



# Create accessible Tables with axesWord®

V12.2024





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## 1 Basics

### 1.1 Requirements for accessible tables

Tables should always have marked header cells. For accessible tables, header cells, so-called "Table Header Cells", have to be correctly labeled, so that the important reference for understanding the content can be established for each data cell. Correctly marked header cells can be recognized by screen readers and be read in conjunction with the content of the related data cells.

In PDF, as with HTML, there is the Scope attribute. It is used to define, if a header cell is related to a column or a row. It makes it clear to which data cells the respective head cell refers.

For complex tables, the Scope attribute is not sufficient. There, an association between data cells and header cells must be set by using header IDs.

### 1.2 Checking tables

You can use the PAC Preview to verify that the table was created correctly with table headers.



## 2 Understanding the basic principle

### 2.1 Mapping paragraph styles to PDF tags

axesWord® relies on additional information that can be attached to paragraph styles. This additional information is set to the appropriate styles by mapping paragraph styles to PDF tags (including essential attributes). We call this combination of tag and essential attributes "role". Check or change this mapping in the **Document Settings** dialog box: go to the **axesWord** tab click the **Document Settings** button. In the **Document Settings** dialog box in the **Role Mapping** tab is a list of all paragraph styles available in the document.

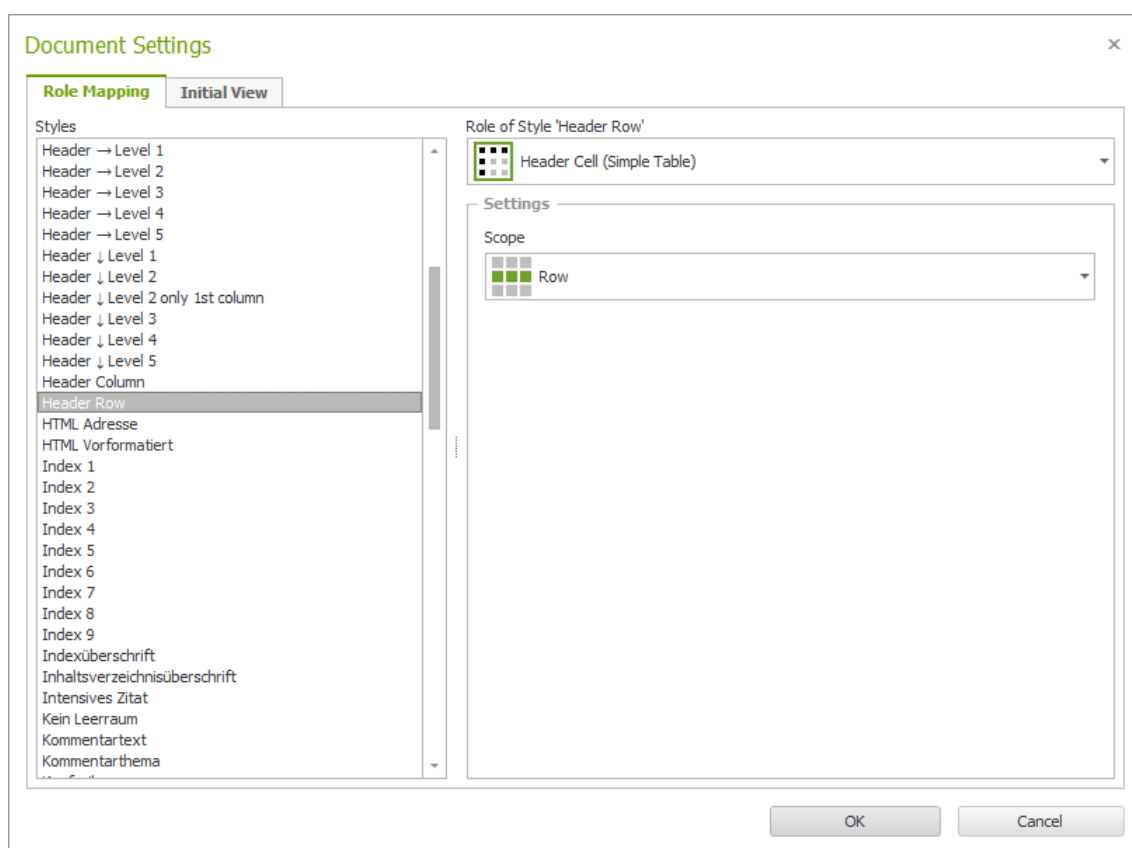


Figure 1: Dialog box "Document Settings" > Tab "Role Mapping"

Clicking on a paragraph style displays the corresponding role mapping and settings in the right part of the dialog box. Both can be edited.

For example, for the paragraph style "Header Row", the **Header Cell (Simple Table)** role with the **Scope Row** is set. This mapping allows you to assign the scope attribute "Row" to a style.

Always use this style now when you create a row heading in a simple table. Similarly, the style "Header Column" was created in this example document.



For complex tables, there are separate styles: for example, "Header → Level 1" stands for a row header at outline level 1, "Header ↓ Level 2" for a level 2 column header.

