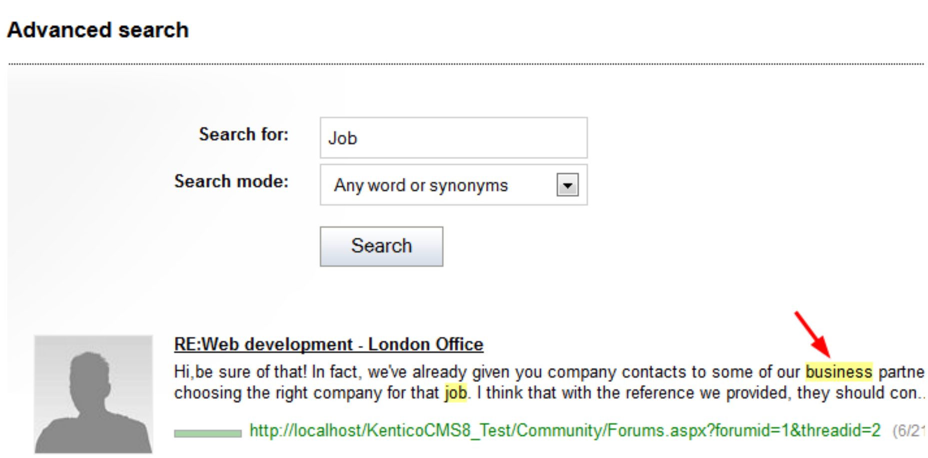
This upgrade allowed us to provide a couple of the following features:

Typo-tolerant (fuzzy) search

You can now choose if the search should match the items the "fuzzy" way, meaning that it will tolerate typos and attempt to find the closest match in the case that the exact match is not found.

Synonym search

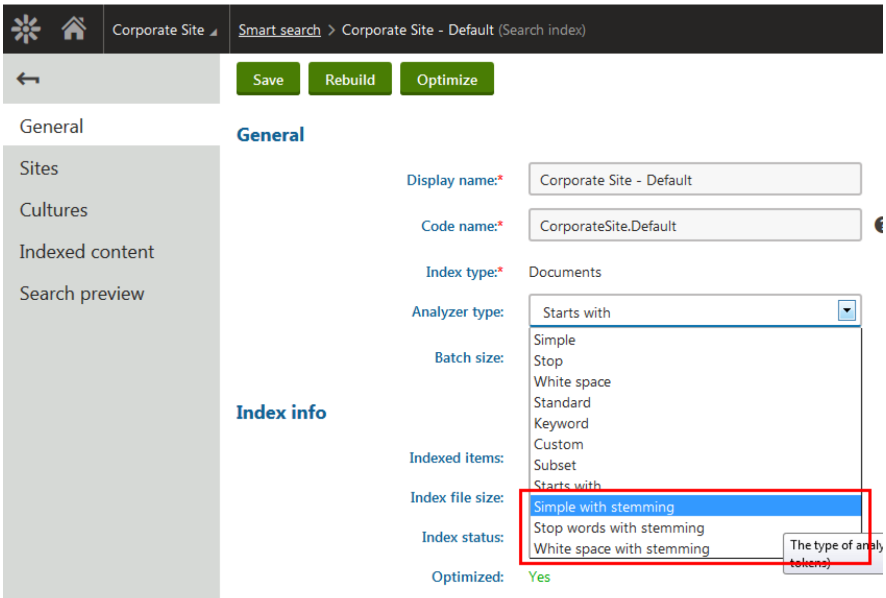
We now also support search using synonyms. It is provided as one of the search modes that Smart search offers. As shown in the sample below, you may notice that it also searches for business-related terms, if for example, you search for the word "job".



Support for stemming

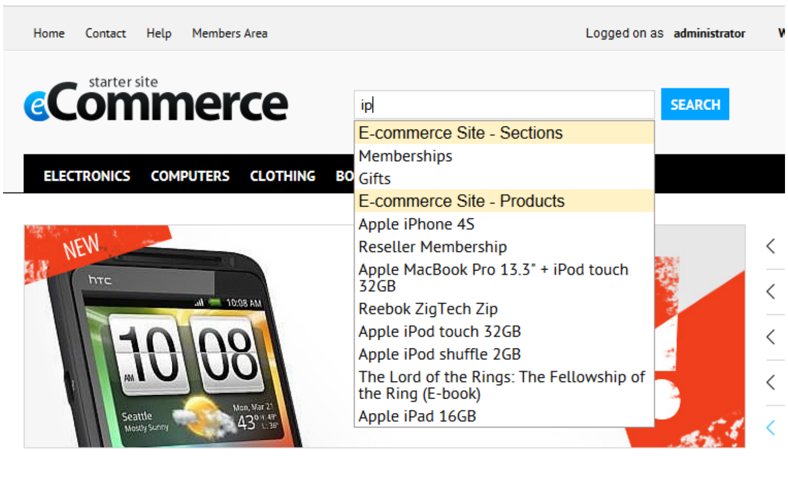
If you enable the stemming analyzer, the search will be performed using the stem of the word, e.g. it matches “Conditional” and “Conditions” because these words share the same stem “Condition”.

You can find it in the list of possible analyzers for search and combine it with some other analyzers that make sense in this case:



Predictive search

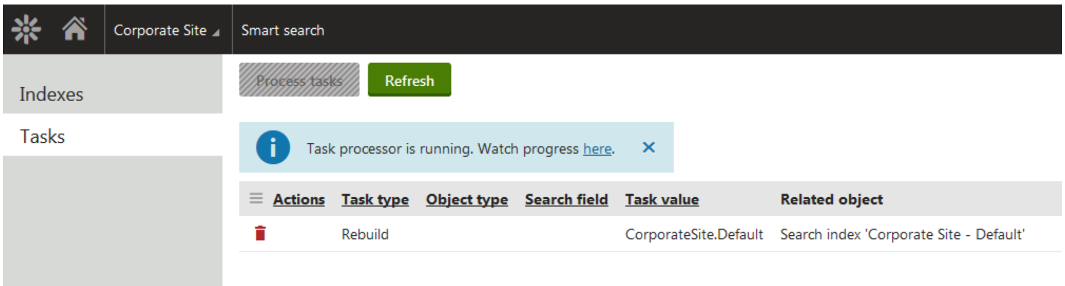
Kentico 8 comes with a predictive search. You can now simply display the content found by site visitors up until that point in time to help them get to the desired results sooner. If you include more search indexes, you can categorize the results:



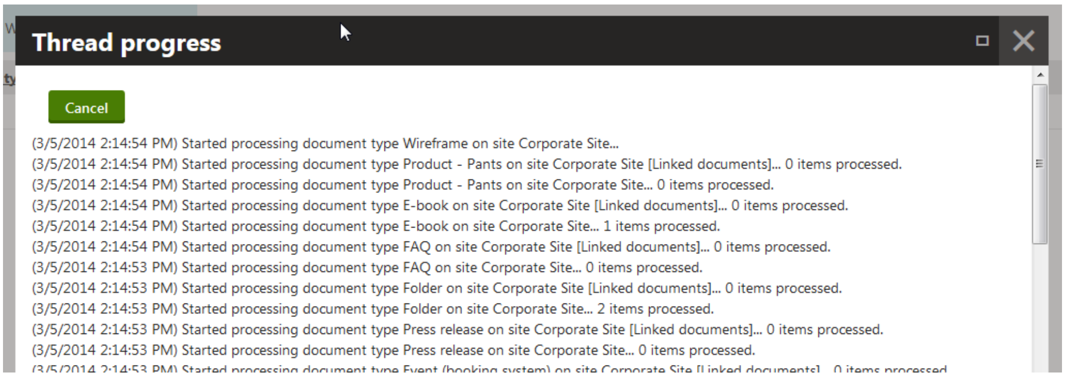
We include only product names for the sake of simplicity, but you have the power to define any transformation for the results to include images or other styles.

Detailed information about search tasks

As it wasn't easy to troubleshoot potential search indexing problems, we have introduced the list of search tasks that you can use exactly for this purpose. It lists all of the pending search tasks that are similar to the other task-based modules, so you can easily see what is going on just with the search itself.

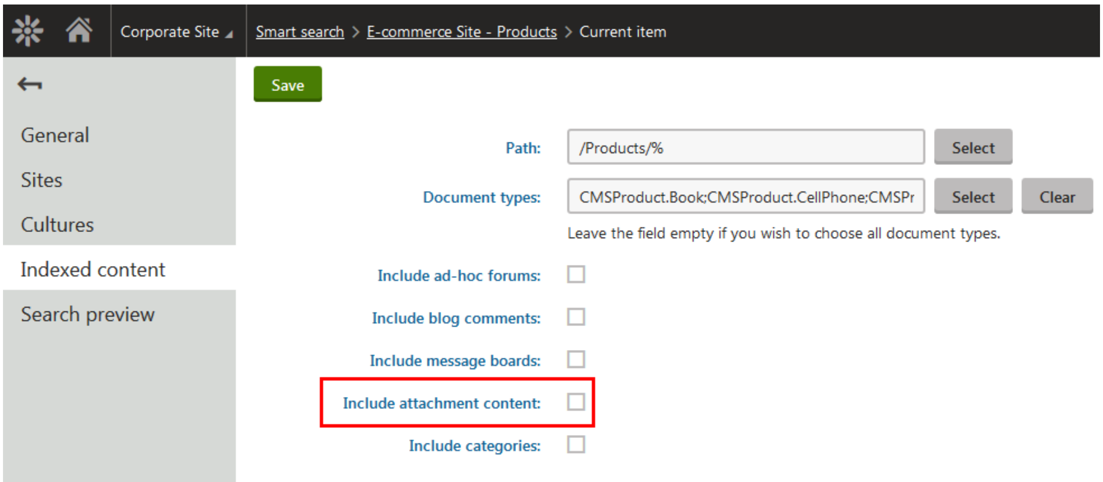


Moreover, if the tasks are currently being processed, you can see more details of what the background processes are doing by clicking on the link in the blue message box above:

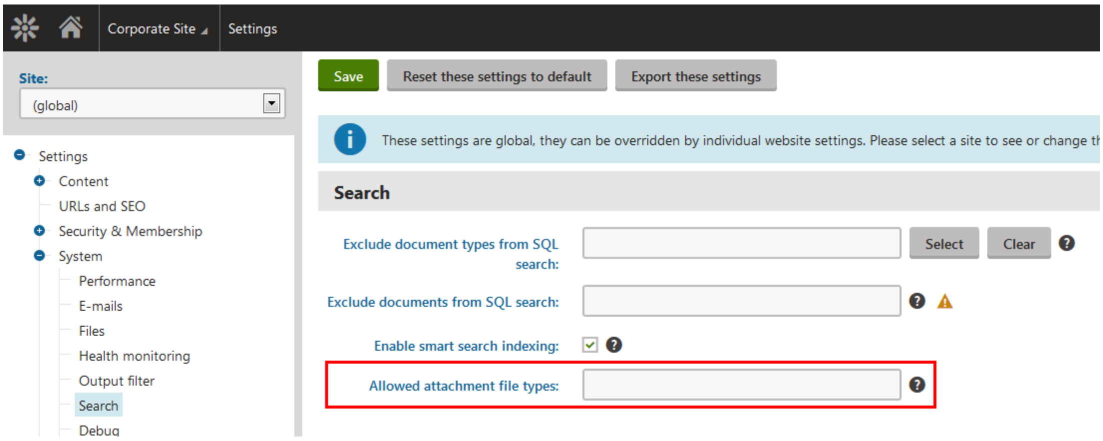


Indexing of document attachments (PDF, PPTX, etc.)

If you need to provide content based on the text stored in the document attachments, e.g. PDF files or MS Office documents, you can do that with ease on Kentico 8. As is illustrated in the images below, simply select one of the options listed in the indexed content properties:



You can also restrict the indexed file types to a particular set if you want:



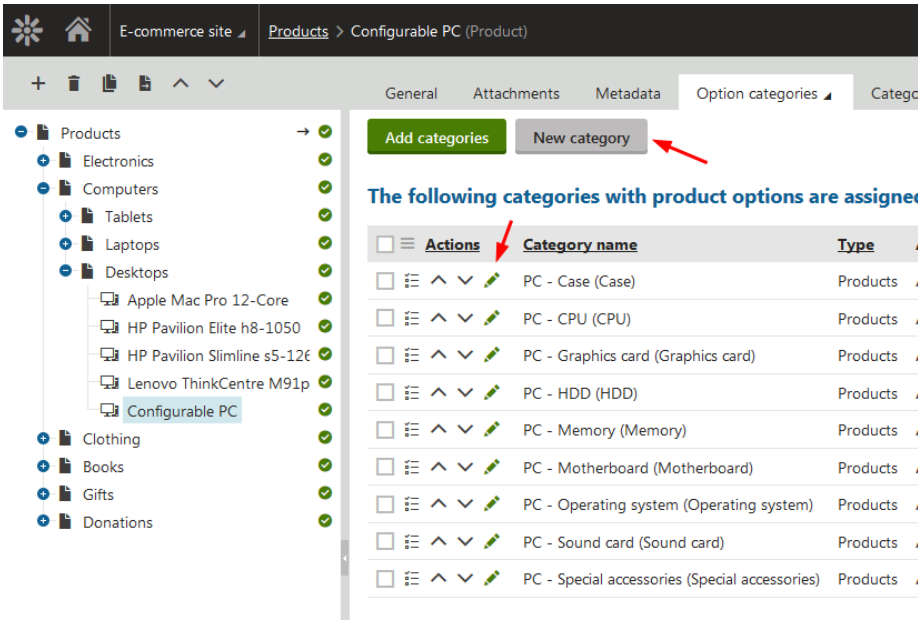
By default, we support the following file types: **txt, csv, html, htm, xml, docx, xlsx, pptx, pdf**

You can also implement your very own customized content extractors for the search.

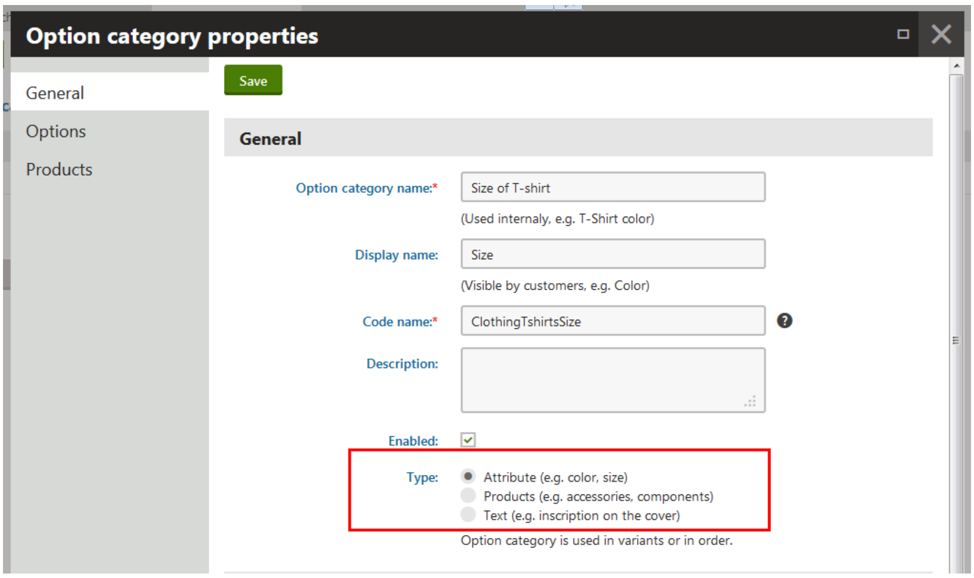
E-Commerce

Create and edit product options from product properties

To simplify the work of the store-keeper, we have provided an alternative that allows you to create new product option categories and edit them directly from product properties. As is demonstrated in the images below, you no longer need to switch between modules for such a task:



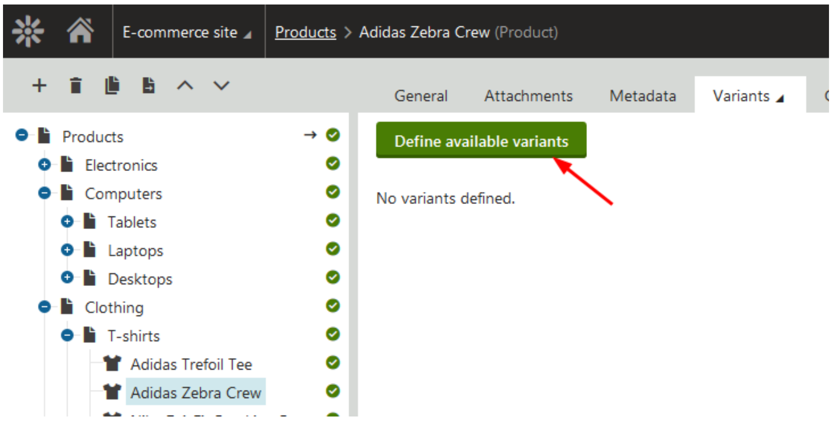
Note that now there is a differentiation between Attribute option type (e.g. color), and Product options type (e.g. accessory). We will use that right in the next feature.



