You can apply transformations of the **Text/XML** and **HTML** type to pages and other objects retrieved via macro expressions. Transformations in macro expressions allow you to display dynamically loaded data inside text and HTML content, where you cannot add listing web parts or controls. Typical examples include:

- Email templates that define the content of system emails
- Marketing email templates

You can also use transformations in all locations where macro resolving is supported.

To apply transformations to data inside macros, call the following macro method:

```
ApplyTransformation(String transformationName)
```

The parameter must match the full name of the transformation that you wish to use. An overload with three parameters is also possible, which allows you to place additional transformations before and after the displayed data:

```
ApplyTransformation(String transformationName, String contentBeforeTransformationName,
String contentAfterTransformationName)
```

You can call the method for collections of objects that implement the *IEnumerable* interface, or for single instances of an object. When the system resolves such macro expressions, they return the objects of the given collection, formatted into the output code defined by the transformation.

Security considerations

When you save a macro expression, the system automatically adds a security signature. The signature is used to check access permissions for the data collections loaded by the expression. Macro security depends on the user who entered and saved the macro expression, not on the user viewing the resolved result.

As a result, the system does not resolve macro expressions if their author does not have permissions to access the requested data.

See also: Working with macro signatures

Examples - transformations in macro expressions

- **Preparing the environment**
- Displaying the current user
- Displaying pages from the content tree
- Retrieving and displaying site objects

This scenario is intended primarily for demonstration purposes. The recommended way to display data on standard website pages is using listing web parts or controls, which provide support for transformations.

Preparing the environment

1. Open the **Pages** application and select the root of the website.
2. Click **New** (+).
3. Select the **Page (menu item)** page type.
4. Type *Macros* as the **Page name** and select the **Create a blank page** template option.
5. Click **Save** to create the page.
6. Switch to the **Design** tab of the new page and add an **Editable text** web part.

You can now insert the macro expressions described below into the editable region on the page's **Page** tab. The system resolves the macros on the live versions of the page.

Displaying the current user

First you need to create the transformation:

1. Open the **Page types** application.
2. **Edit** (✎) the **Root** page type and open the **Transformations** tab.
3. Click **New transformation** and enter the following data:
   - **Transformation name**: *UsersInText*
   - **Transformation type**: *Text / XML*
   - **Code**:

```
<div class="member">
  <a href="{% GetMemberProfileUrl(UserName) %}">
    {% GetUserAvatarImage(UserAvatarID, UserID, FullName, 52, 0, 0) %}
  </a>
<div class="memberInfo">
<p>
  <h3>
    <a href="{% GetMemberProfileUrl(UserName) %}">
      {% FullName %}
    </a>
  </h3>
</p>
</div>
</div>
```

4. Click **Save**.

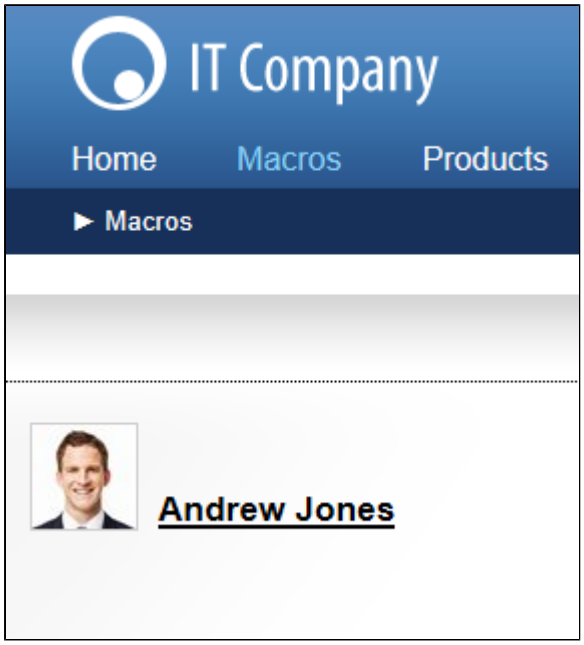
Your transformation is now registered in the system. You can apply the transformation to user objects inside macro expressions:

1. Open the **Pages** application.
2. Edit the previously created *Macros* page on the **Page** tab.
3. Enter the following expression into the editable region.

```
{% CurrentUser.ApplyTransformation("CMS.Root.UsersInText") %}
```

4. Click **Save**.

The macro expression above retrieves an object containing the data of the user currently viewing the page, which is then formatted according to the specified transformation. You can view the page on the live website to see how the macro is resolved.