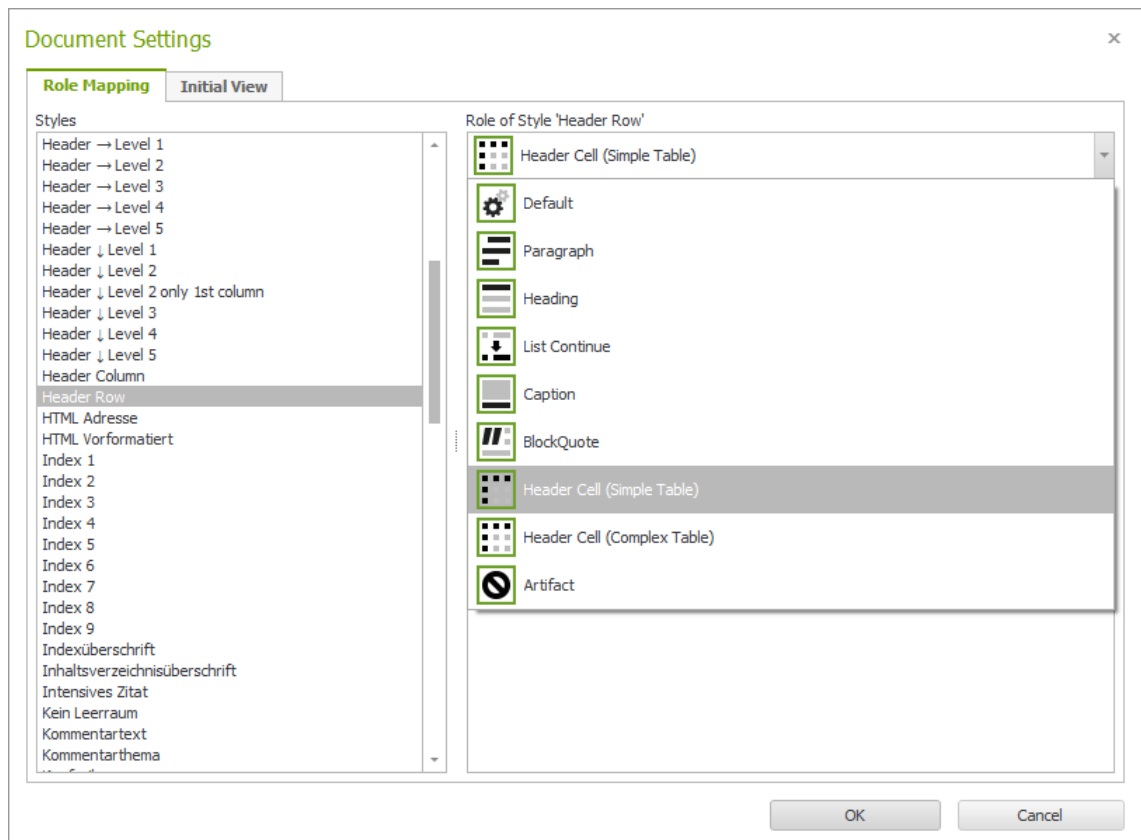


Figure 2: Dialog Box: Document Settings > Selecting the role for a style

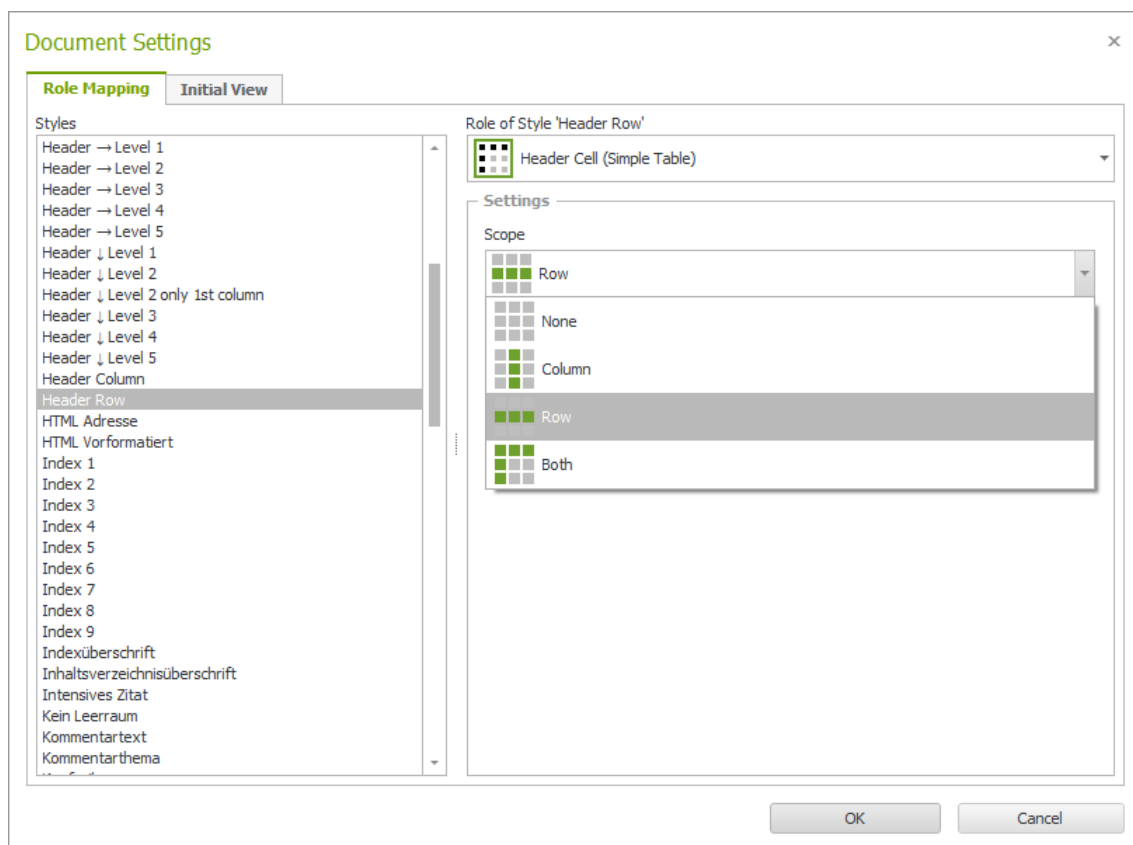


Figure 3: Dialog Box: Document Settings > Select the Scope attribute.

### Note

From axesWord version 24.0.0 on, it is no longer mandatory to create user-defined styles plus associated role mapping **for simple data tables** where the table header is only in the top row and/or in the first column on the left. Alternatively, you can work with the Word table style options **Header Row** and **First Column**. Please refer to chapter 4.1.



## 3 Procedure

### 3.1 Checklist

1. Check if the table is a data table (as opposed to a layout table)

Identify the header cells (marked in yellow here). Styles for header cells usually start with "Header".