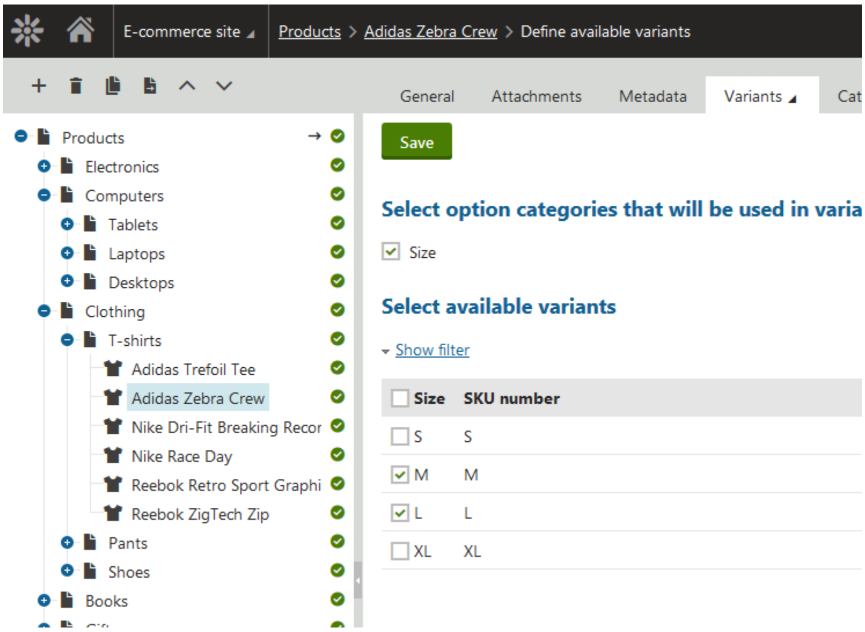
Product variants

Product variants are a great addition to the already rich set of E-commerce features. Previously, when using product options you couldn't manage SKU numbers, prices, and stock items for individual combinations of product options. Now you can do this with ease:

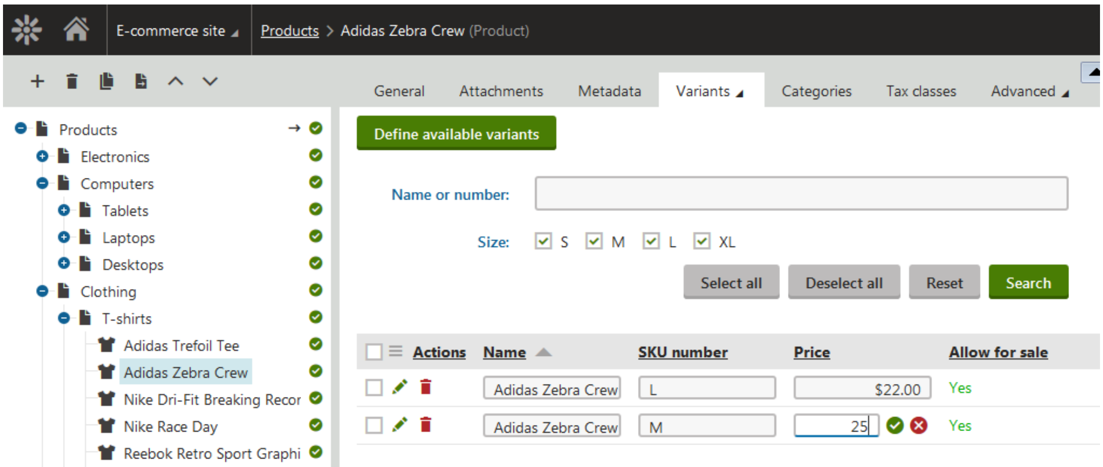
To achieve this, you simply click on the "Define available variants" button:



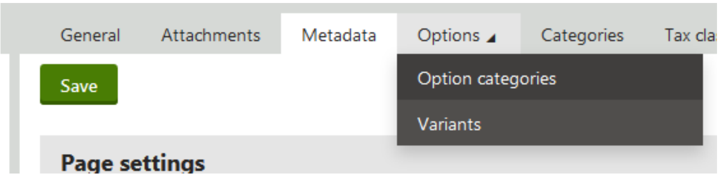
Select whatever combinations you need:



Note that this dialogue offers only product options for the attribute type (not the products) and the edit individual variant properties through in-line editing:

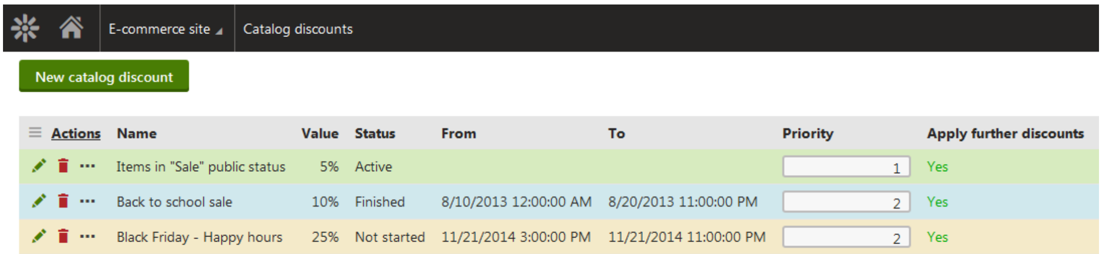


The variants page is available under one of those sub-menus under the Options tab in the product properties:

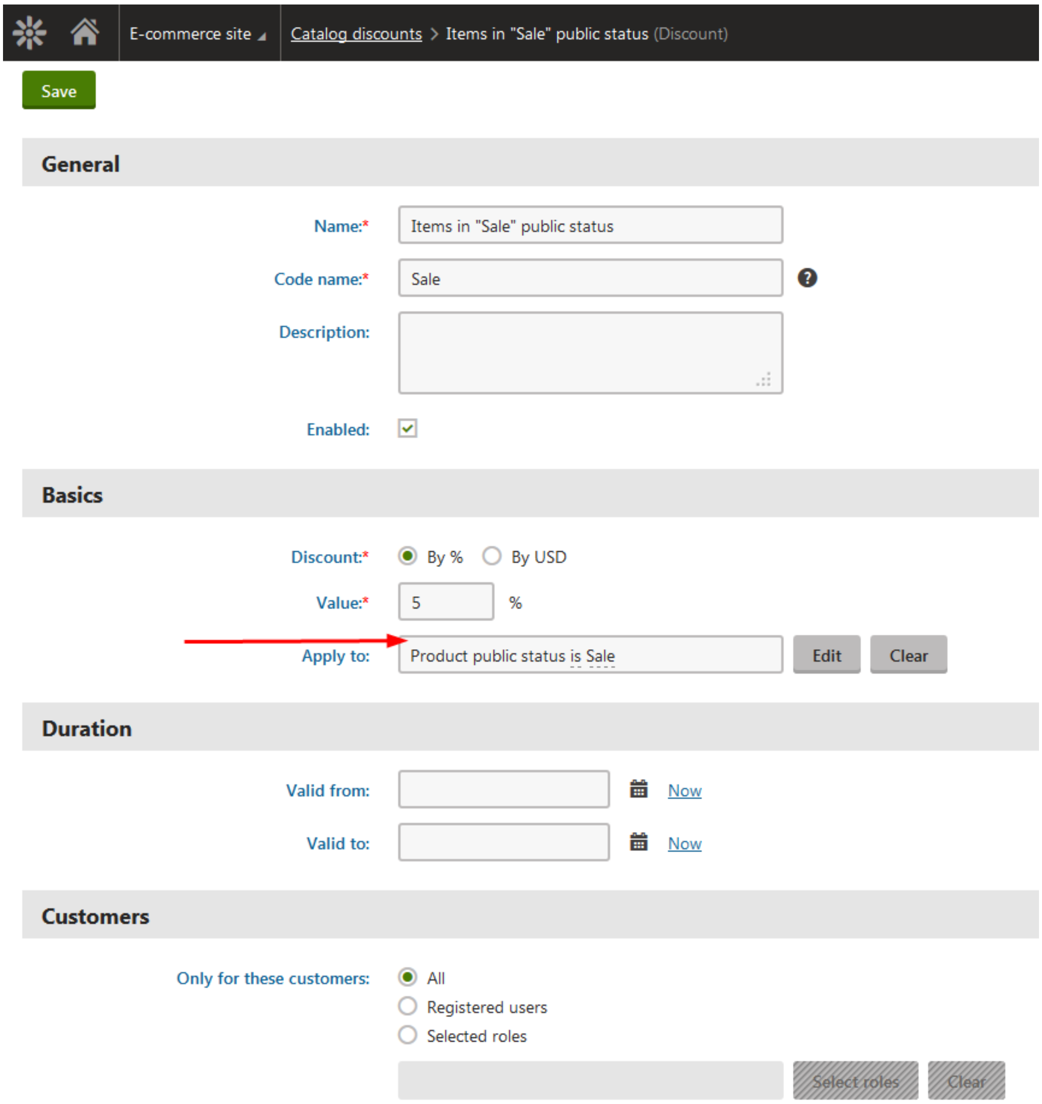


Rule-based catalogue (product) discounts

Catalog discounts apply to individual products, and you can simply define a list of discounts and apply more at once (the best one wins):

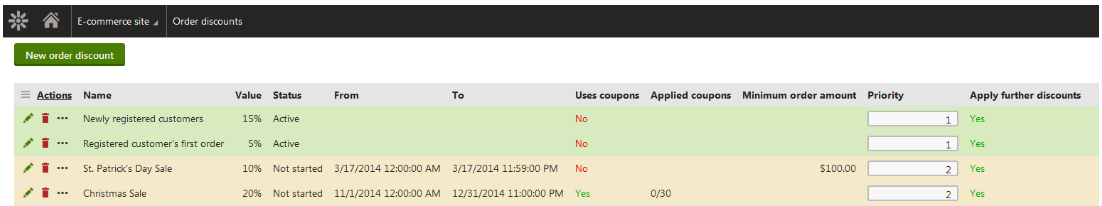


Within a discount, you can simply define a condition to the product(s) it applies to through our condition builder:

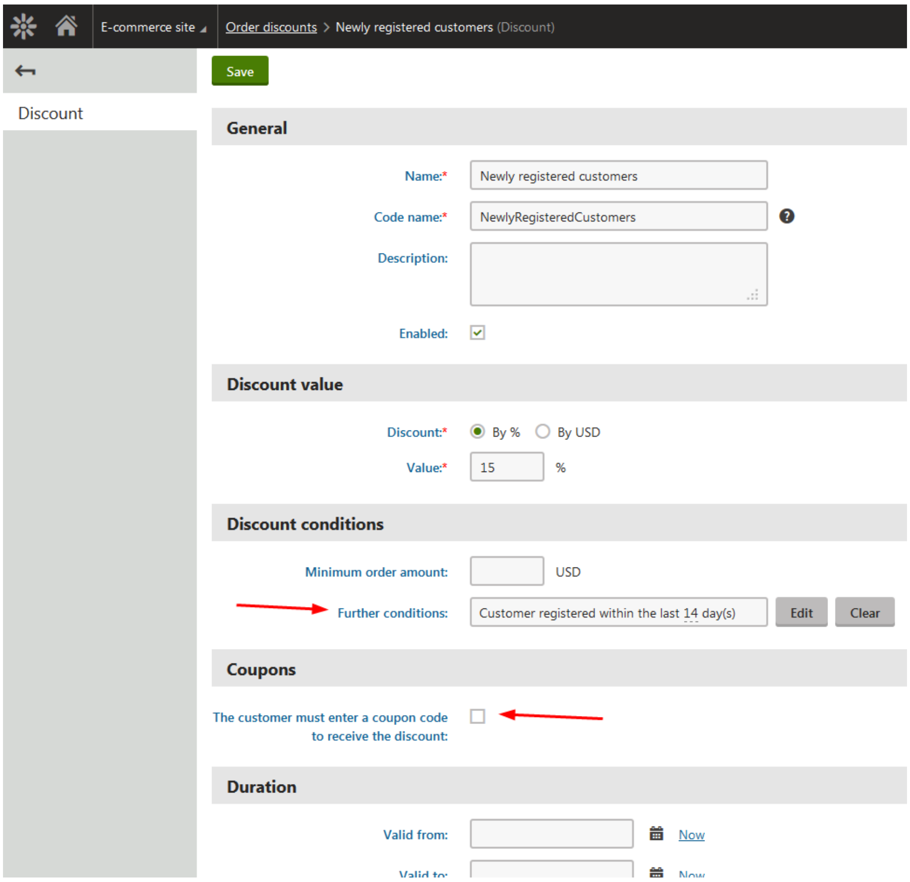


Rule-based order discounts

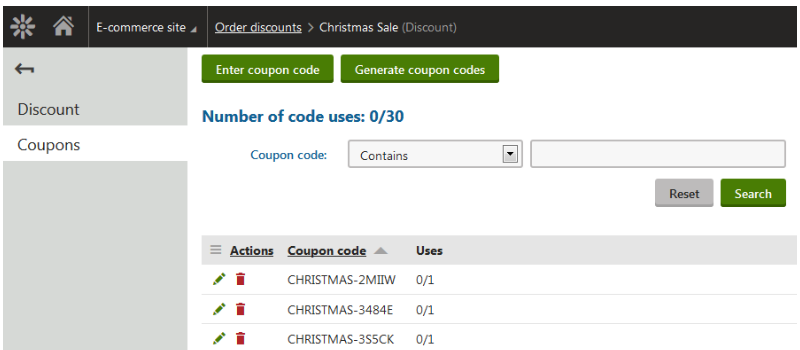
Similar to catalogue discount, you can define discounts per whole order:



Once again, by defining a condition:

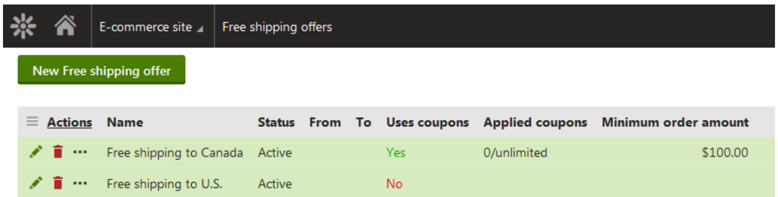


You can also define discount coupons for that particular discount:

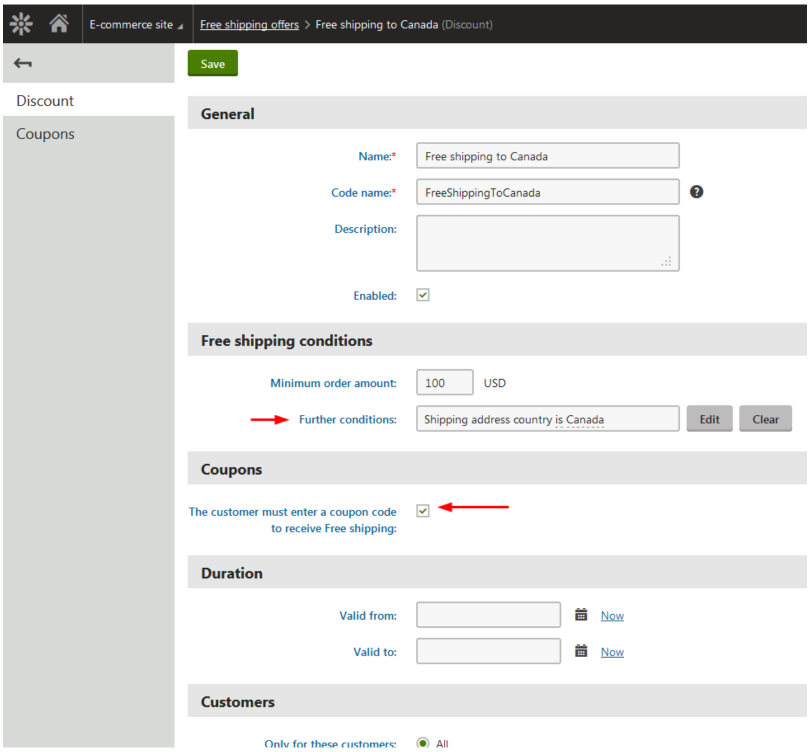


Rule-based free shipping offers

Previously, you could only define the minimum order price for free shipping. With Kentico 8, you can define free shipping in a more sophisticated manner:

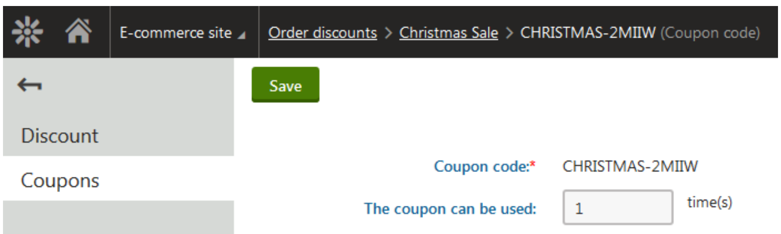


They are very similar to discounts, except they also come with a condition and ability to provide discount coupons:



Discount coupon enhancements

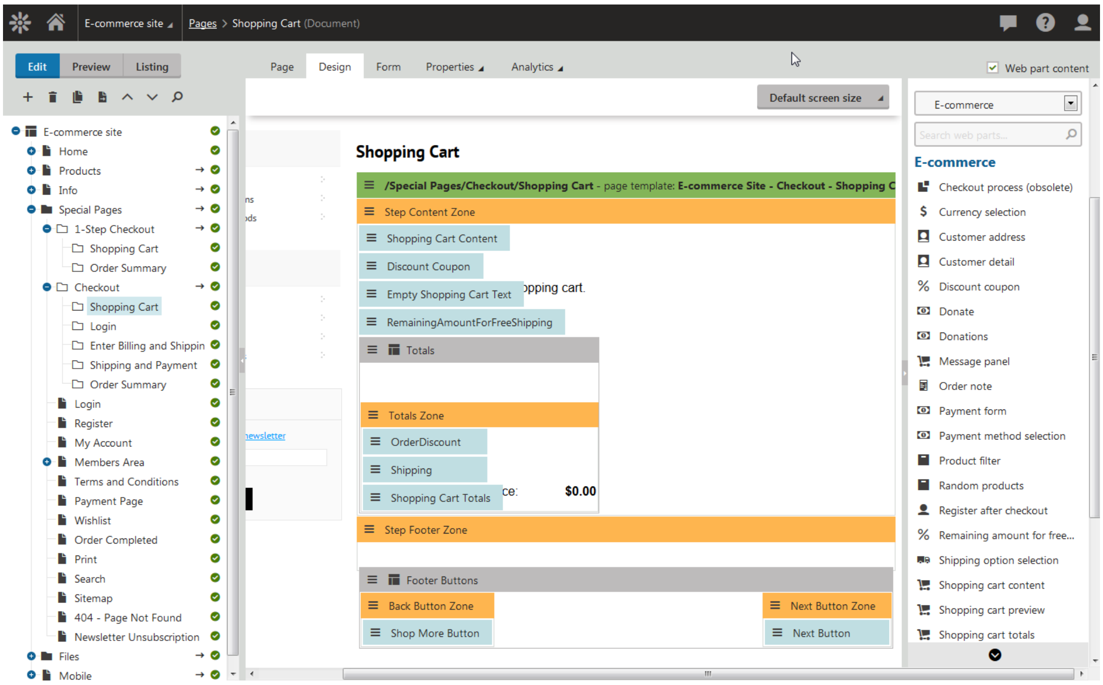
Discount coupons themselves have improved as well; you can now define how many times a particular coupon can be used:



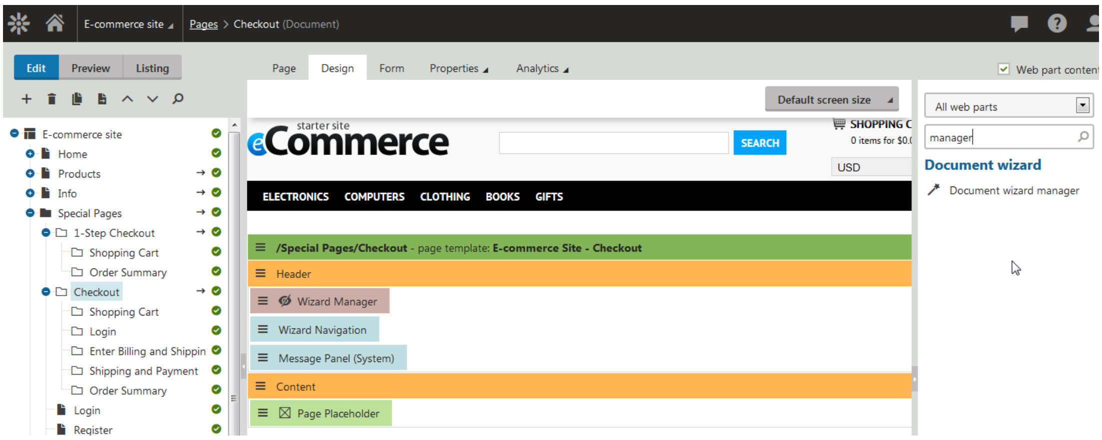
Easier check-out proces customization

This is a big one! We received a lot of feedback and requests about the ability to customize the shopping cart process, including support for one-step (or other number of steps) checkout.