Displaying pages from the content tree

First you need to create the transformation.

1. Open the **Page types** application.
2. **Edit** (✎) the **Root** page type and open the **Transformations** tab.
3. Click **New transformation** and enter the following data:
   - **Transformation name**: *NewsInText*
   - **Transformation type**: *Text / XML*
   - **Code**:

```
<div class="description">
  <a class="header bold" href="{% GetDocumentUrl() %}">
    {% NewsTitle %}
  </a>
  <p>
    {% NewsSummary %}
    <br />
  </p>
</div>
```

4. Click **Save**.

Your transformation is now registered in the system. You can apply the transformation to collections of news pages inside macro expressions:

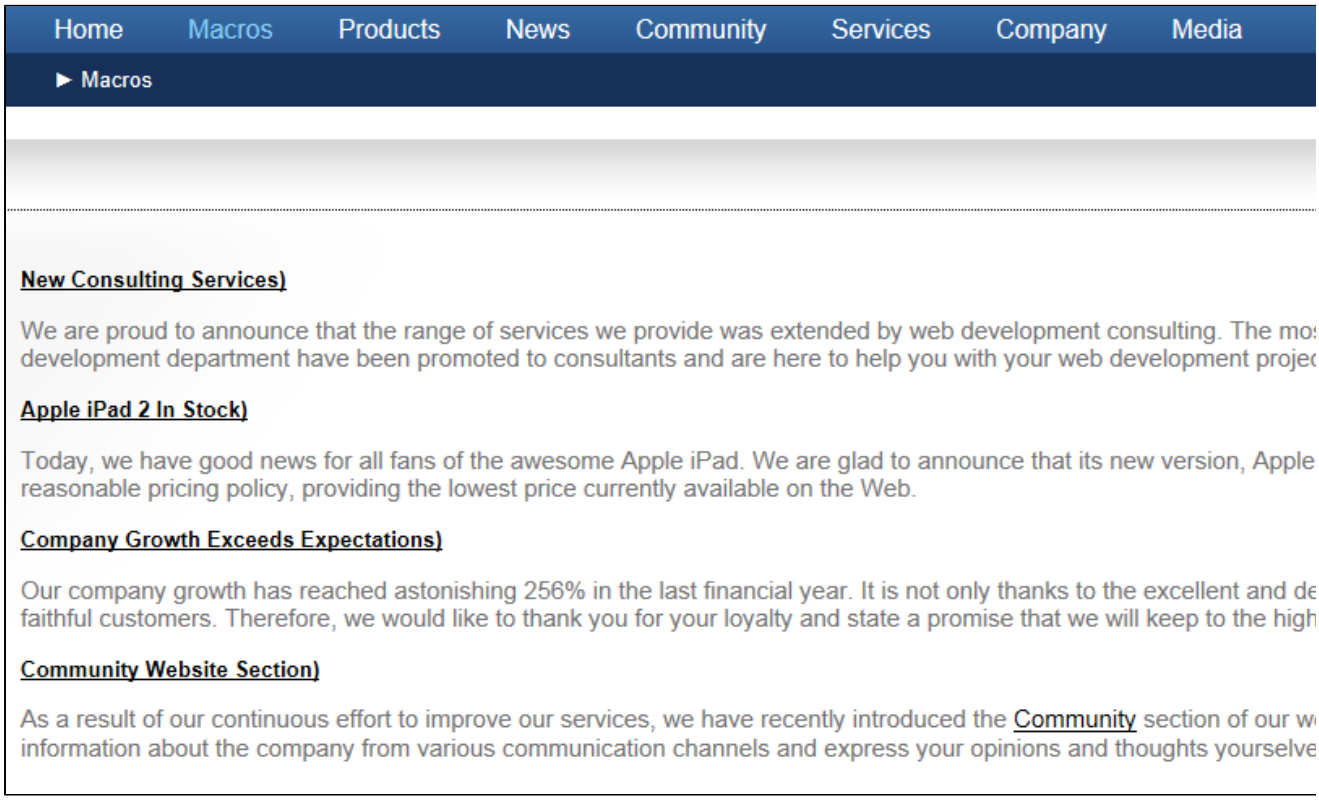
1. Open the **Pages** application.
2. Edit the previously created *Macros* page on the **Page** tab.
3. Enter the following expression into the editable region.

```
{% Documents["/News"].Children.WithAllData.ApplyTransformation("CMS.Root.
NewsInText") %}
```