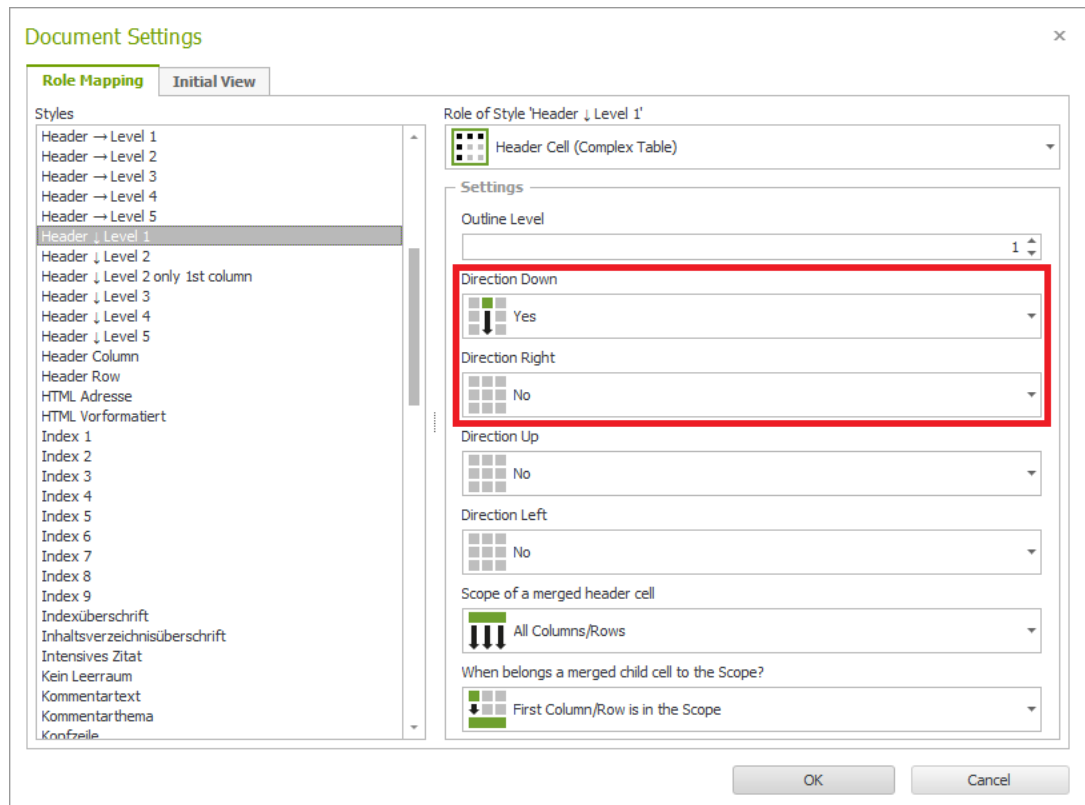
Location	Date	Temperature		Weather
		Maximum	Minimum	
Bern	29.04.2020	20 °C	10 °C	sunny
	30.04.2020	18 °C	9 °C	light rain
Lugano	29.04.2020	21 °C	14 °C	cloudy
	30.04.2020	20 °C	13 °C	light drizzle
Zürich	29.04.2020	23 °C	13 °C	cloudy
	30.04.2020	20 °C	11 °C	light rain

2. Determine if there are column and/or row headers (identified in the names of the styles by the down arrow "↓" for the column- and the right arrow "→" for the row-headers).

Location↓	Date↓	Temperature↓		Weather↓
		Maximum↓	Minimum↓	
Bern→	29.04.2020→	20 °C	10 °C	sunny
	30.04.2020→	18 °C	9 °C	light rain
Lugano→	29.04.2020→	21 °C	14 °C	cloudy
	30.04.2020→	20 °C	13 °C	light drizzle
Zürich→	29.04.2020→	23 °C	13 °C	cloudy
	30.04.2020→	20 °C	11 °C	light rain

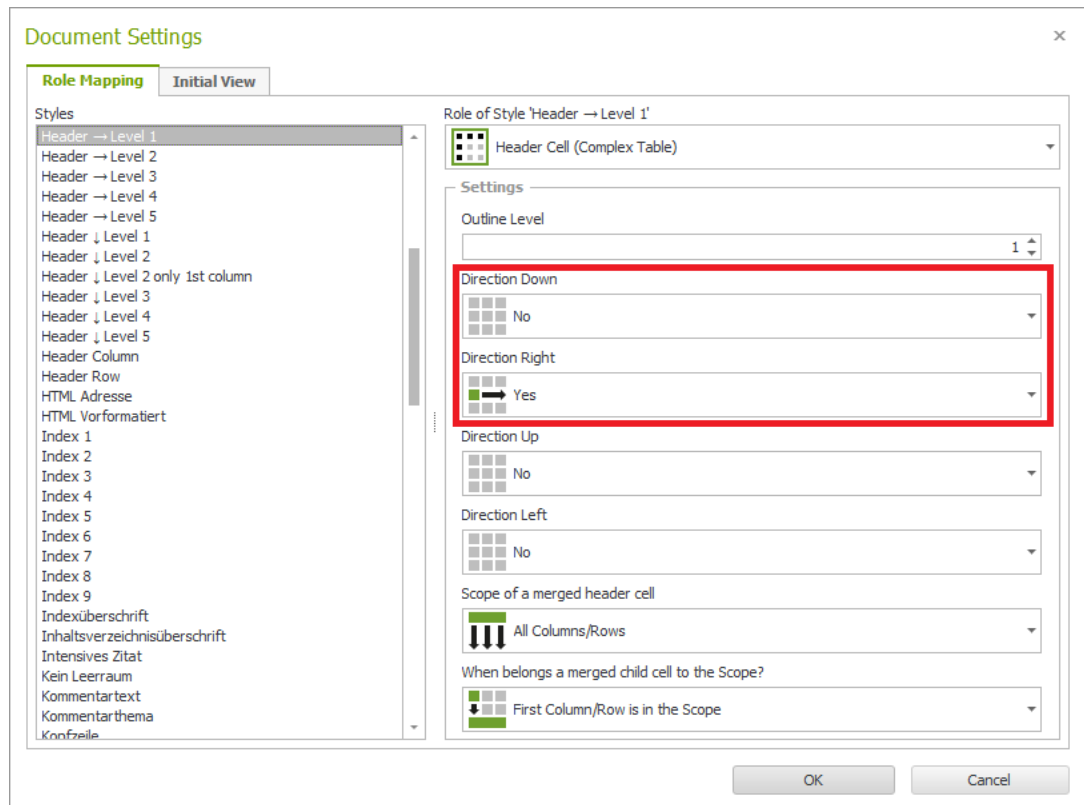
The setting, whether it is a column or row header, is made in the **Document Settings** dialog box in the **Direction Down** drop-down list box and in the **Direction Right** drop-down list box.

For a column heading, the setting **Direction Down** is set to **Yes** and the setting **Direction Right** is set to **No**.



For a row heading, the setting **Direction Down** is set to **No** and the setting **Direction Right** is set to **Yes**.





- 3. Determine outline level: Please note: This has to be done for all header cells, regardless of whether they apply to rows or columns (the corresponding outline levels are indicated by a number in the following figure).