For this reason, we completely redesigned the checkout process architecture, and replaced the old “heavy” checkout process wizard with a lightweight individual component that is easier to use. The whole process has also been redesigned in a much simpler way.



The overall process is managed by the document wizard manager web part in the parent document that you can leverage also for other things. Each step is a single document that also allows you to individually track the analytics for it and maintain their content under workflow:

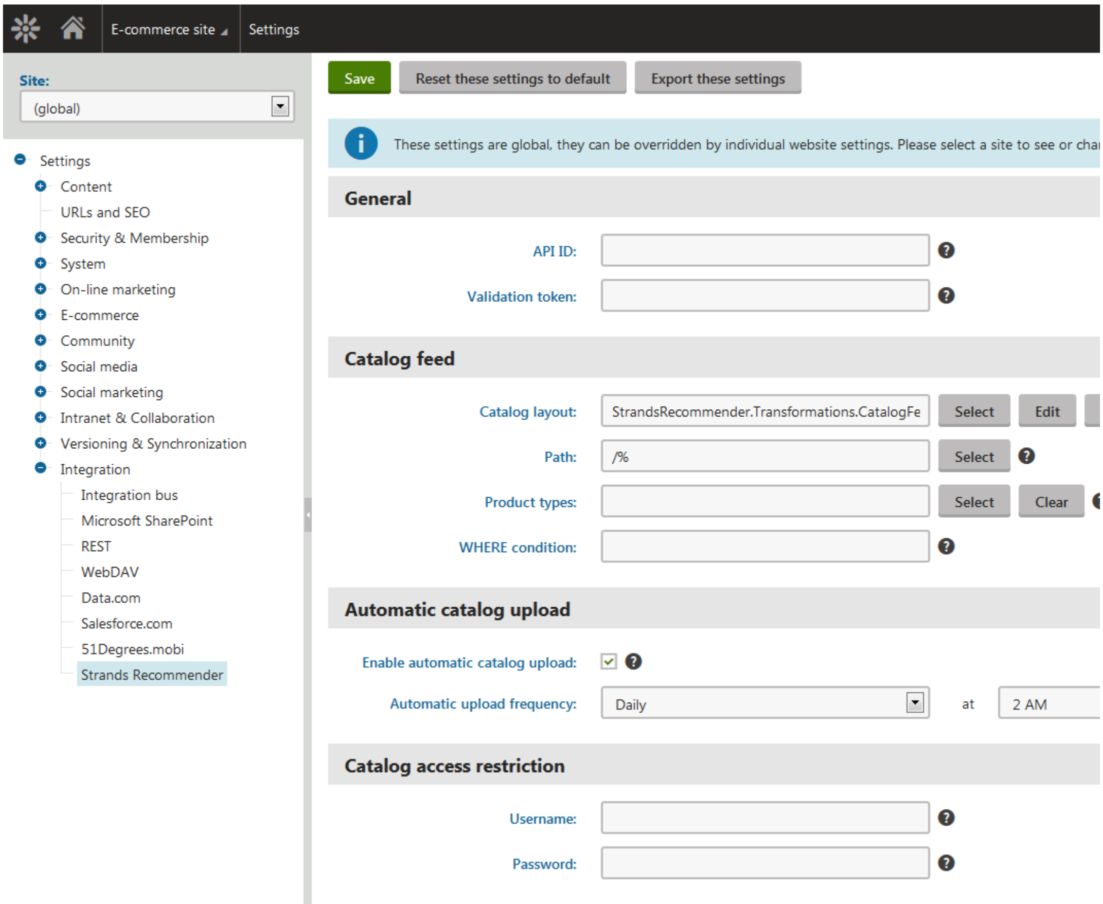


I don't want to describe this in too much detail here. See the examples on our sample E-commerce website to find out more about how the new technique works.

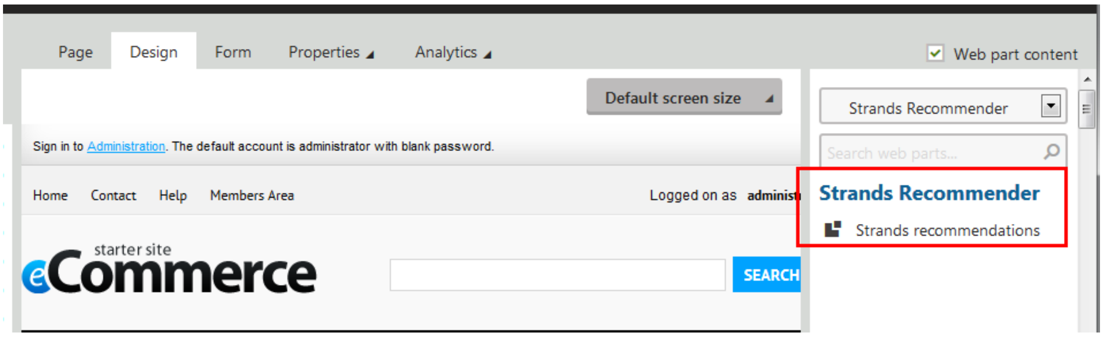
The old checkout process is still supported, but has become obsolete. We would like to remove it in the upcoming versions to get rid of its cumbersome code, so be ready to transition over to a new one.

Integration with Strands recommendation engine

To get even better customer experience on your website by giving them exactly what they want, we have integrated the solution with Strands recommender engine. Once you have a Strands account you can set up the integration in settings:

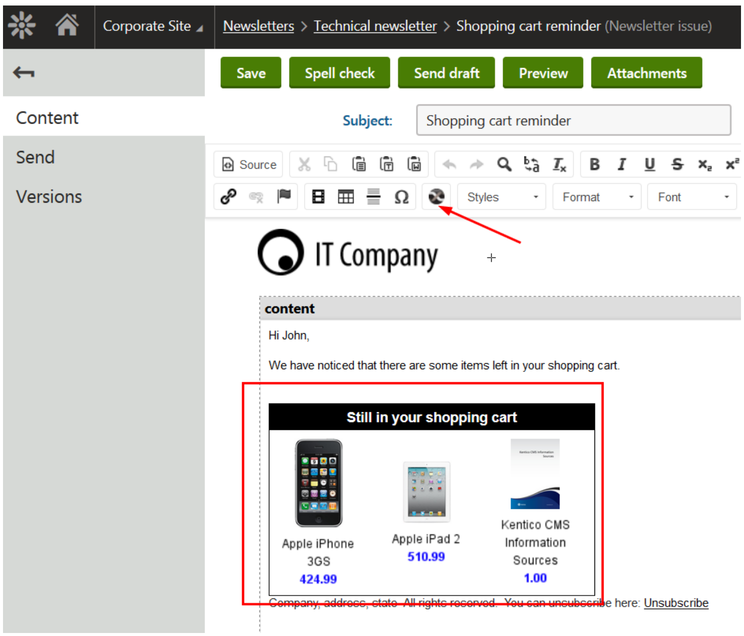


Then, you can simply use the Strands recommender web part to display the recommendations on the page:



These recommendations are not based on individual data and behavior, but instead, on the similarities in behavior and interests of particular users when compared across larger sets of users.

You can also use use Strands recommendations as a part of your Newsletter to provide your subscribers with personalized experience within your campaigns:

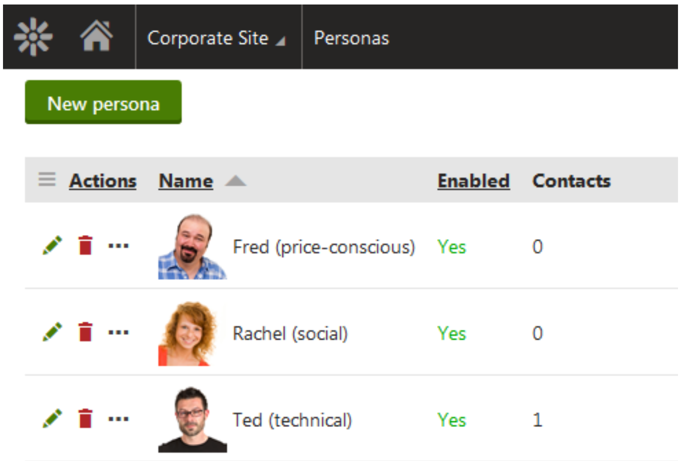


Online marketing

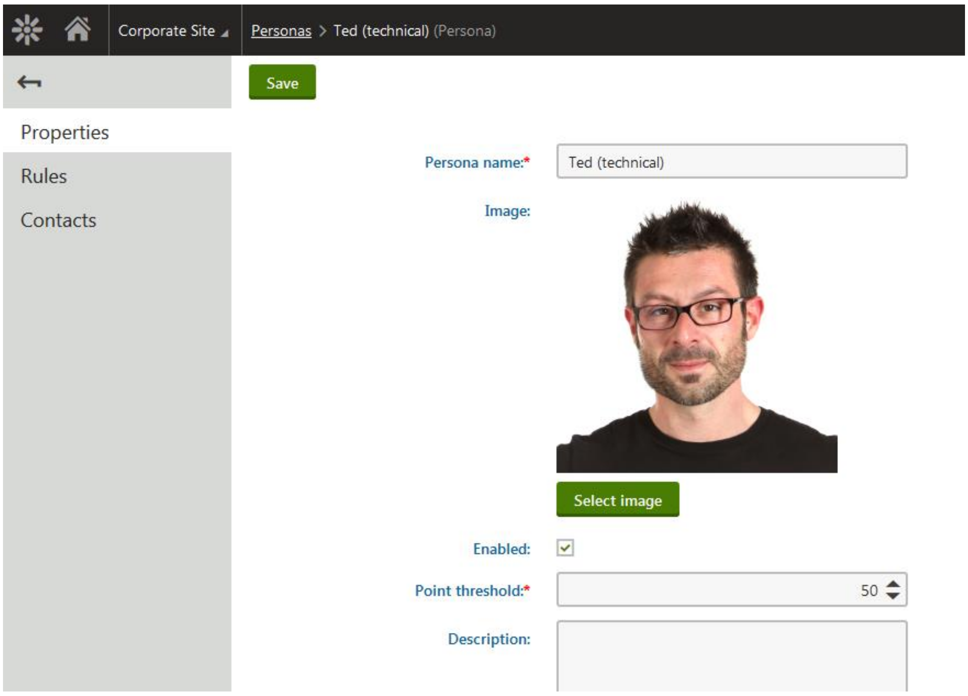
Personas

While the Strands recommendations are based on similarities between users, Persona-based recommendations are based on the evaluation of particular user data, without comparison to other users.

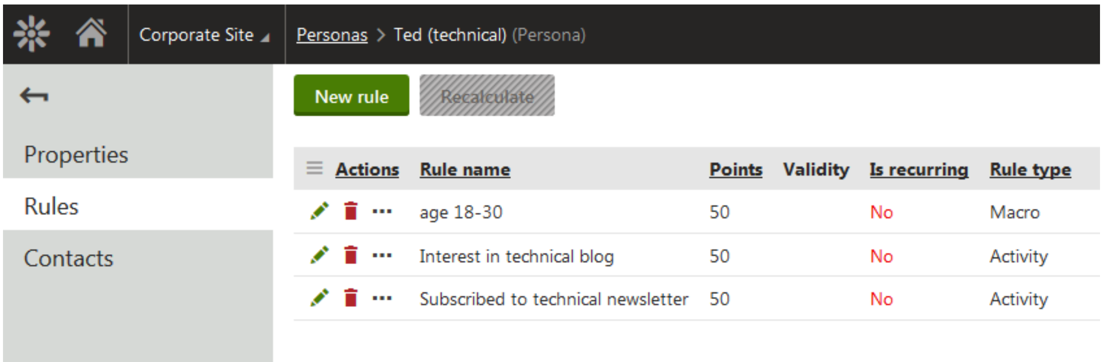
You can simply define the list of personas:



Each persona is defined by a threshold of points they need to reach before they are automatically assigned that particular persona:

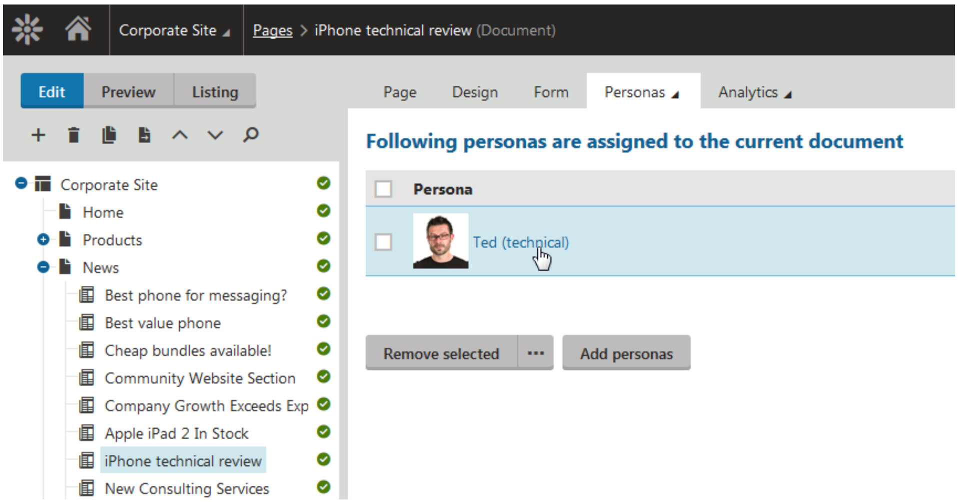


Similar to scoring, you define a set of rules for which the user gains these points. This is typically defined by a marketer:

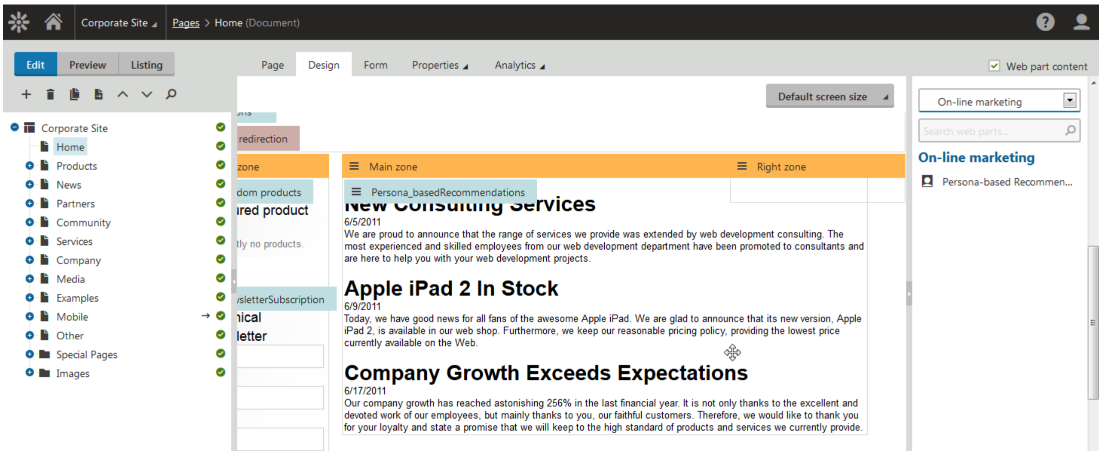


Note, that each contact falls only under one persona. This makes a clear distinction from Contact groups.