> In the expression above, the page under the */News* path is selected from the **Pages** collection. Through its **Children** property, the system then accesses a collection containing all child pages. Using the **WithAllData** property ensures that the retrieved page objects include their coupled data, i.e. the specific fields defined for the given page type.

4. Click **Save**.

If you view the page on the live website, you can see how the macro is resolved.



Retrieving and displaying site objects

In this example, you first need to create three separate *Text / XML* transformations.

1. Open the **Page types** application.
2. **Edit** (✎) the **Root** page type and open the **Transformations** tab.
3. Click **New transformation** and enter the following data:
   - **Transformation name**: *ProductTableHeader*
   - **Transformation type**: *Text / XML*
   - **Code**:

```
<table border="2" cellpadding="3">
  <tr>
    <td width="200"><b>Product name</b></td>
    <td width="100"><b>Price</b></td>
  </tr>
```

4. Click **Save**.
5. Reload the page type's **Transformations** tab.

6. Click **New transformation** and enter data for the second transformation:

   - **Transformation name**: *ProductTableRow*
   - **Transformation type**: *Text / XML*
   - **Code**:

   ```
   <tr>
     <td>{% SKUName %}</td>
     <td>{% GetSKUPrice(SKUID) %}</td>
   </tr>
   ```

7. Click **Save**.
8. Reload the page type's **Transformations** tab again.
9. Click **New transformation** and enter data for the third transformation:

   - **Transformation name**: *ProductTableFooter*
   - **Transformation type**: *Text / XML*
   - **Code**:

   ```
   </table>
   ```

10. Click **Save**.

All three transformations are now registered in the system. You can apply the transformation to collections of SKU objects (products) inside macro expressions:

1. Open the **Pages** application.
2. Edit the previously created *Macros* page on the **Page** tab.
3. Enter the following expression into the editable region.

   ```
   {% SiteObjects.SKUs.Where("SKUDepartmentID = 2").OrderBy("SKUName").
   ApplyTransformation ("CMS.Root.ProductTableRow", "CMS.Root.ProductTableHeader",
   "CMS.Root.ProductTableFooter") %}
   ```

   The system retrieves product objects (SKUs) from the **SiteObjects** collection. The **Where** macro method is then used to filter the collection according to a standard SQL condition specified as the parameter. In this case, only products from the Smartphones department are loaded. The **OrderBy** method sorts the objects according to the values in their **SKUName** field.

   You can apply the **Where** and **OrderBy** methods to all types of collections, including pages.

4. Click **Save**.

The **ApplyTransformation** method is called with additional parameters to add the header and footer transformations before and after the main data items. This ensures that the transformations are combined to achieve the desired result:

Product name	Price
Apple iPhone 3GS	424.99
Apple iPhone 4 with inscription	721.99
BlackBerry Torch 9800	436.99
HTC Sensation	759.99
Motorola Atrix 4G	503.48
Samsung Google Nexus S	569.99