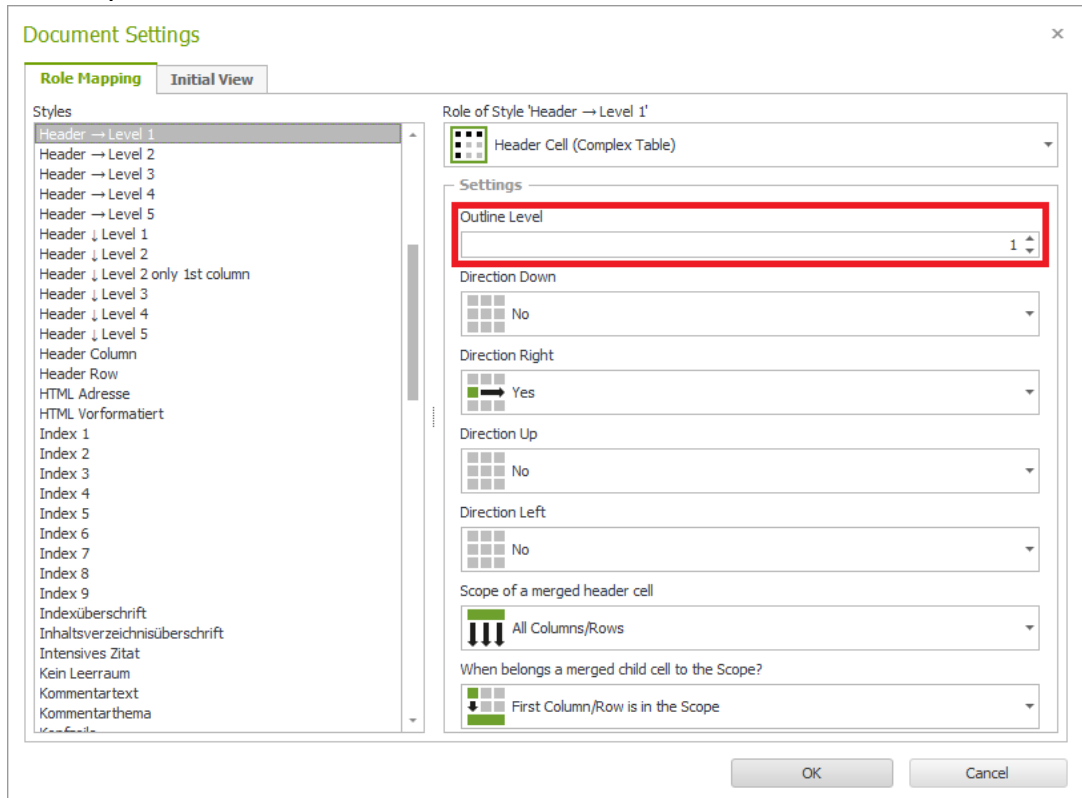
You always start counting from the hierarchically highest (usually either from above or from the left) and go to the hierarchically lower header cells (see green arrows).

The counting method in the red arrow is not allowed, otherwise an incorrect value is determined here. As a rule of thumb, you always have to use the **highest** count value as the outline level for different counting directions. "Bern" has the "Header → Level 2" style in this example

Location	Date	Temperature		Weather
		Maximum	Minimum	
Bern	29.04.2020	20 °C	10 °C	sunny
	30.04.2020	18 °C	9 °C	light rain
Lugano	29.04.2020	21 °C	14 °C	cloudy
	30.04.2020	20 °C	13 °C	light drizzle
Zurich	29.04.2020	23 °C	13 °C	cloudy
	30.04.2020	20 °C	11 °C	light rain



The outline level is set in the **Document Settings** dialog box in the **Outline Level** spin box.



**4.** Deduce which styles and document settings are required

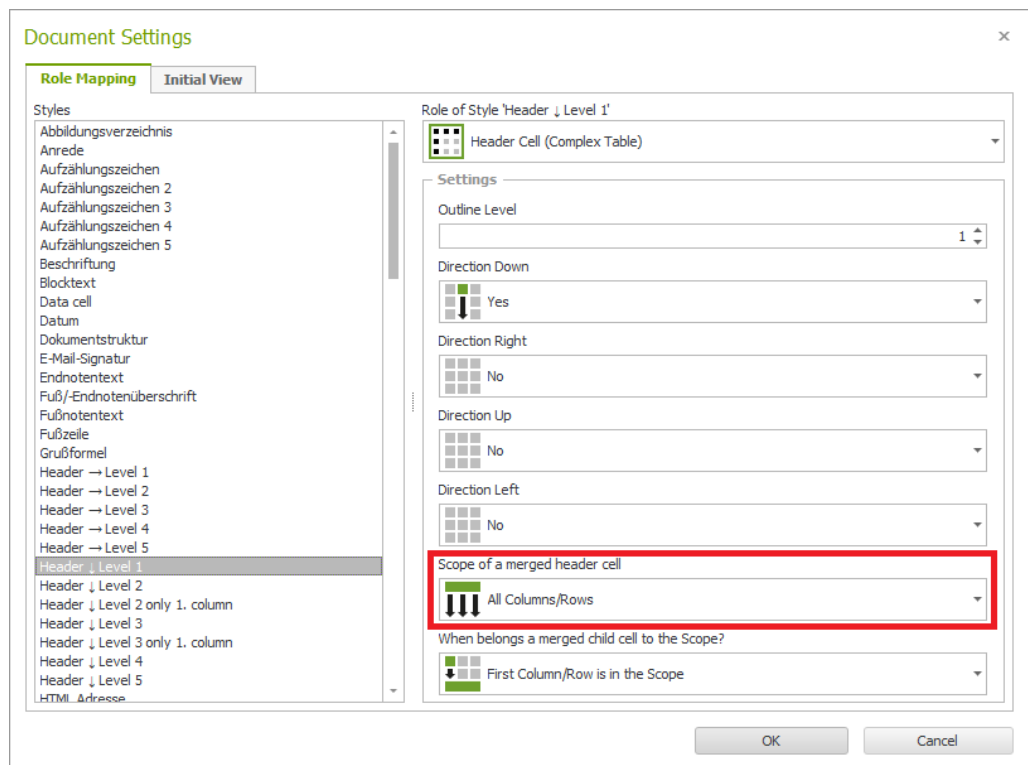
**a.** Is it a header cell that is not merged?

Then the styles specified in point 4 with the default settings are sufficient.  
Example:

	<b>Highest temperature</b>	<b>Lowest temperature</b>	<b>Weather</b>
<b>29.04.2020</b>	23 °C	13 °C	Cloudy
<b>30.04.2020</b>	20 °C	11 °C	Rain
<b>01.05.2020</b>	19 °C	8 °C	Cloudy

In this example, there are no merged header cells. All header cells apply to either one column or one row.

In the **Document Settings** dialog box, the default values can be retained (in the **Scope of a merged header cell** drop-down list box this is the **All Columns/Rows** option).



- b. Is it a merged header cell that applies to all hierarchically deeper columns/rows?

Then the styles specified in point 4 with the default settings are sufficient.