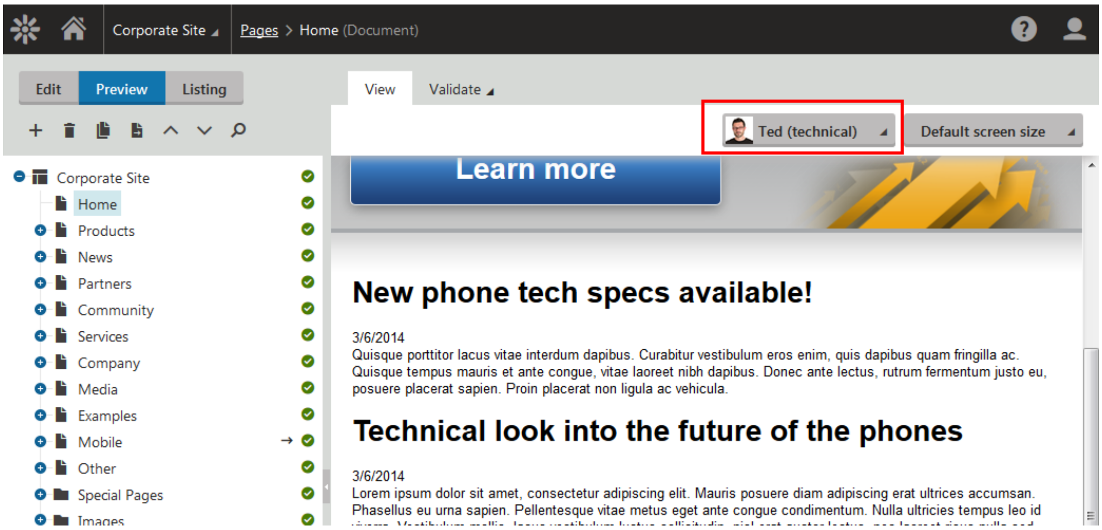
The content author can then assign personas to individual documents to mark them as “suitable” for that individual persona:



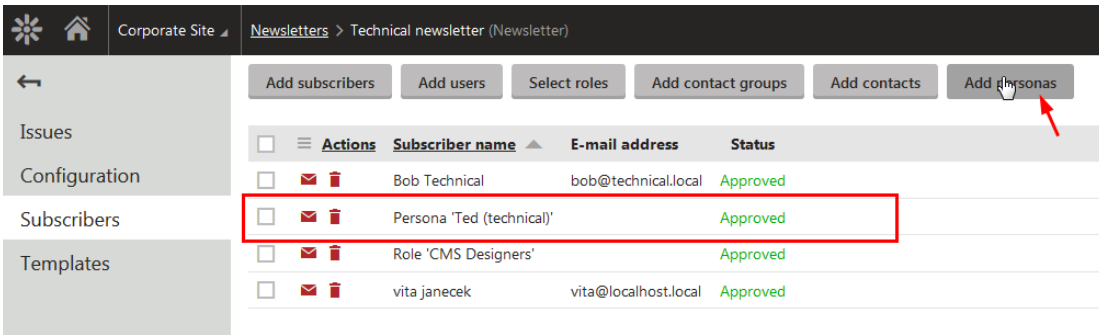
To display recommendations on the site, use the Persona-based recommendations web part:



You can simply preview what individual personas will see:

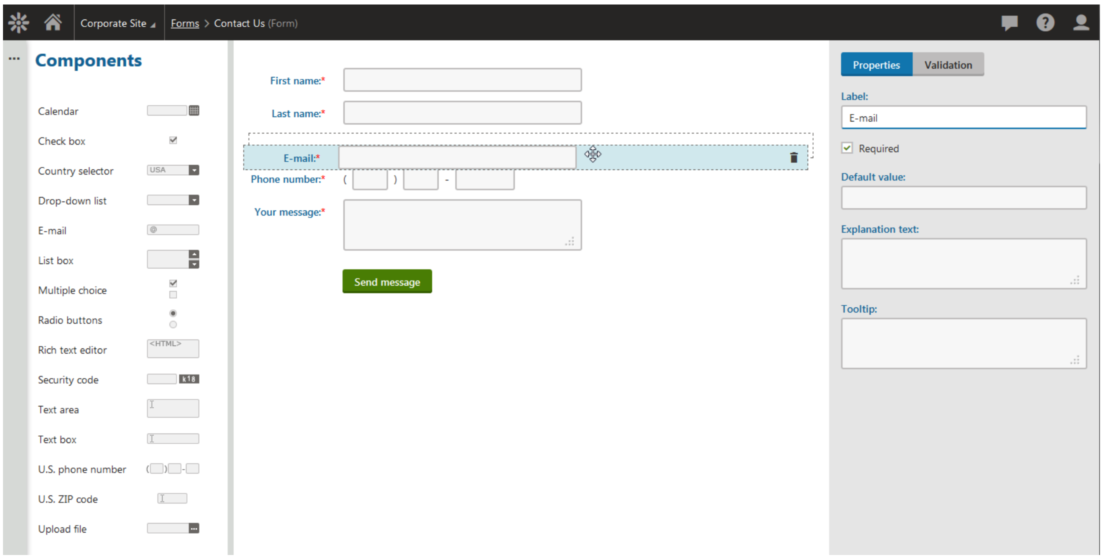


And also subscribe the whole group of persona based users into a newsletter:

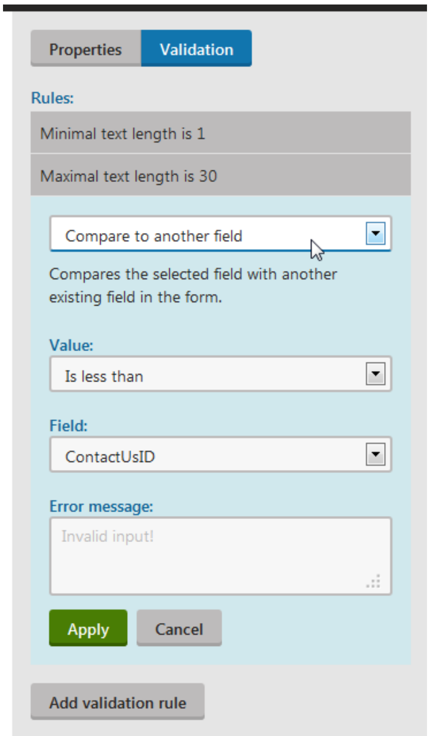


Form builder for Online forms

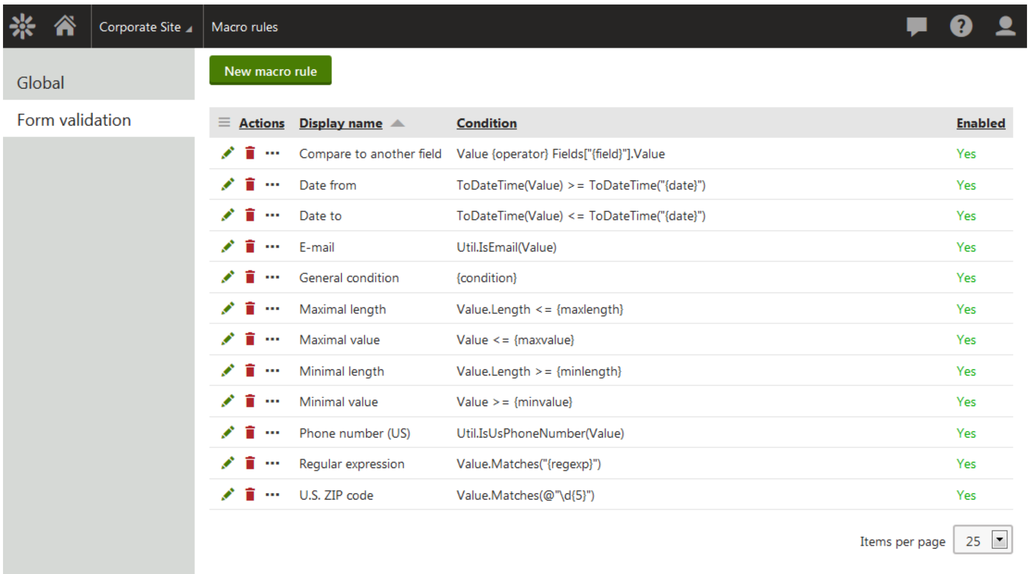
We have introduced a whole new way of building forms: The form builder simplifies this process and also enables non-technical users to do it themselves. You can easily arrange the form using drag & drop, and edit the basic properties of the fields.



It also provides the user with the ability to use both predefined validation rules (more than one if you wish).



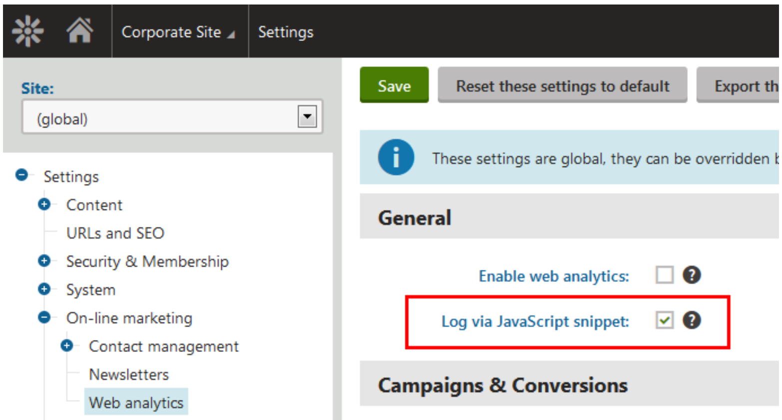
You can even define custom validation rules offered in forms within the management of the Macro rules:



The original field editor is still available, of course, to set up more advanced scenarios. I will describe it later in this document.

Logging of web analytics and contact activities with JS

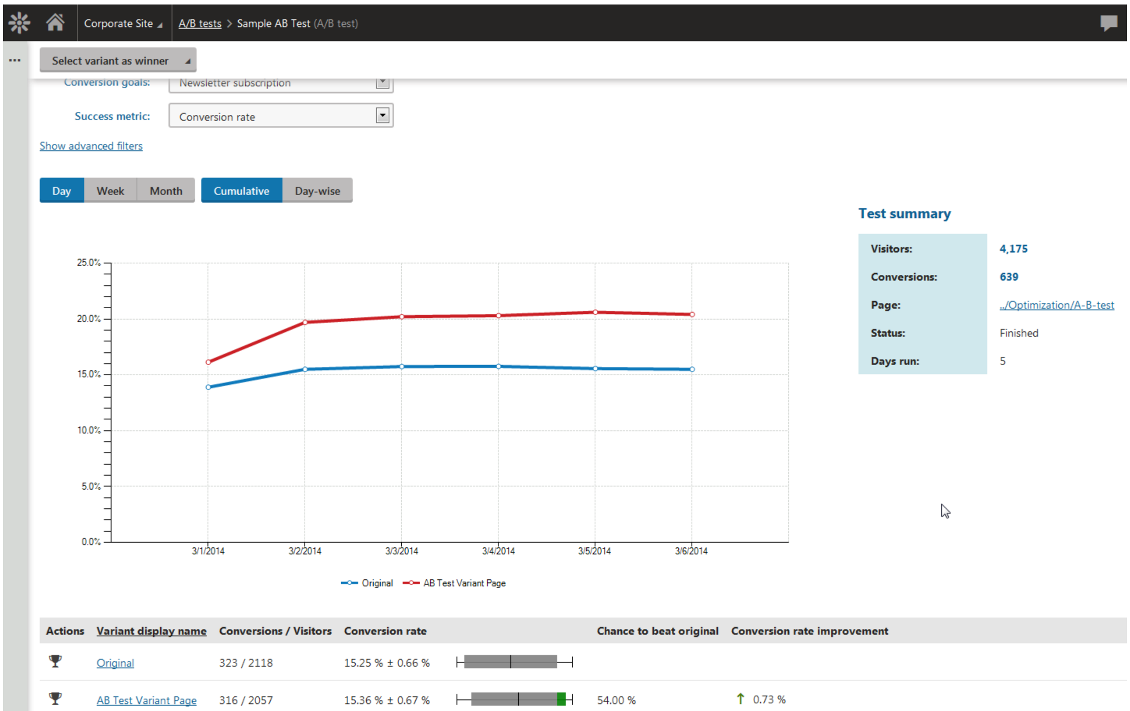
To improve accuracy of statistics, we have provided the default option of logging web analytics data and contact activities through asynchronous javascript similar to what Google analytics does. Should you need to revert back to direct logging on the server, you can do so in settings:



Needless to say, this helps avoid inclusion of robots in your statistics, but requires your site visitors to have javascript enabled. The choice is yours...

Content A/B Testing improvements

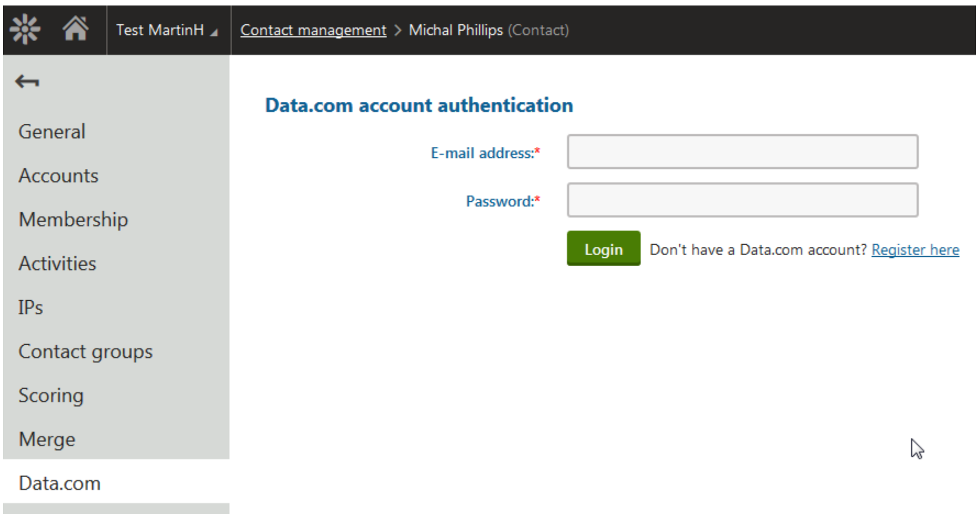
We have also included a couple of important improvements to A/B testing, so that marketers can easily interpret the results. These now include an Overall test summary and metrics that help the marketer evaluate the confidence of the given results:



Updated Data.com connector

Just a quick note: We have updated the Data.com integration to better match the licensing options available for Data.com development models. It was already included in the version 7 hotfix, but we included this in the new version as well.

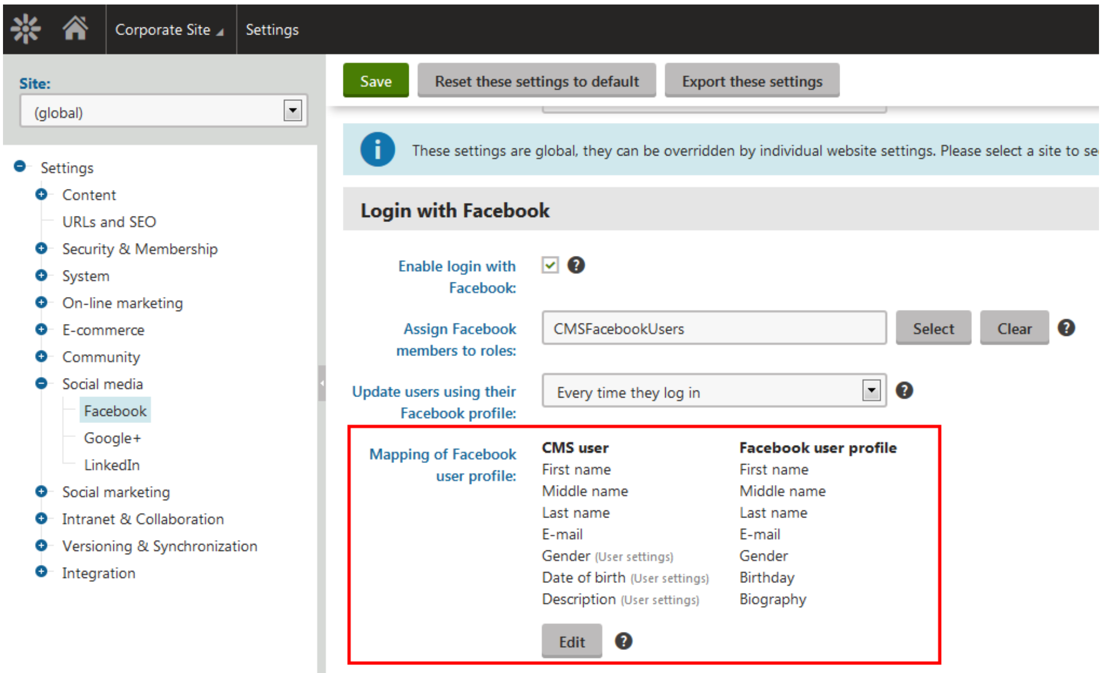
The Data.com registration is now user-based:



Social & Community

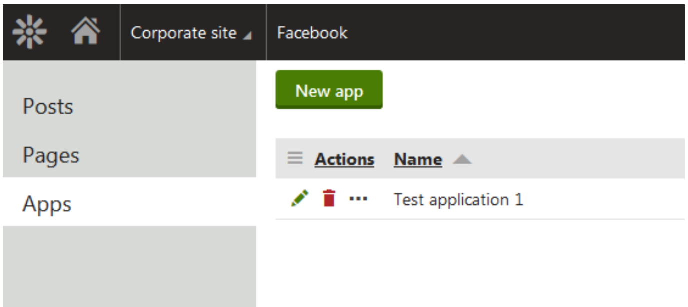
Mapping of user fields from Facebook on login

We have extended the Facebook login capabilities to map the user fields from Facebook to the user fields in Kentico. This helps you get more data about your users so that you can leverage online marketing features and their profiles.