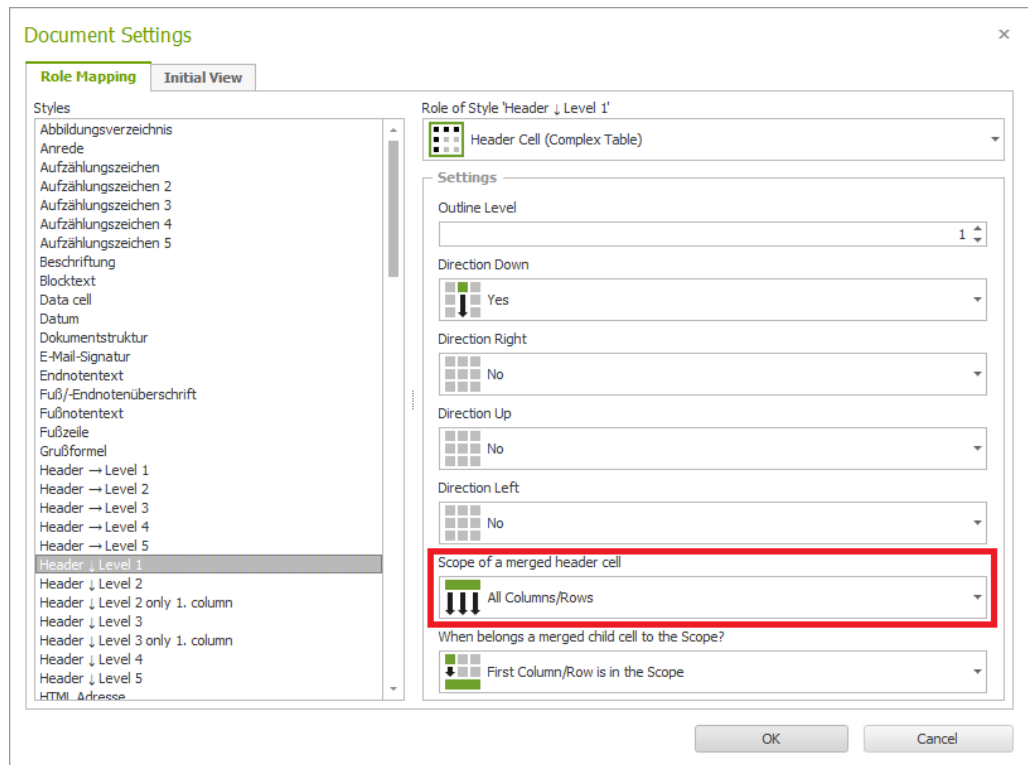
Example:

Both the header cell "Temperature" and "Bern" apply to the two hierarchically lower cells.

Location	Date	Temperature		Weather
		Maximum	Minimum	
Bern	29.04.2020	20 °C	10 °C	sunny
	30.04.2020	18 °C	9 °C	light rain
Lugano	29.04.2020	21 °C	14 °C	cloudy
	30.04.2020	20 °C	13 °C	light drizzle
Zürich	29.04.2020	23 °C	13 °C	cloudy
	30.04.2020	20 °C	11 °C	light rain

The correct style is: **Header** ↓ **level n** or **Header** → **Level n**.

In the **Document Settings** dialog box, the default values can be retained (in the **Scope of a merged header cell** drop-down list box this is the **All Columns/Rows** option).



- c. Is it a merged header cell that applies only to the first column/row?

Then a style with the following special setting is required.

Example:

Both the header cell "Switzerland" and "Germany" applies only to the first column.



Location	Date	Temperature		Weather
		Maximum	Minimum	
<b>Switzerland</b>				
<b>Bern</b>	<b>29.04.2020</b>	20 °C	10 °C	sunny
	<b>30.04.2020</b>	18 °C	9 °C	light rain
<b>Lugano</b>	<b>29.04.2020</b>	21 °C	14 °C	cloudy
	<b>30.04.2020</b>	20 °C	13 °C	light drizzle
<b>Zurich</b>	<b>29.04.2020</b>	23 °C	13 °C	cloudy
	<b>30.04.2020</b>	20 °C	11 °C	rain
<b>Germany</b>				
<b>Munich</b>	<b>29.04.2020</b>	21 °C	10 °C	cloudy
	<b>30.04.2020</b>	20 °C	9 °C	light rain
<b>Frankfurt</b>	<b>29.04.2020</b>	19 °C	13 °C	sunny
	<b>30.04.2020</b>	17 °C	10 °C	cloudy
<b>Berlin</b>	<b>29.04.2020</b>	19 °C	12 °C	cloudy
	<b>30.04.2020</b>	17 °C	9 °C	light drizzle

The correct style is: **Header** ↓ **Level 2 only 1. column** or **Header** → **Level n only 1. line**.

The scope is set in the **Document Settings** dialog box in the **Scope of a merged header cell** drop-down list box. The **First Columns/Rows** option must be selected here.





**Document Settings** [x]

**Role Mapping** Initial View

Styles

- Header → Level 1
- Header → Level 2
- Header → Level 3
- Header → Level 4
- Header → Level 5
- Header ↓ Level 1
- Header ↓ Level 1 any**
- Header ↓ Level 2
- Header ↓ Level 2 only 1st column
- Header ↓ Level 3
- Header ↓ Level 4
- Header ↓ Level 5
- Header Column
- Header Row
- HTML Adresse
- HTML Vorformatiert
- Index 1
- Index 2
- Index 3
- Index 4
- Index 5
- Index 6
- Index 7
- Index 8
- Index 9
- Indexüberschrift
- Inhaltsverzeichnisüberschrift
- Intensives Zitat
- Kein Leerraum
- Kommentartext

Role of Style 'Header ↓ Level 1 any'

Header Cell (Complex Table)

Settings

Outline Level: 1

Direction Down: Yes

Direction Right: No

Direction Up: No

Direction Left: No

Scope of a merged header cell: All Columns/Rows

When belongs a merged child cell to the Scope? Any Column/Row is in the Scope

OK Cancel



## 4 Example tables with simple headers and columns

### 4.1 Assigning header cells via the Word table style options “Header Row” and “First Column”

From axesWord® version 24.0.0 on, you can assign the table header of simple data tables (i.e. the table header is only in the top row and/or in the first column on the left) using the Word table style options **Header Row** and **First Column**.

Preconditions are,

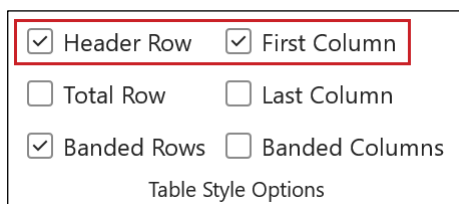
- that the table is assigned to the role **Default** or **Table** with axesWord® and
- no styles with the roles **Header cell (simple table)** or **Header cell (complex table)** are used within the table. If styles with the roles **Header cell (simple table)** or **Header cell (complex table)** are used in the table, the Word table style options **Header Row** and **First Column** are ignored during PDF export to avoid incorrect assignments.