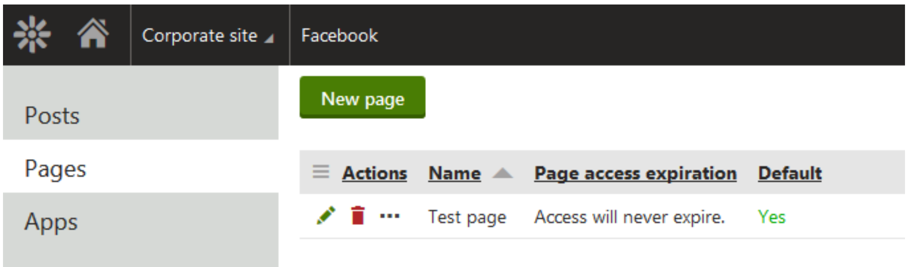


Posting to social networks (Facebook, Twitter)

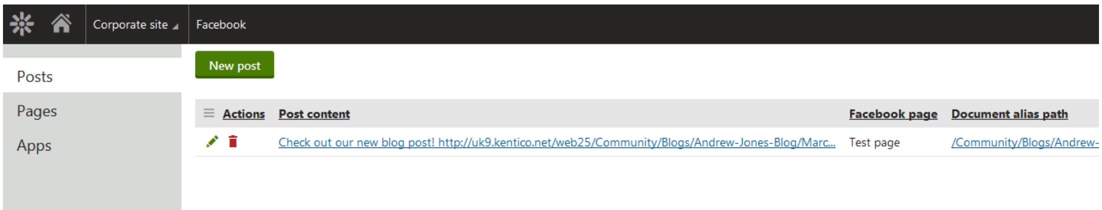
You can now easily post content to Facebook or Twitter from the Kentico UI. The concept is the same for both social networks, so I will describe only one of them: First you register the applications:



Then you register the accounts (Pages for Facebook or Channels for Twitter):

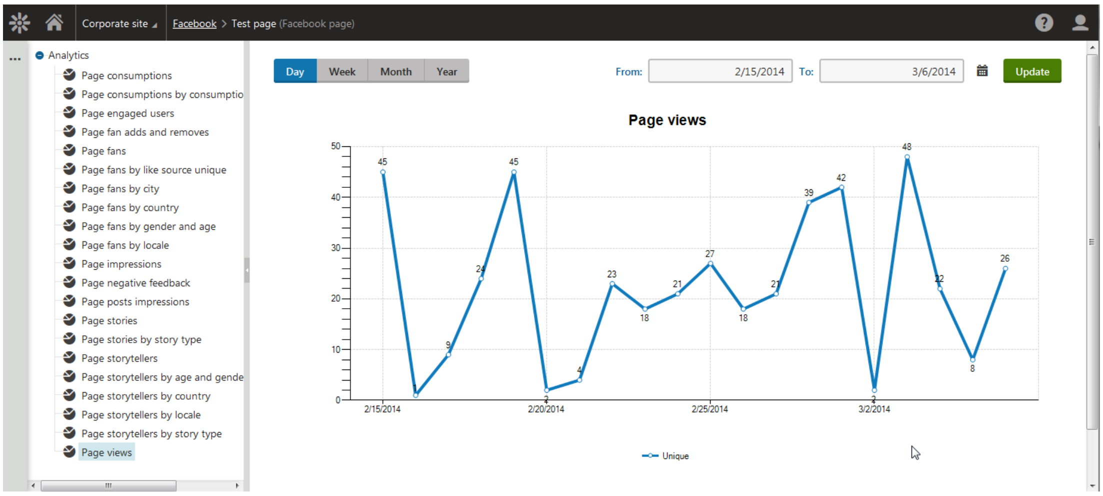


And once you do that, you can start posting:

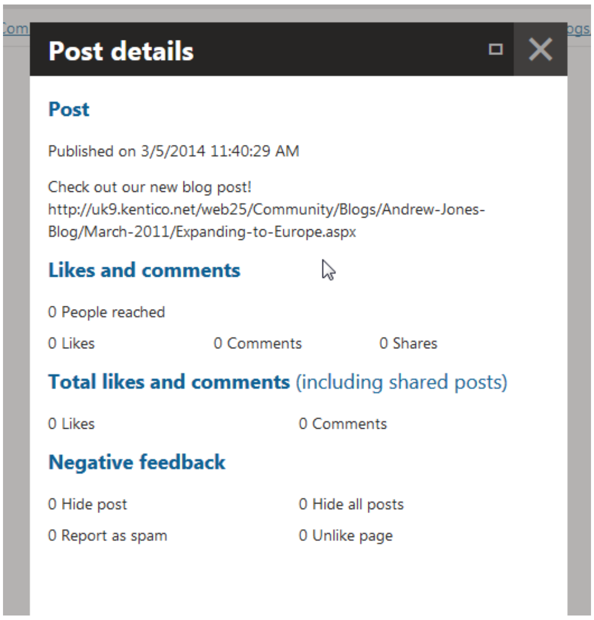


Analytics of social network posts (Facebook, Twitter)

The previous feature comes with analytics of the channels that give you information regarding how successful or unsuccessful these posts are.



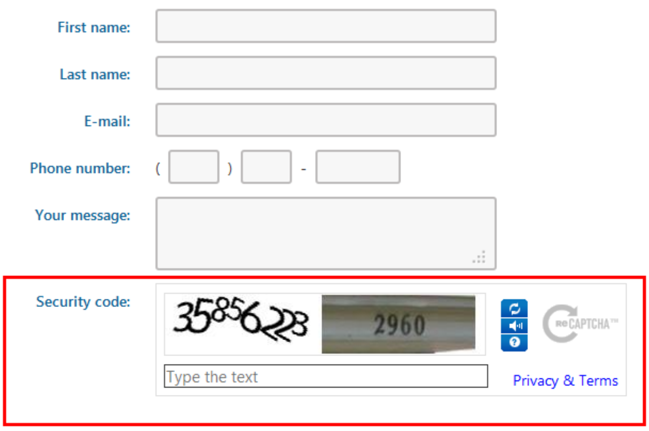
And even for individual posts, you can see their impressions:



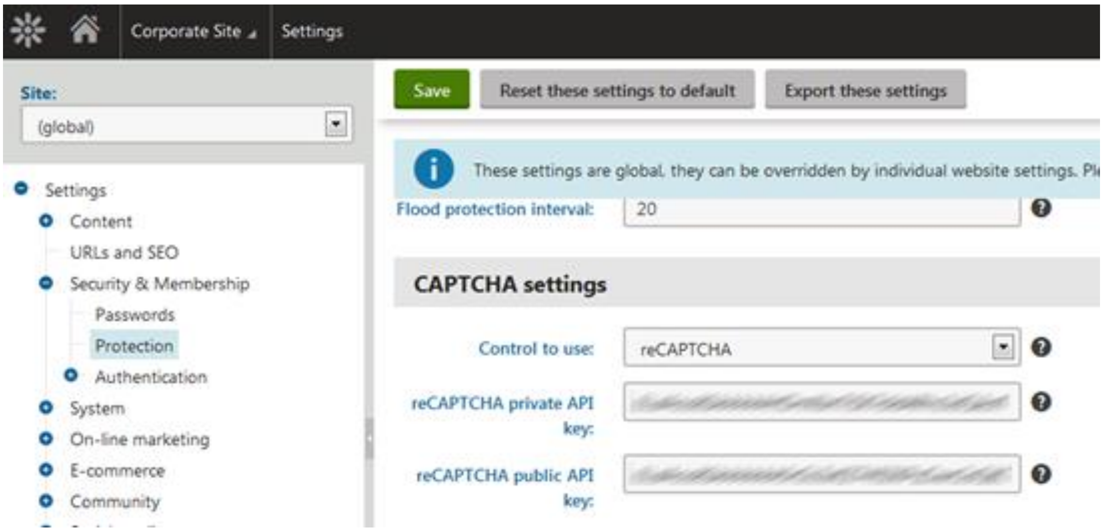
Membership & Security

ReCaptcha integration

You can now easily use reCAPTCHA as the preffered choice of security code to prevent malicious data in your forms:



You can easily set it up in settings:



Ability to change administration interface URL

A small feature, but one that is often requested from our clients is the ability to change the actual administration interface URL. While security by obscurity is not a best practice, it may at least make things harder for script kiddies.

You can configure this in your web.config:

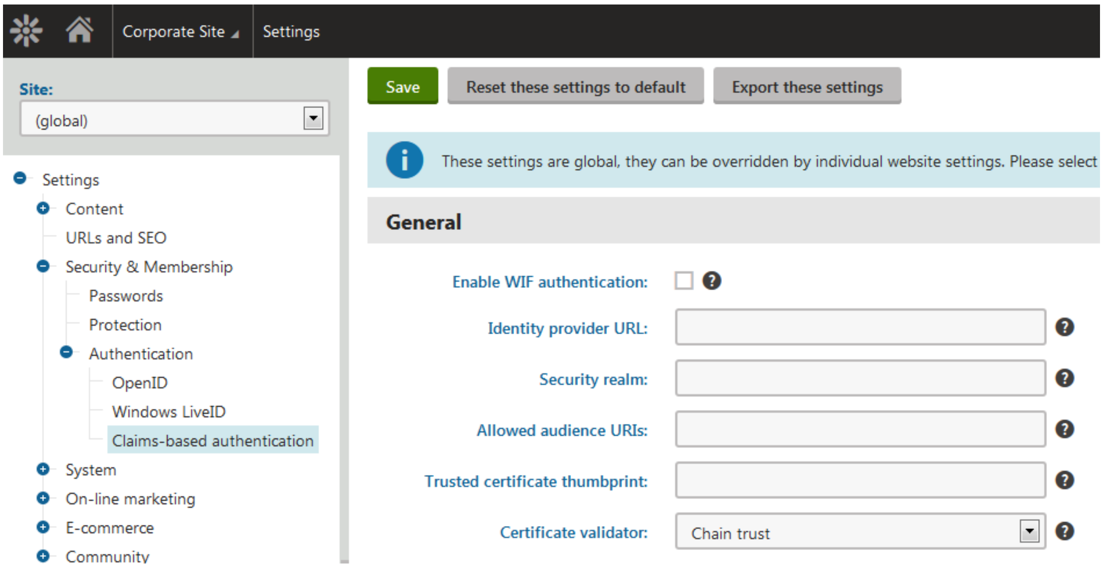
```
<add key="CMSAdministrationPath" value="NewAdministrationPath"/>
```

Claim-based authentication support

There are several improvements in authentication mechanisms that allow you to leverage external authentication services. We have leveraged the power of Windows Identity Foundation (WIF) to provide support for:

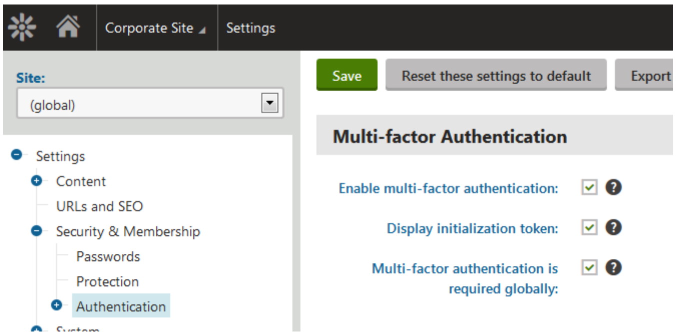
- SAML tokens
- Active Directory Federation Services (ADFS) and Access control service
- True single sign on (SSO)

To use these features, you simply need to configure the identity provider and related items in Settings:

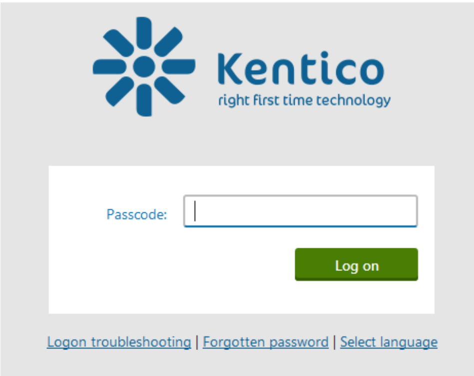


Multi-factor authentication

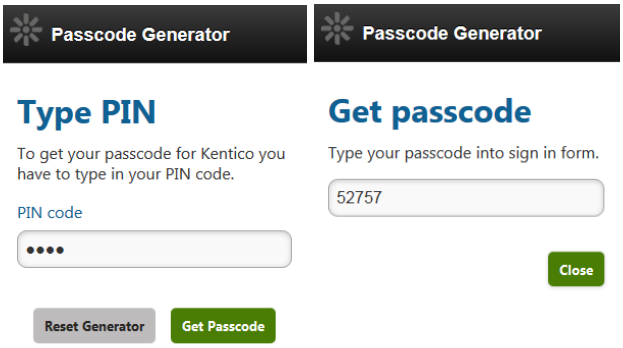
To improve the security of your application even more, you can leverage our new support for multi-factor authentication. If you set it up in settings, it should look as follows:



Besides your regular credentials, you will be asked about pass code, which you generate with a mobile application set up specifically for you:



Here is the mobile app that you use to get the pass code:



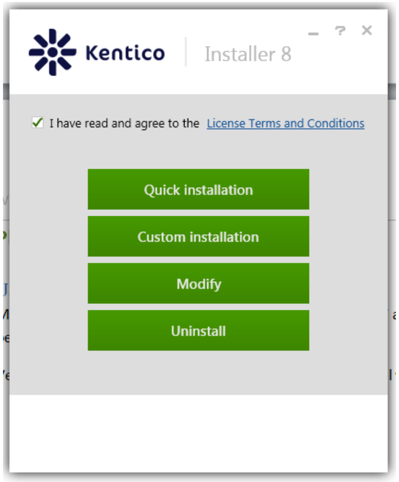
The uniqueness of your code is ensured by setting up the app with a unique token ID at the start.

Platform / Architecture

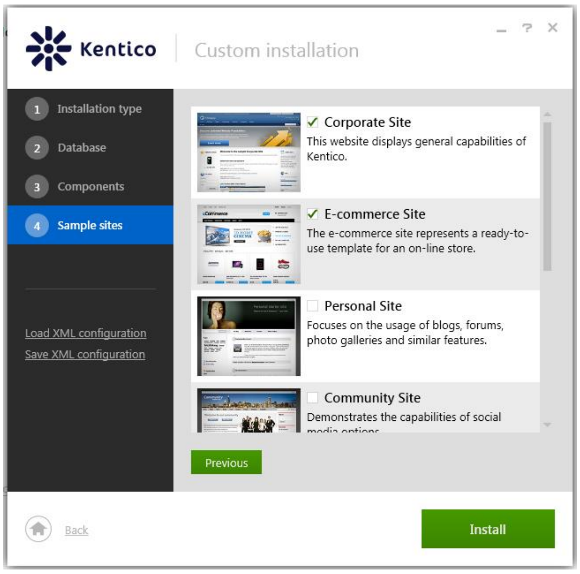
User-friendly installer

Most of you probably used it already with Kentico 7 as we released it between versions, but I will mention it anyway.

Version 8 provides a much better and much nicer installer than the previous version. You can even choose between the default Quick installation and the Custom installation that you were accustomed to.

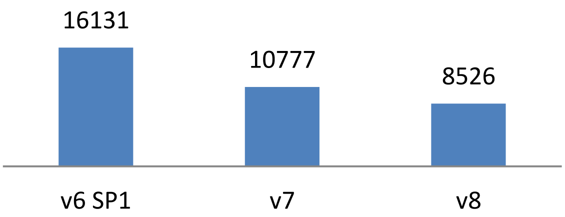


Besides automatic installation of pre-requisities, it also lets you install the database in one step, including sample sites. It also allows you to save and load installation profiles to make your typical installations as simple as possible.



Lowered number of project files

We are continuing the trend of lowering the application code base and we will keep on doing so in the next version. This simplifies deployments and other processes where a number of files influence performance and overhead of such a process.

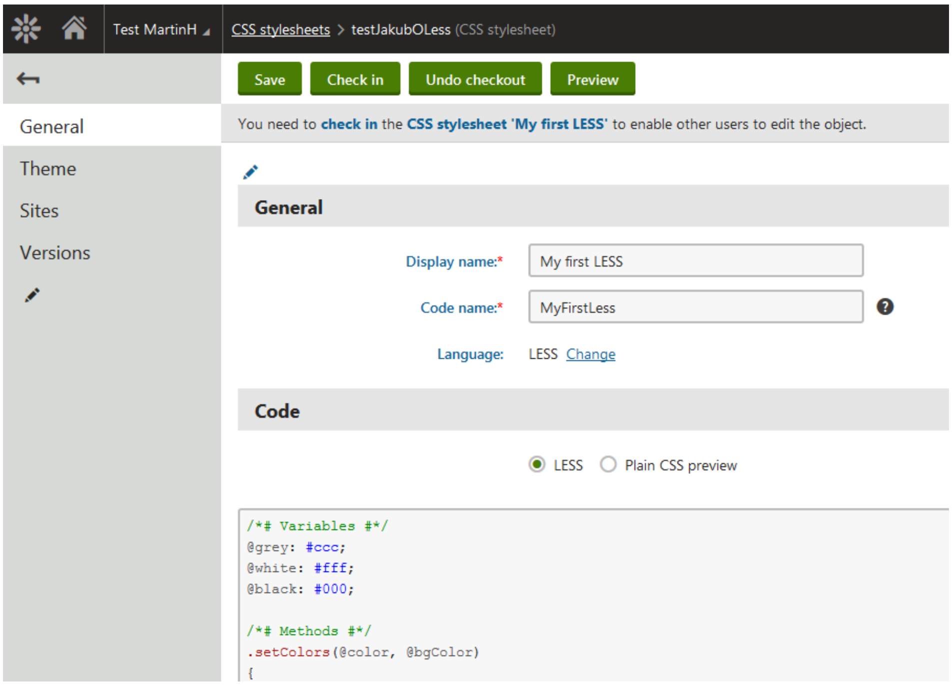


Improved life-cycle of Portal engine and Form engine

We have reviewed the life-cycle of Portal engine and Form engine processes, to stabilize and unify it for GET and POST requests to make sure both form controls and web parts act the same way in all possible scenarios.

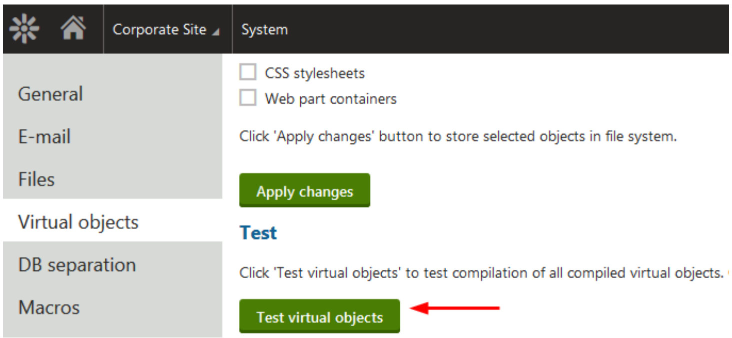
CSS Pre-processor support

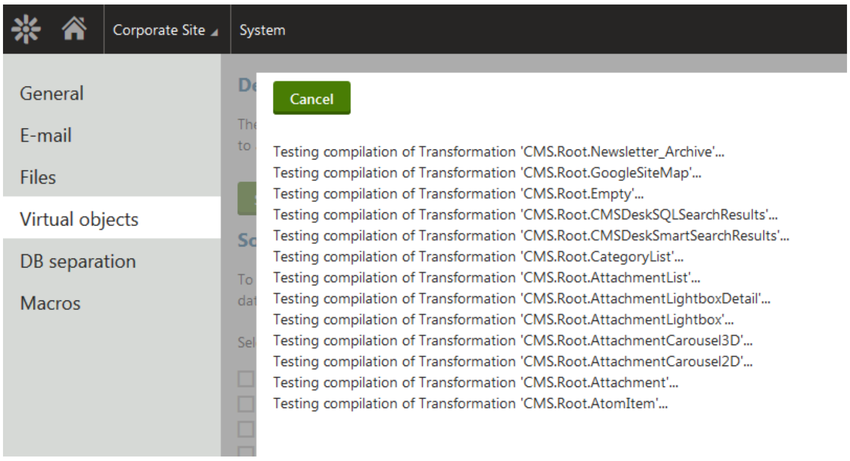
Kentico 8 now has bulit-in support CSS pre-processors. You can either implement your own pre-processor, or use the LESS module we provide for free on the [Kentico MarketPlace]() webpage.



Testing compilation of virtual objects

Sometimes (mainly after an upgrade or some heavy refactoring), it may happen to you that your transformations, layouts and other virtual ASCX object will stop working because some public API has changed. To easily verify the state and be able to identify potential problems, there now is an option to test all these virtual objects. The test attempts to compile them so you can easily detect any syntax errors, missing references, etc.:

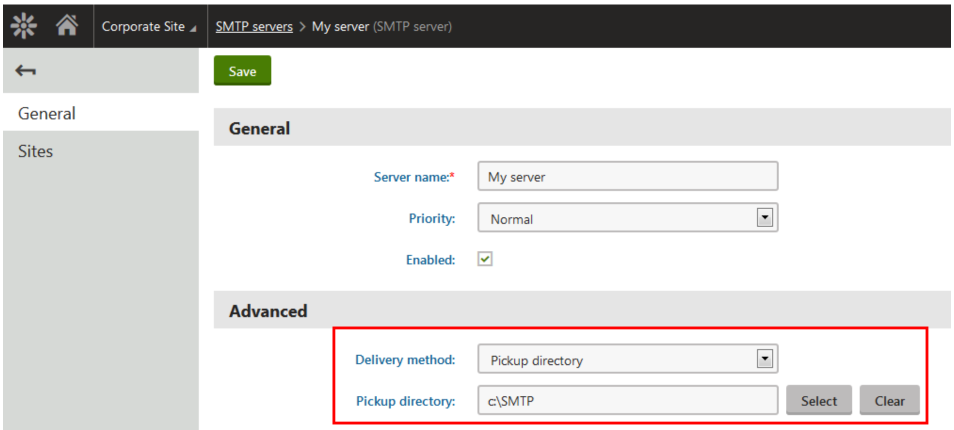




Anything that can't be compiled will be reported back to you.

Pickup directory for SMTP servers

If you have processes that generate a lot of emails (e.g. Newsletters with lots of suscribers), your preferred choice of SMTP delivery method in Kentico 8 may be a pickup directory. This not only significantly releases a load from the web application, but also provides better overall performance for sending emails.

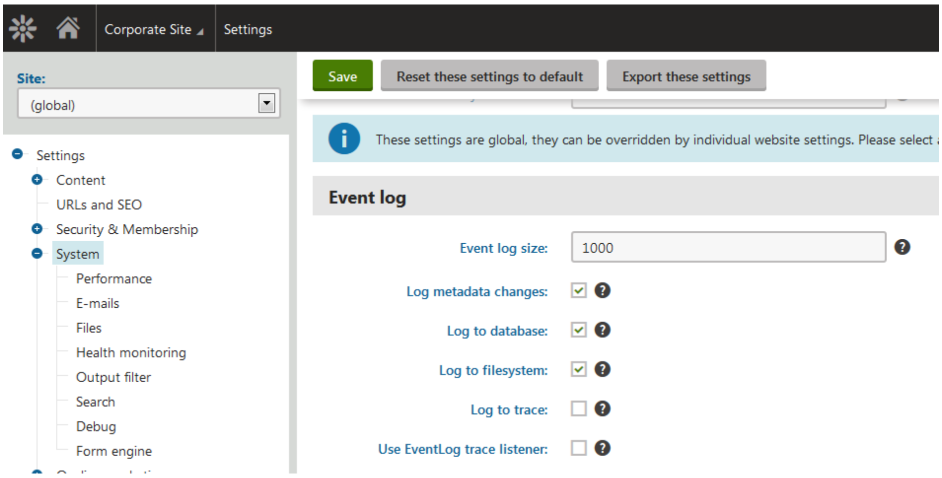


Event log improvements

With Kentico 8, you get much more control over your event log, especially with the following:

- Logging of events to file system so that you can keep much longer track of events
- Logging of events to Trace listeners
- Logging of events to Windows event log
- Ability to control to which particular locations Event log writes

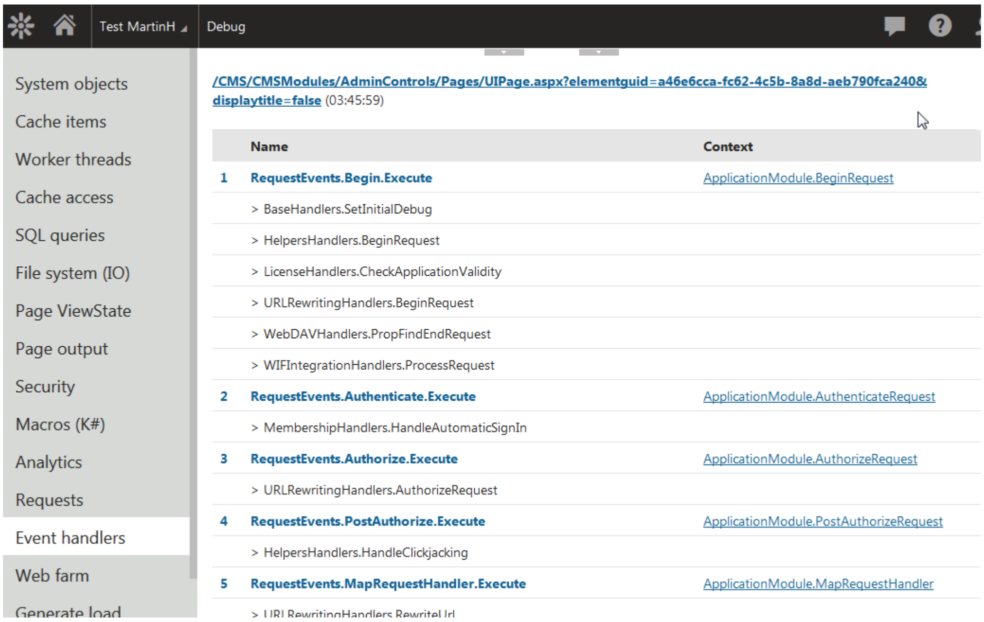
Specifically for the Trace listeners, you can either register your own through web.config, or leverage the built-in integration that logs events available through Windows Event Viewer.



This way, you can easily observe application behavior even in the most complex scenarios and under heavy load.

Improvements in Event handlers

Speaking about observing the behavior of the application, Kentico 8 comes with another debug in its already rich list of debugs. As we are providing more and more events within the application life-cycle, we thought it would be useful to give you some insights into it. For this reason we now provide the debug for Event handlers, which you can simply find among other debugs:



This way, you can easily see what the system did for particular requests, and also identify potential spots where you can easily attach your customizations. Similar to other debugs, the Event handlers debug has its own group of settings so you can control it individually.

I would like to also mention a couple of other improvements regarding handlers. I will cover them in more details later in the DevNet articles, but for now, just know that Kentico 8 event handlers are now capable of:

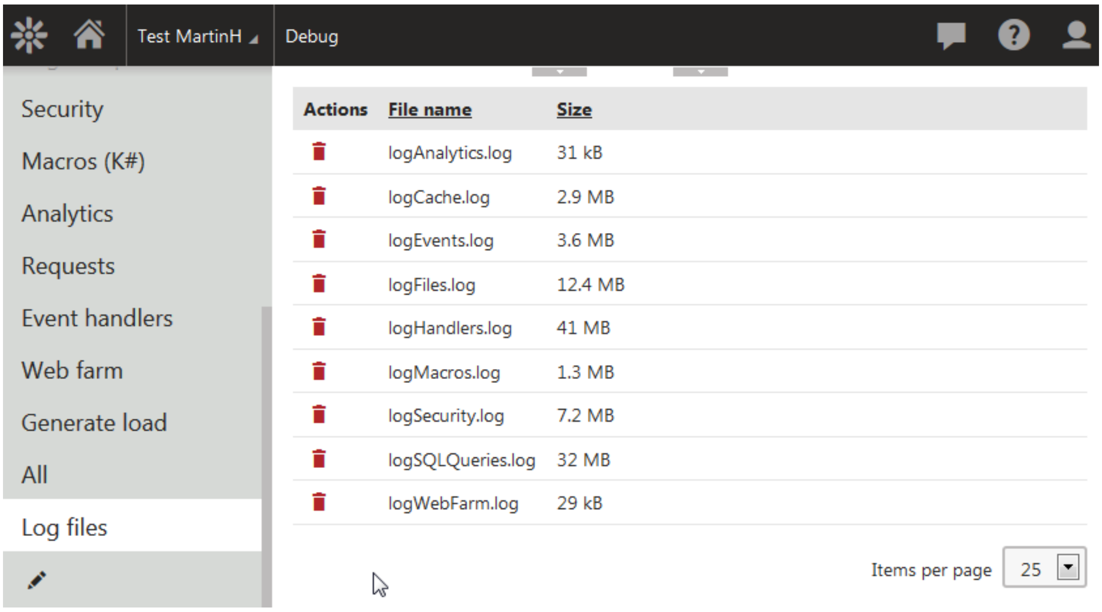
- Wrapping the whole handler execution in transaction (all the way from Before to After)
- Wrapping the whole handler execution in a lock (all the way from Before to After)
- Coupling actions done in the Before part of the handler with actions done in the After part of the handler, including passing parameters
- Automatic recursion control and prevention

Debug improvements

I've mentioned the handler Debug, but that is not the only improvement in that area.

We have also simplified the process of developing debugs, so you will also be able to create your own way to track your custom code with ease if you want to.

Last but not least, you can now easily manage the debug files logged in the file system from the admin UI:



By the way, these files moved to a more appropriate location, which is:

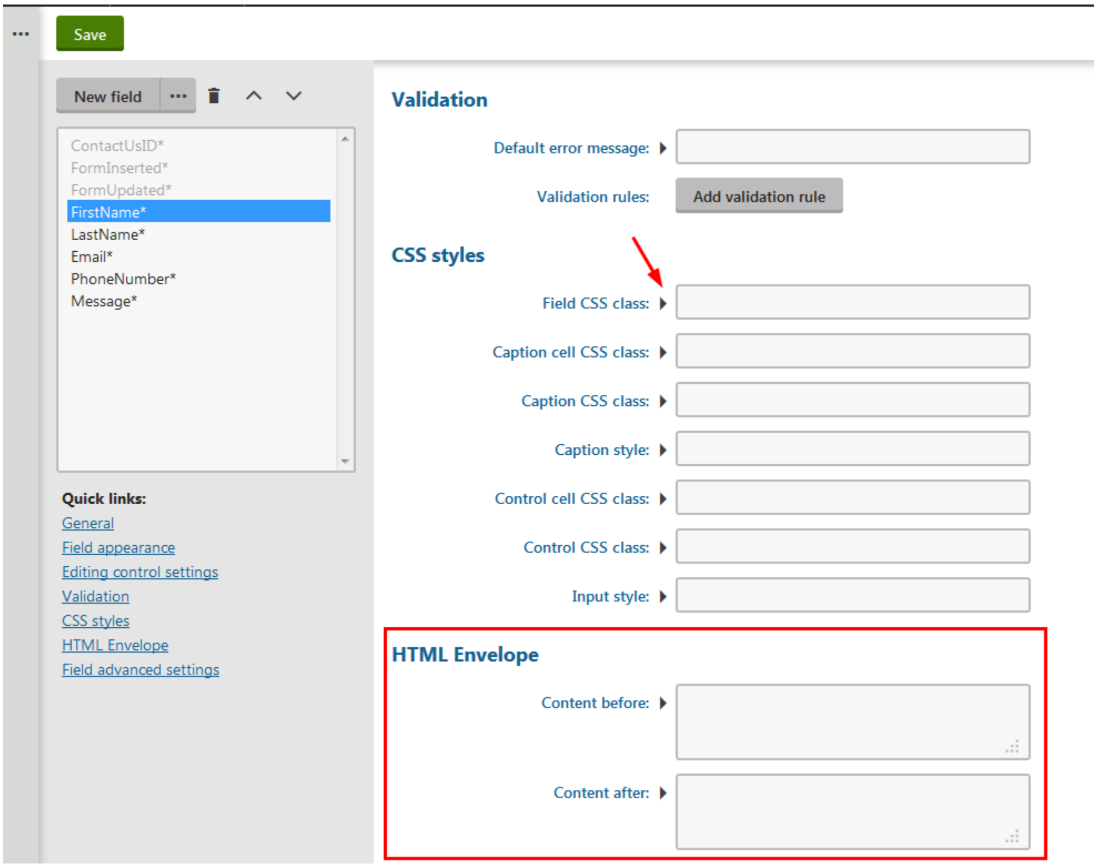
~/App_Data/CMSTemp/Debug

Form engine improvements

I mentioned the form builder earlier, but the whole form engine was improved a lot as well. Let me show you what has changed.

Field editor improvements

The field editor, as you already know, also includes the new validation rules, which gives it the ability to define almost every single setting with a macro, and content before/after the field control:

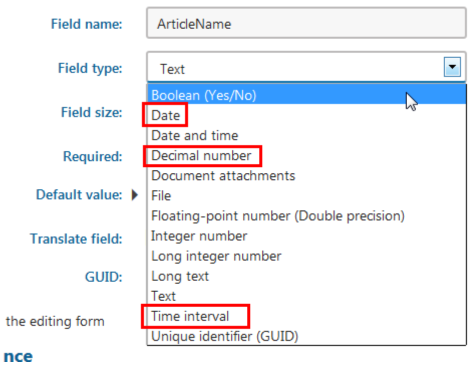


New field types

As requested by some of our clients, we have added the support for new field types:

- **Date**
- **Decimal number** – True decimal, we have renamed the former to Floating-point number which is more appropriate
- **Time interval** – TimeSpan data type in .NET

You can just select these new types in the field type dropdown:

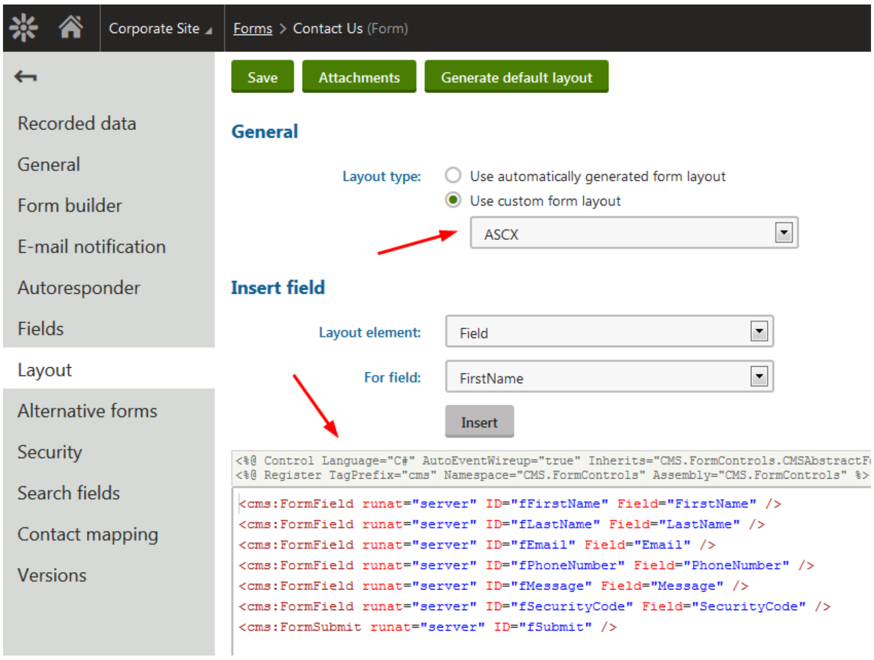


But not only that, we have changed all the datetime fields in the database to datetime2, so you can use extended range of values in these columns.