#### 4.1.1 How to use the Word table format options “Header Row” and “First Column”

1. Select a table in your document so that the **Table Design** tab appears in the Word ribbon. Select that tab.



2. In the **Table Style Options** function group, you will find the **Header Row** and **First Column** checkboxes.



3. If the table header is in the top row of your table, activate the **Header Row** checkbox. If the table header is in the left-hand column of your table, activate the **First Column** checkbox. You can also activate both options if this applies to your table.
4. You have now completed all the settings for a simple table!

### 4.2 Assigning header cells via user-defined styles with associated role mapping

As usual you can work with user-defined styles plus associated role mappings also for simple data tables. In the following chapters we describe how to proceed.





### 4.2.1 Variant 1: Table with a header line at the top

Table 1: Weather forecast for the next 5 days for Zurich

Date	Max. Temperature	Min. Temperature	Weather
29.04.2020	23 °C	13 °C	cloudy
30.04.2020	20 °C	11 °C	light rain
01.05.2020	19 °C	8 °C	cloudy
02.05.2020	21 °C	13 °C	slightly cloudy
03.05.2020	20 °C	11 °C	slightly cloudy

What styles are used with which role mapping?

Date	Max. Temperature	Min. Temperature	Weather
29.04.2020	23 °C	13 °C	cloudy
30.04.2020	20 °C	11 °C	light rain
01.05.2020	19 °C	8 °C	cloudy
02.05.2020	21 °C	13 °C	slightly cloudy
03.05.2020	20 °C	11 °C	slightly cloudy

Style: Header Column (pointing to the header row)

Style: Data cell (pointing to a data row)

Figure 4: Identification of the styles used in the sample table

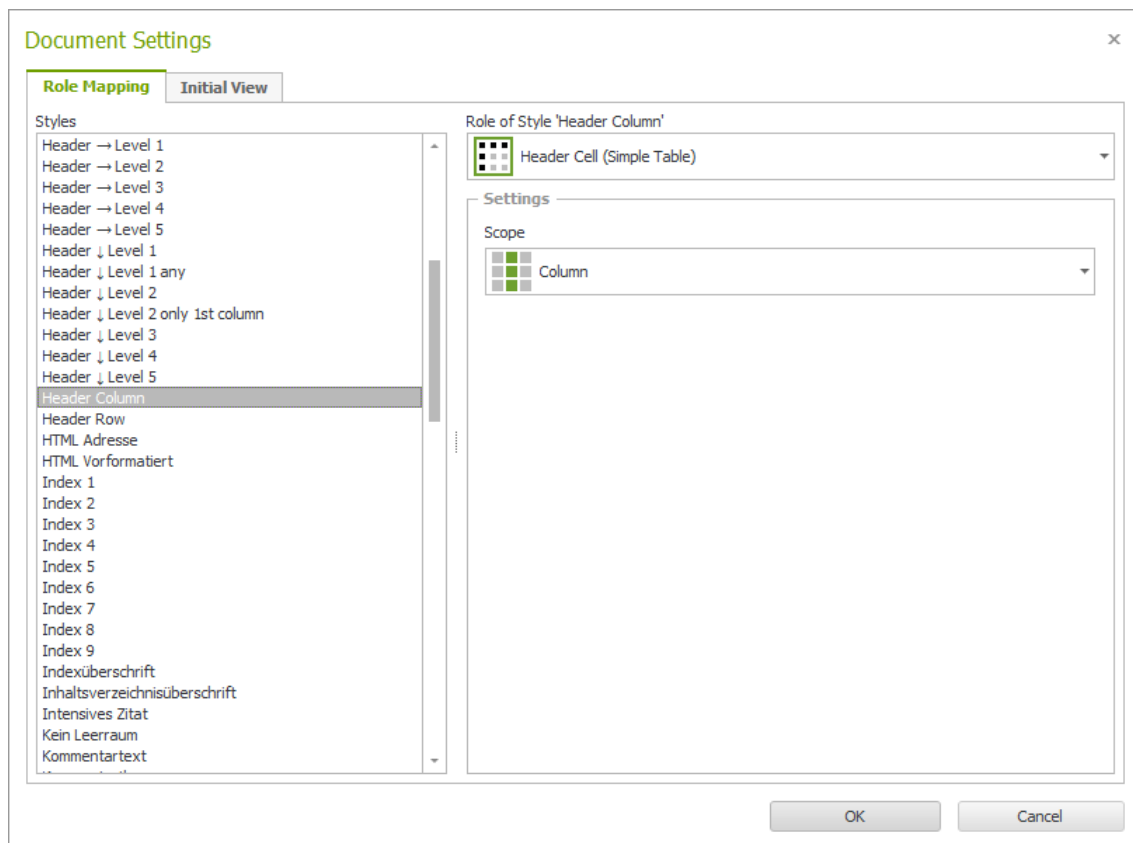


Figure 5: Role Mapping of the style "Header Column"