Just as a side note, we have improved a way to manage these types in the system, so it will be easier for us to support new types in the future, and let you define your custom ones as well if the default set would not be enough for specific projects.

ASCX Form layouts

Speaking about the Form engine, you can now also use ASCX for layouts of any form, so that you have full control over the form, include extra controls for it, etc. Simply get the form fully under your control. It works just like editing a transformation, just select layout type ASCX:



K# Improvements

We have revised our macro language (K#), and made some important improvements because macros are getting more and more traction with every version as well as making the whole system very flexible.

Improved performance of macro resolving

We have revised the existing engine, and improved its performance heavily. This will significantly help performance in case you use text transformations with macros in listing or other locations.

Easier customization of macros

In this section I finally get to actually post some code in this document. We have greatly simplified the way you can provide your custom methods (and even fields) in macros. Here is just a very brief example. We will provide more details in other sources of information:

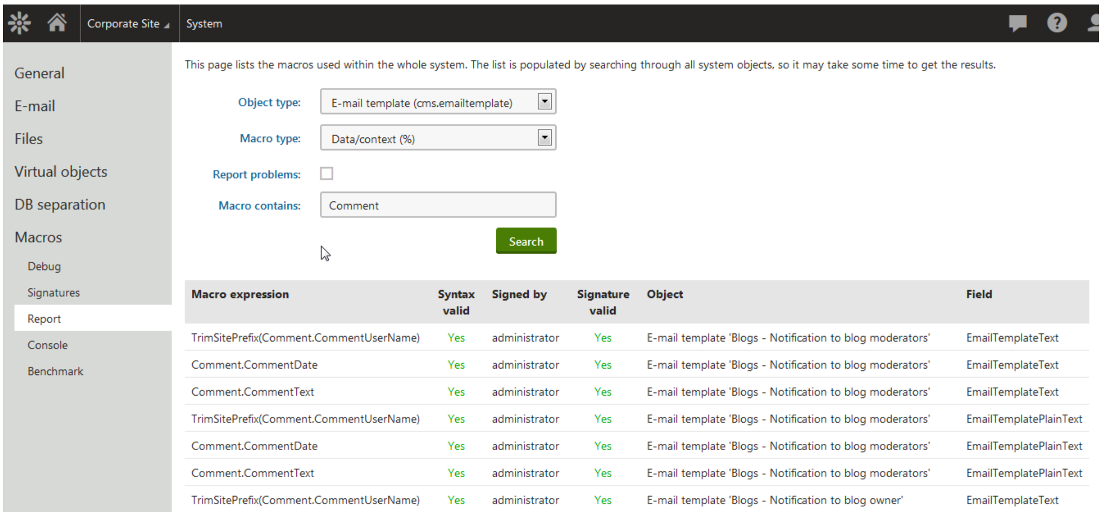
```
internal class StringStaticMethods : MacroMethodContainer
{
    [MacroMethod(typeof(bool), "Indicates whether the specified string is null, Empty or consists o
    [MacroMethodParam(0, "value", typeof(string), "The string to test.")]
    public static object IsNullOrWhiteSpace(EvaluationContext context, params object[] parameters)
    {
        if (parameters.Length > 0)
        {
            return string.IsNullOrWhiteSpace(GetStringParam(parameters[0], context.Culture));
        }

        throw new NotSupportedException();
    }
```

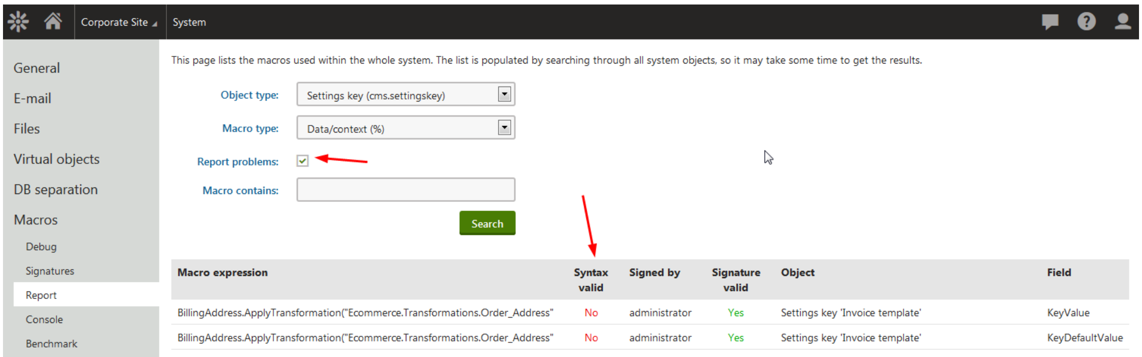
You can now also define your own namespaces for methods, to provide better Intelligence and separation of your custom functionality.

```
[Extension(typeof(StringStaticMethods))]
[Extension(typeof(StringStaticFields))]
public class StringNamespace : MacroNamespace<StringNamespace>
{
}
```

Macro report

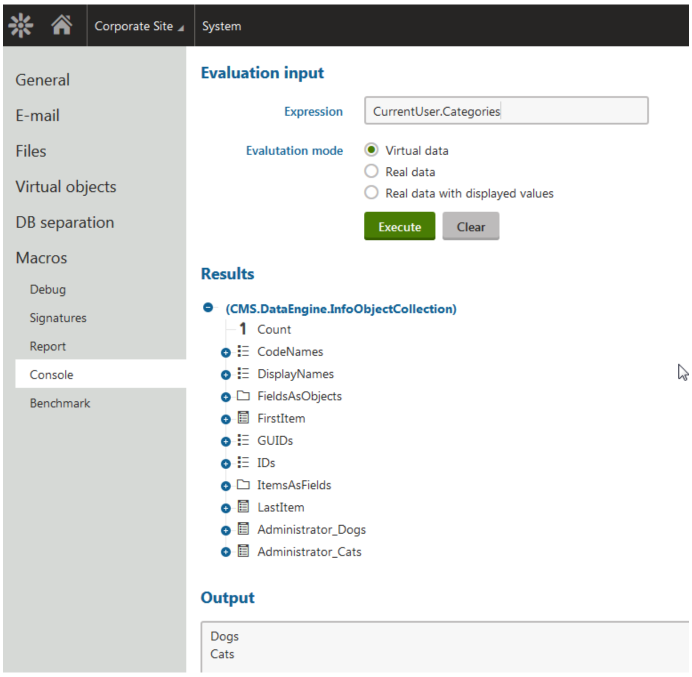
In Macro report, you can easily search and review all used macros, and even report for problematic ones (with errors either within syntax, or signature).





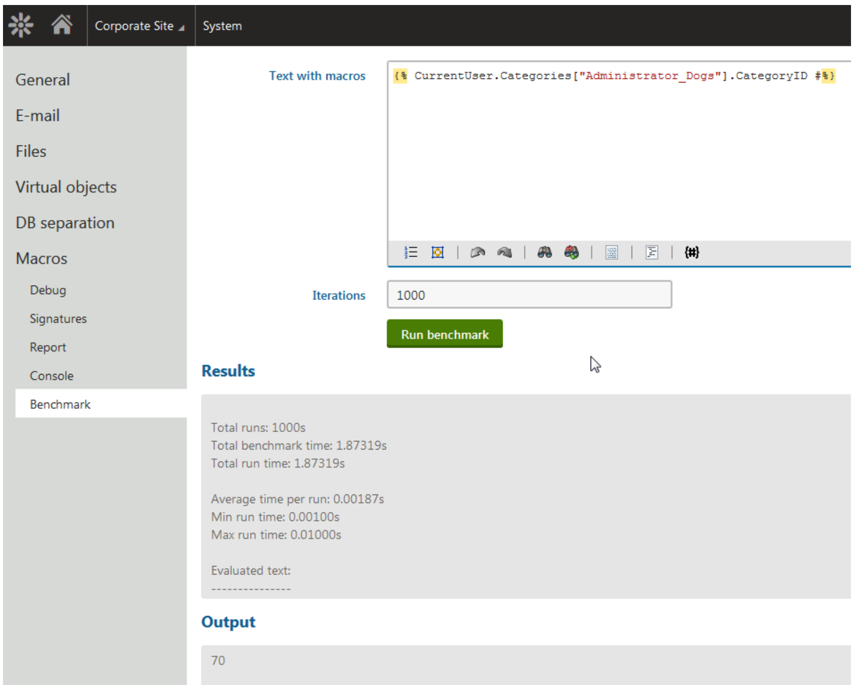
Macro console

Directly underneath it in the next tab, you can find the Console (former Object browser that was kind of hidden), which you can leverage to examine the content available through macros, or simply test your custom macro code:



Macro benchmark

Last but not least, you can also run benchmarks on macros to optimize your expressions. Needless to say, be careful with using complex expressions and think about using caching when needed if possible.

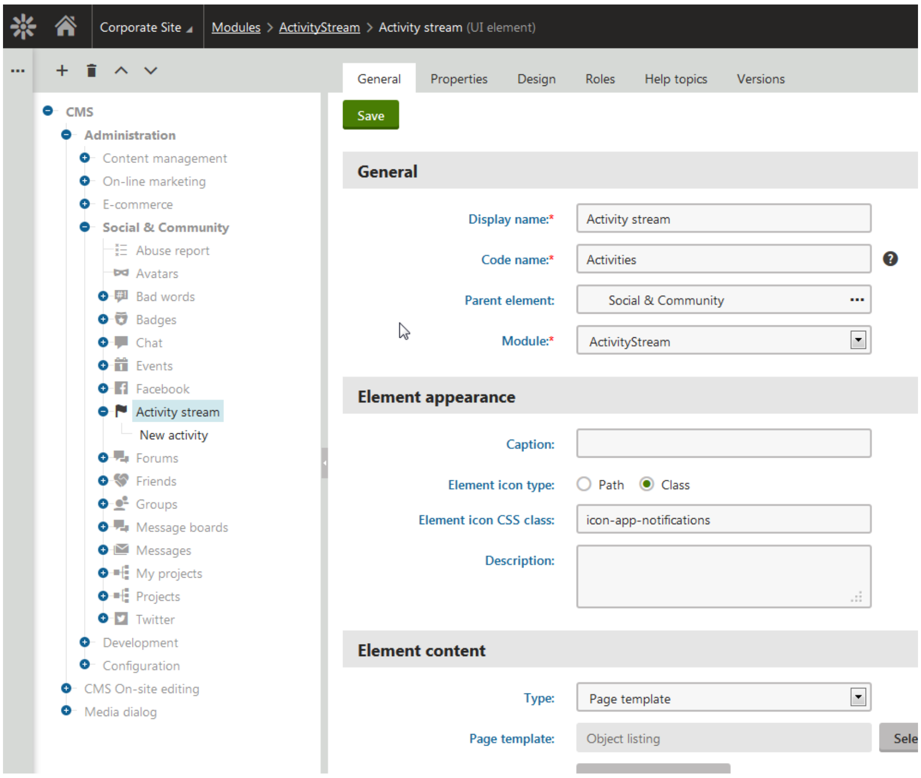


Module development

Implementing a custom module has never been easier. We have centralized everything related to modules to a single interface and improved the whole process. Let me just briefly show you what is most important.

Single tree of UI elements

To begin, we have merged all of the UI elements into a single tree to allow modules to put their interface anywhere, without the need to modify the target module. On the screenshot, you may notice that the black elements belong to the module, but the gray ones belong to other modules:

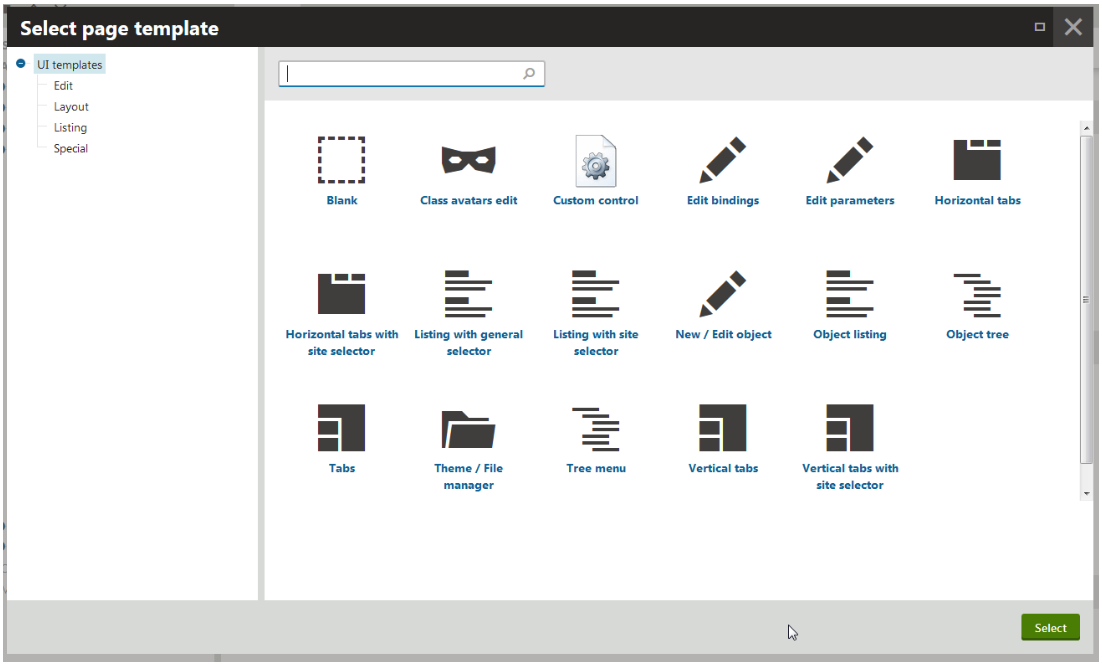


Notice that the element type at the bottom is set to "Page template Object listing". This is also a new option in Kentico 8 that will be covered in the next topic.

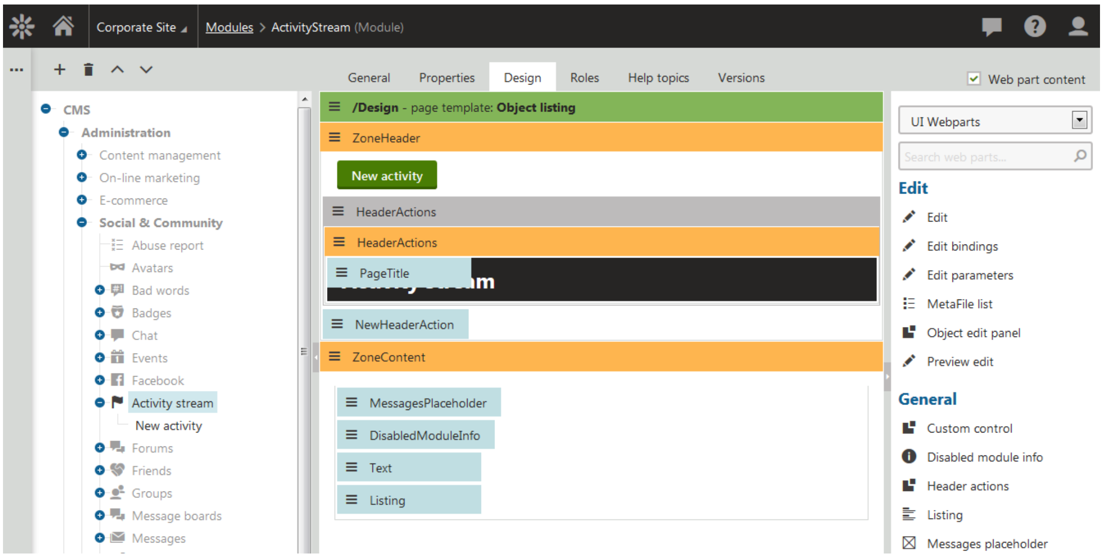
You probably guessed it already: The UI elements with the icons in the screenshot above represent applications available in the application list and on the dashboard. So yes, your module can very well bring new applications to the system.

Support for Portal engine driven UI

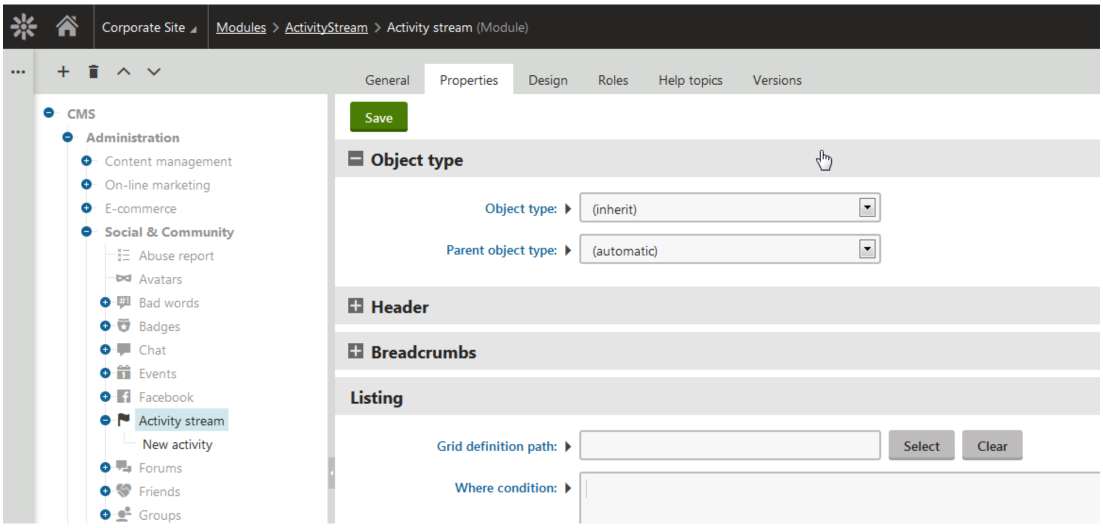
With Kentico 8 you can leverage predefined page templates for creating UI pages or build one based on your own settings. And yes, it runs on Portal engine just like your live site!