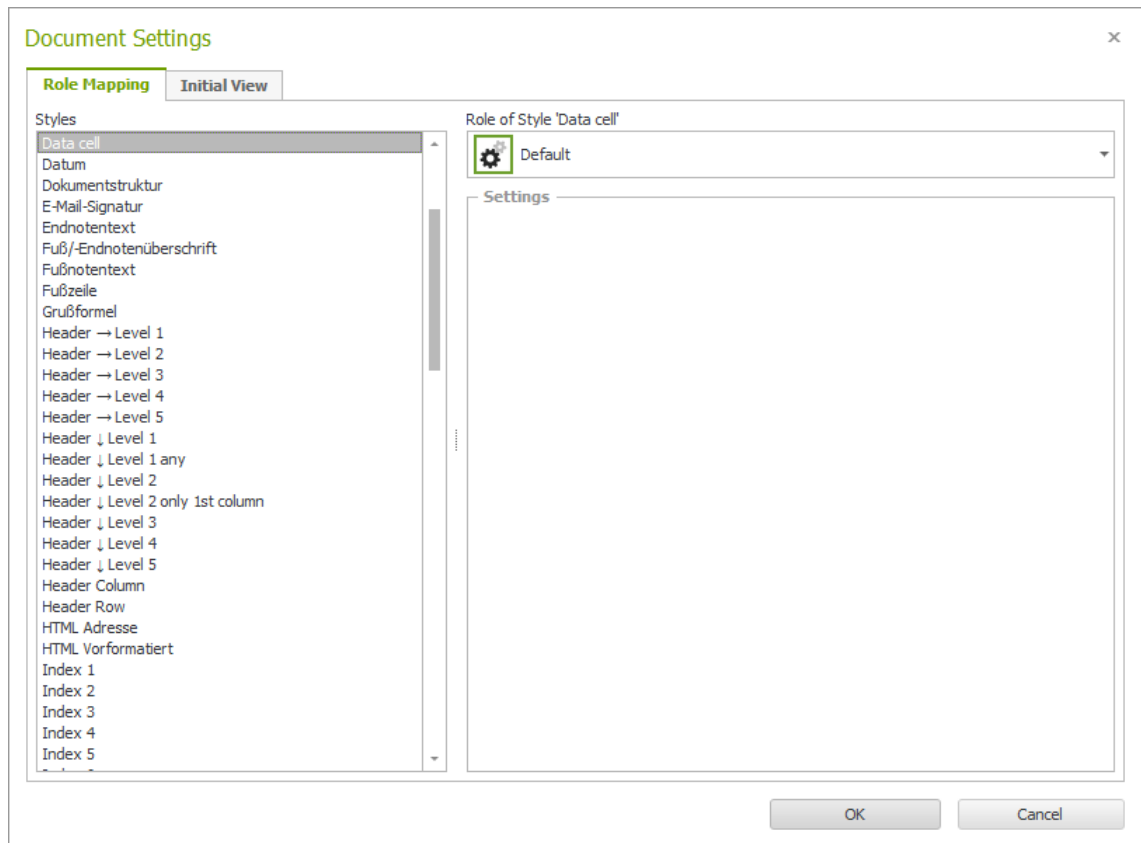


Figure 6: Role mapping of the style "Data cell"

#### 4.2.2 Variant 2: Table with a header column on the left

Table 2: Weather forecast for Zurich for the next 5 days

<b>29.04.2020</b>	23 °C	13 °C	cloudy
<b>30.04.2020</b>	20 °C	11 °C	light rain
<b>01.05.2020</b>	19 °C	8 °C	cloudy
<b>02.05.2020</b>	21 °C	13 °C	slightly cloudy
<b>03.05.2020</b>	20 °C	11 °C	slightly cloudy

<b>29.04.2020</b>	23 °C	13 °C	cloudy
<b>30.04.2020</b>	20 °C	11 °C	light rain
<b>01.05.2020</b>	Style: Header Row	°C	cloudy
<b>02.05.2020</b>	21 °C	13 °C	Style: Data cell
<b>03.05.2020</b>	20 °C	11 °C	slightly cloudy

Figure 7: Identification of the styles used in the sample table

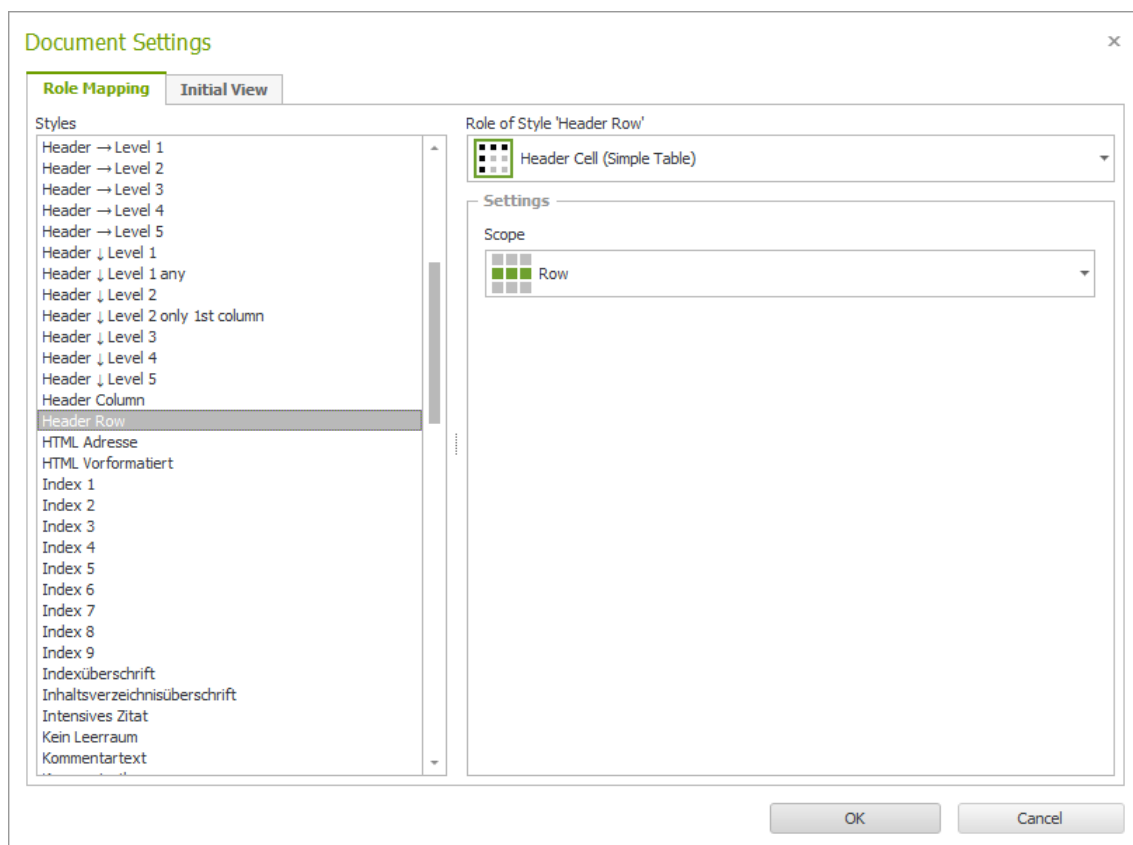


Figure 8: Role Mapping of the style "Header Row"