A UI element of this sort has similar characteristics as a document using Portal engine template in Design mode (be careful! The template may, and usually is shared among more UI elements):



The page template is then set up using properties defined in the UI element:

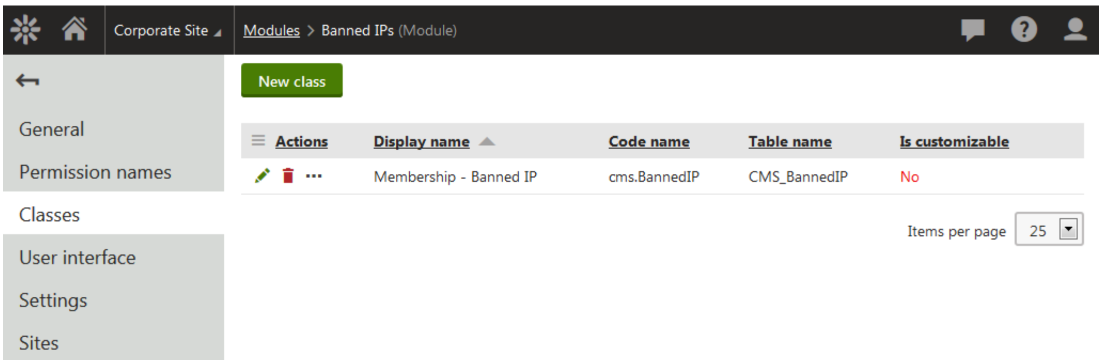


If the data-driven UI through the template is not enough, you can attach an extender with extra code behind the UI element to achieve the desired behavior.

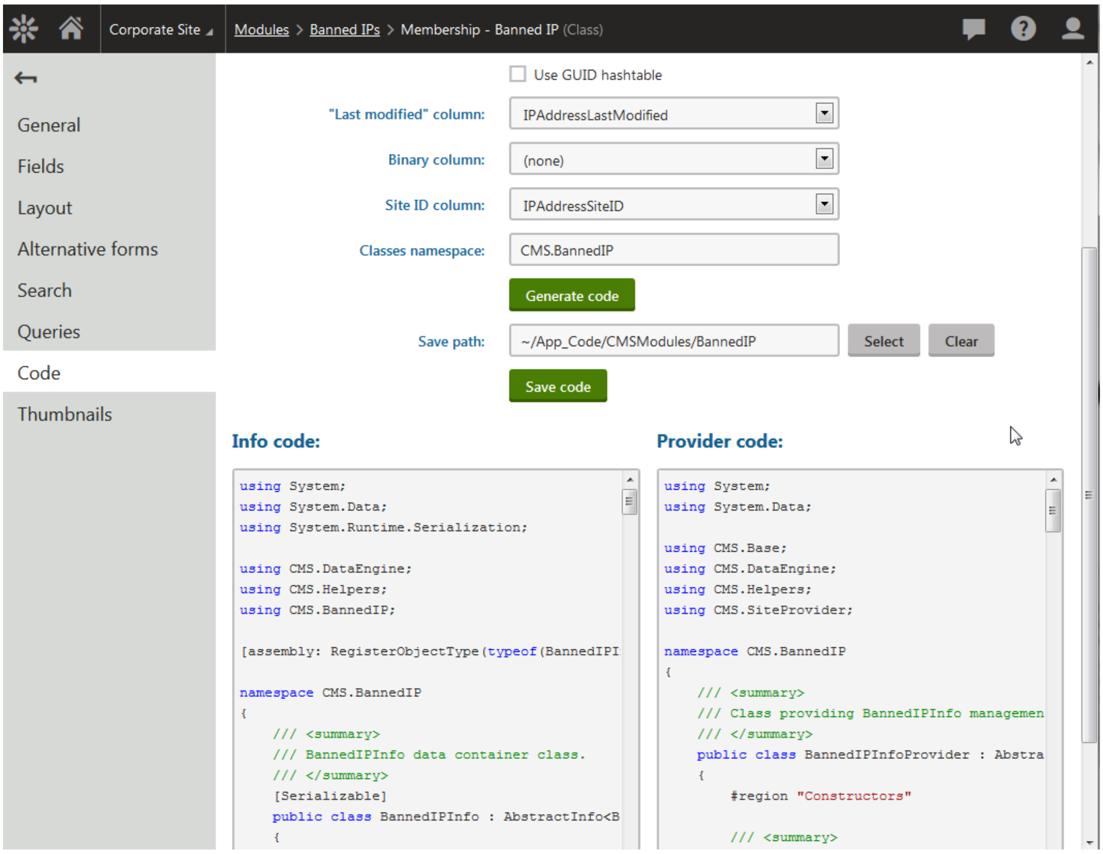
So that was just a brief bit about UI, there are many more aspects of this that must be covered separately. Now let's take a look at the data of the module.

Module classes

You previously had to leverage custom tables to build a module that manages some data. In Kentico 8, we are giving you the option to do it "the Kentico way", and define classes including the API that you are used to with the default modules. You can define classes the same way as custom tables:



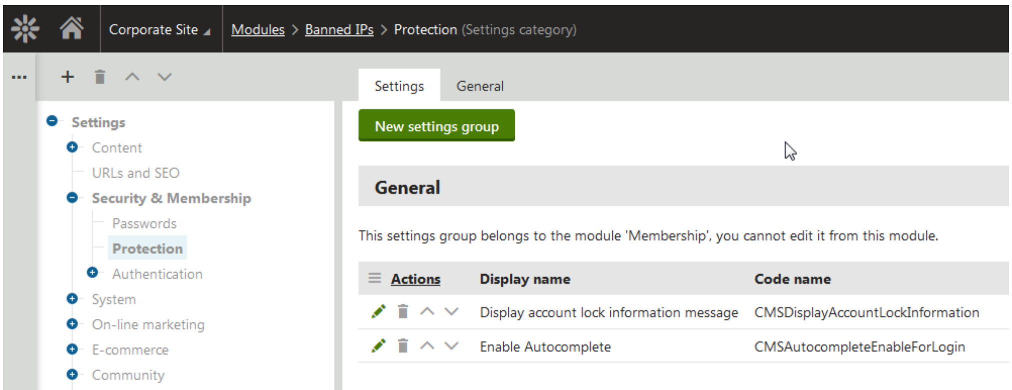
But for individual class, you can actually generate the API, which consists of the Info and InfoProvider.



I better stop here because I am again getting into too much detail. You will get the full lesson on module development later.

Module settings

Similar to the UI elements, you can define custom settings directly from modules. The UI is similar to what was previously in Custom settings, except, the whole tree of settings was merged in a similar manner to the UI elements, and the settings now belong to modules.



API improvements

DataQuery

This is a big one from an architectural point of view. You don't see any of this in the UI, but it greatly simplifies the work with the data.

DataQuery is an abstraction over the database data, which you can leverage to parametrize the query for the data, and pass it further without actually materializing it. Again, I don't want to go into too much detail as I will provide an [article on DevNet]() on this topic. Here are just two simple examples of how it works:

```
var accounts = AccountInfoProvider.GetAccounts()
                                .Where("AccountName", QueryOperator.Like, "%Kentico%")
                                .OrderBy("AccountName")
                                .TopN(1000)
                                .Columns("AccountID", "AccountName", "AccountSiteID");
```

Or with LINQ:

```
var accounts = AccountInfoProvider.GetAccounts();

var filteredAccounts = from a in accounts where a.AccountName.Contains("kentico")
                       orderby a.AccountName select a;
```

Take note of the following points:

- The public API of the provider is just a single parameterless method, which allows us to lock and stabilize the API for the future, but still provide you with new features available in the data engine.
- You don't need to use specific database syntax, therefore you don't have to worry about escaping values to prevent SQL injection, etc.
- You can use fluent syntax to easily define what you want, so the resulting code is very readable.
- It fully supports LINQ with fallback to LINQ to objects.
- The result is enumerable and strongly typed.

As I said, there are lot of features in this section (such as paging, grouping, distinct, nesting queries, etc.), so I better stop now and discuss it as its own topic later.

DocumentQuery

Similar to regular API, we have a specific DataQuery for documents. Again, I don't want to overwhelm you with details right now, so this is a seperate topic for discussion. But, just so that you have an idea, this is the query:

```
var query = new MultiDocumentQuery()
    .Type("CMS.Article", q =>
                     q.Columns("ArticleName")

    )
    .Type("CMS.News", q =>
                  q.Columns("NewsTitle")
    )
    .Path("/News", PathTypeEnum.Children)
    .Path("/Examples", PathTypeEnum.Children)
    .Columns("DocumentCulture, DocumentName")
    .OrderBy("DocumentName")
    .OnSite("CorporateSite")
    .Culture("cs-cz")
    .CombineWithDefaultCulture()
    .Page(2, 5);
```

Take note of the following new options:

- Paging is available and it is done in the database
- You can combine multiple document types into a single query and adjust the parameters of each of them individually
- You can easily combine results from more parts of the content tree

And this is what it executes at the database level:

```
WITH AllData AS
(
    SELECT *, ROW_NUMBER() OVER (ORDER BY CMS_O1, CMS_SRN, CMS_SN) AS CMS_RN FROM
    (
        SELECT NewsTitle, NULL AS ArticleName, DocumentCulture, DocumentName,
            DocumentName AS CMS_O1,
            ROW_NUMBER() OVER (ORDER BY DocumentName) AS CMS_SRN, 0 AS CMS_SN, 'cms.document.cms.news' AS CMS_T,
            ROW_NUMBER() OVER (PARTITION BY DocumentNodeID, NodeLinkedNodeID ORDER BY
                CASE WHEN DocumentCulture = @DocumentCulture THEN 1
                     WHEN DocumentCulture = @DefaultCulture THEN 2
                     ELSE 3 END
            ) AS CMS_C
            FROM View_CONTENT_News_Joined
                WHERE NodeSiteID = @NodeSiteID
                    AND (Published = @Published AND ((NodeAliasPath LIKE N'/News/%') OR (NodeAliasPath LIKE N'/Examples/%'))
                    AND (DocumentCulture = @DocumentCulture OR DocumentCulture = @DefaultCulture))

        UNION ALL

        SELECT NULL AS NewsTitle, ArticleName, DocumentCulture, DocumentName,
            DocumentName AS CMS_O1,
            ROW_NUMBER() OVER (ORDER BY DocumentName) AS CMS_SRN, 1 AS CMS_SN, 'cms.document.cms.article' AS CMS_T,
            ROW_NUMBER() OVER (PARTITION BY DocumentNodeID, NodeLinkedNodeID
                ORDER BY CASE WHEN DocumentCulture = @DocumentCulture THEN 1
                WHEN DocumentCulture = @DefaultCulture
                THEN 2 ELSE 3 END
            ) AS CMS_C
            FROM View_CONTENT_Article_Joined
                WHERE NodeSiteID = @NodeSiteID
                    AND (Published = @Published AND ((NodeAliasPath LIKE N'/News/%') OR (NodeAliasPath LIKE N'/Examples/%'))
                    AND (DocumentCulture = @DocumentCulture OR DocumentCulture = @DefaultCulture))
    )
    AS SubData WHERE CMS_C = 1
)
SELECT *, (SELECT COUNT(*) FROM AllData) AS CMS_TOT FROM AllData WHERE CMS_RN BETWEEN 11 AND 15 ORDER BY CMS_RN
```

This is just the first step--we will continue improving the document API in the upcoming versions, and unify the work with published/edited versions into a single smooth API.

Support for automated testing

Just to give you an idea, Kentico 8 provides support for automated testing, specifically for the following scenarios:

- **Unit tests** – Tests that don't use database, and only use faked data (which is also allowed by the DataQuery concept described above). Testing mostly logic, or read-only operations.

- **Integration tests** – Tests that use real (and shared) database for testing, to test more complex real-life scenarios.

- **Isolated integration tests** – Tests which are similar to integration tests, but every tests starts with a clean slate and an empty database that it can alter to it's needs and drop at the end of it.

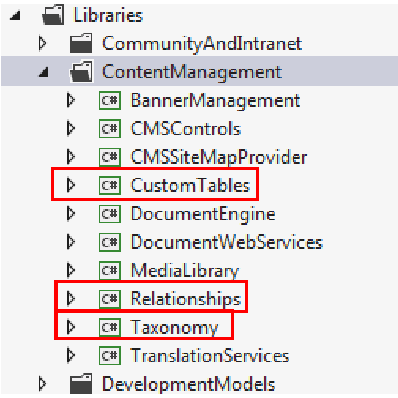
Once again, I don't want to get too technical here. I will include a brief example of some sample code to give you an idea of how simple it gets:

```
/// <summary>
/// Sample unit tests. This test is completely disconnected from the databas
/// </summary>
[TestClass]
public class SampleUnitTests : UnitTests
{
    [TestInitialize]
    public void Init()
    {
        // Fake the data of a particular provider
        Fake<DataClassInfo, DataClassInfoProvider>().WithData(
            DataClassInfo.New(dc =>
            {
                dc.ClassID = 1;
                dc.ClassName = "MyTest.MyClass";
            })
        );
    }


    [TestMethod]
    public void MyTest_Unit_ReturnsClass()
    {
        // Try to get the faked data
        var cls = DataClassInfoProvider.GetDataClassInfo("MyTest.MyClass");

        Assert.IsNotNull(cls);
        Assert.AreEqual(1, cls.ClassID);
    }
}
```

Note that only providers that are fully converted to DataQuery can support Unit tests, so you may still reach API where you will need to use integration tests, but it shouldn't be a problem with isolated ones. As there is a lot of code, we will need more time to convert everything.

Housekeeping in the API

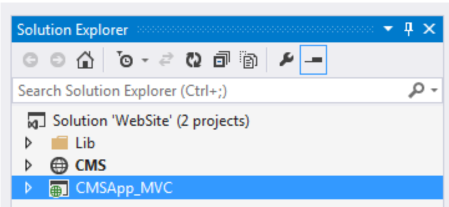
We have done some housekeeping in the API, introducing a couple of new namespaces and libraries to make sure we can be more effective in the future in developing those features more independently.



In the long-run, we want to get rid of cumbersome multi-purpose libraries (in general get rid of somewhat monolithic architecture of the whole solution) and have all parts of the API clearly divided into simpler parts with clear responsibilities. This will also help to step up with the whole automated testing, deployment and integration processes.

Better SLN structure and support for MVC projects

Kentico 8 comes with a redefined structure of the solution you install to improve support for custom libraries. We now provide the MVC project as a separate project in the solution, so that you can quickly compile it while you are developing an MVC project.



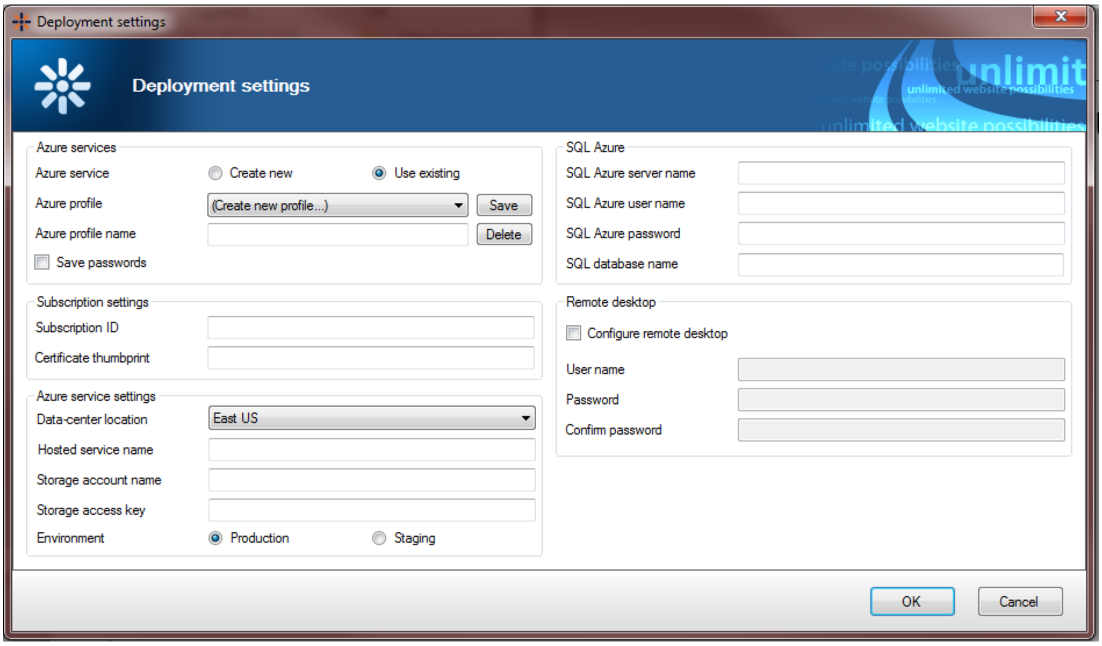
It also includes best practices for development of MVC projects, including samples of how to use strongly typed data in views.

Cloud support

There are a couple of things I would like to mention related to Windows Azure support:

Enhanced Azure deployment

In the Azure deployment tool, there are now more options for setup, namely, configuration for the Azure service. You can also save your configuration to a profile to simplify further deployments.



Support for Windows Azure SDK 2.2

As always, we have updated the new version to be compiled against the latest version of Windows Azure SDK (2.2), so that you can leverage the new support that mainly brings you faster development and debugging, while developing your projects.

Final words

First, I would like to thank to everyone here at Kentico who contributed with their hard work to create the new version. If you happen to get in touch with any one of our team members, go ahead and express literally any feelings you may have about this version. Your feedback is very valuable to us and helps us make the product better.

Please note that there are some other minor modifications not included here so as to keep this document "brief".

And that is it! Go ahead, download **Kentico 8**, and try it for yourselves.

As always, if you want to know more, contact us on sales@kentico.com or support@kentico.com.

If you feel that something you think is important didn't make it to this version, or that we are not giving it the priority it deserves, please support that idea by adding it or voting for it at ideas.kentico.com

A lot of Kentico 8 features made it there because they were supported by people votes.

Thanks!