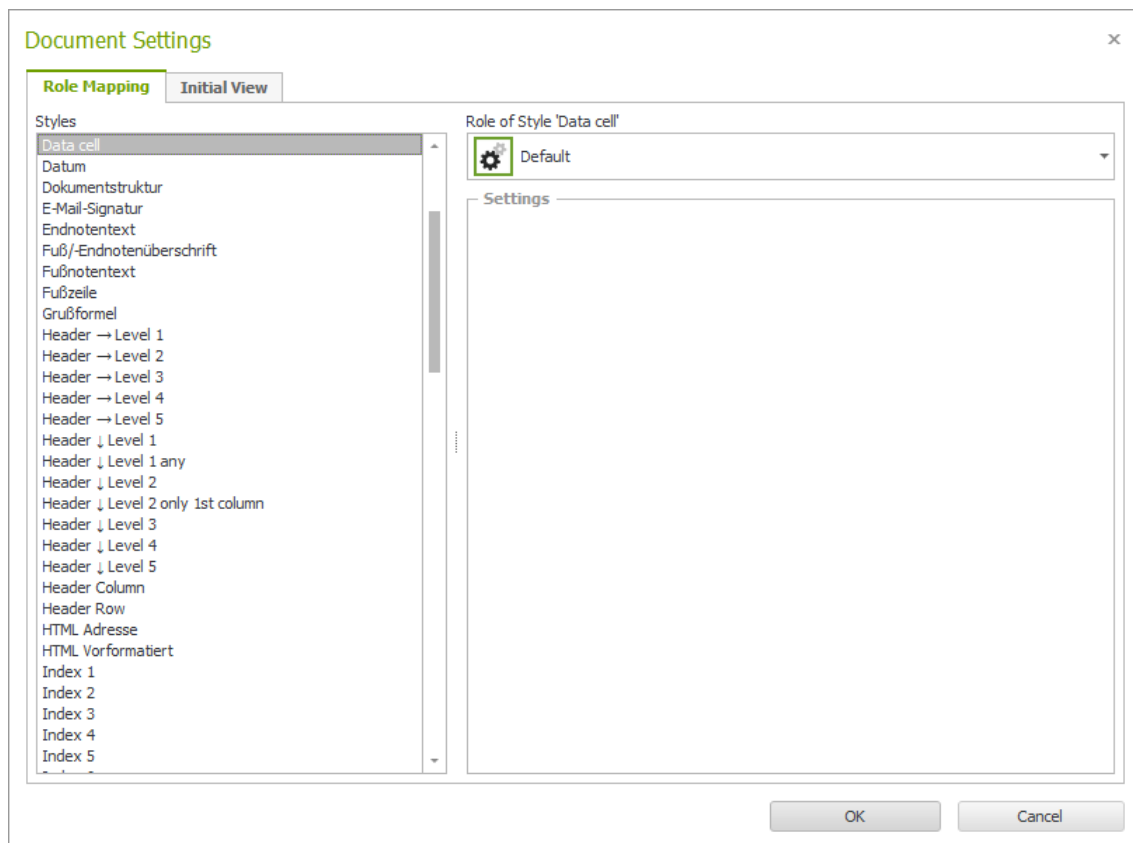


Figure 9: Role mapping of the style "Data cell"

### 4.2.3 Variant 3: Table with a header at the top and header column on the left

Table 3: Weather forecast for Zurich for the next 5 days

<b>Date</b>	<b>Max. Temperature</b>	<b>Min. Temperature</b>	<b>Weather</b>
<b>29.04.2020</b>	23 °C	13 °C	cloudy
<b>30.04.2020</b>	20 °C	11 °C	light rain
<b>01.05.2020</b>	19 °C	8 °C	cloudy
<b>02.05.2020</b>	21 °C	13 °C	slightly cloudy
<b>03.05.2020</b>	20 °C	11 °C	slightly cloudy



Date	Max. Temperature	Min. Temperature	Weather
29.04.2020	13 °C	13 °C	cloudy
30.04.2020	20 °C	11 °C	light rain
01.05.2020	19 °C	8 °C	cloudy
02.05.2020	12 °C	12 °C	lightly cloudy
03.05.2020	C	C	C

Figure 10: Identification of the styles used in the sample table

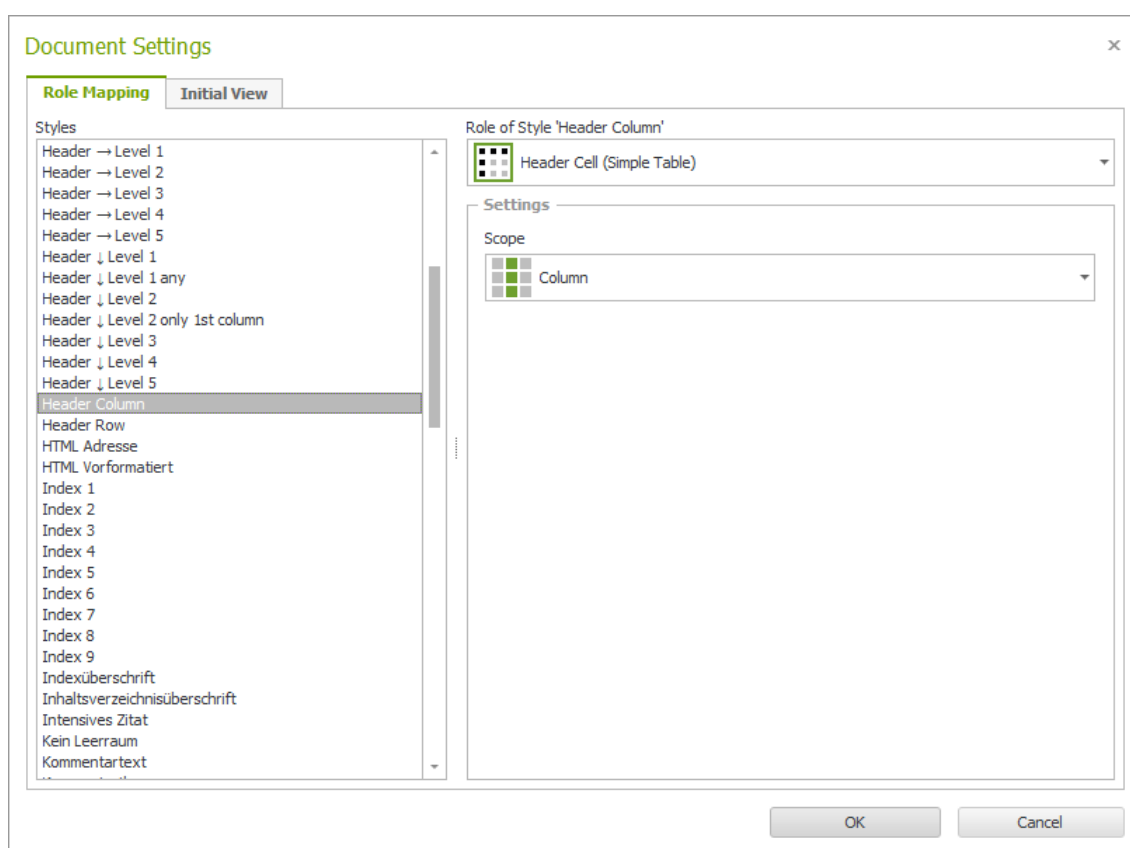


Figure 11: Role Mapping of the style "Header Column"

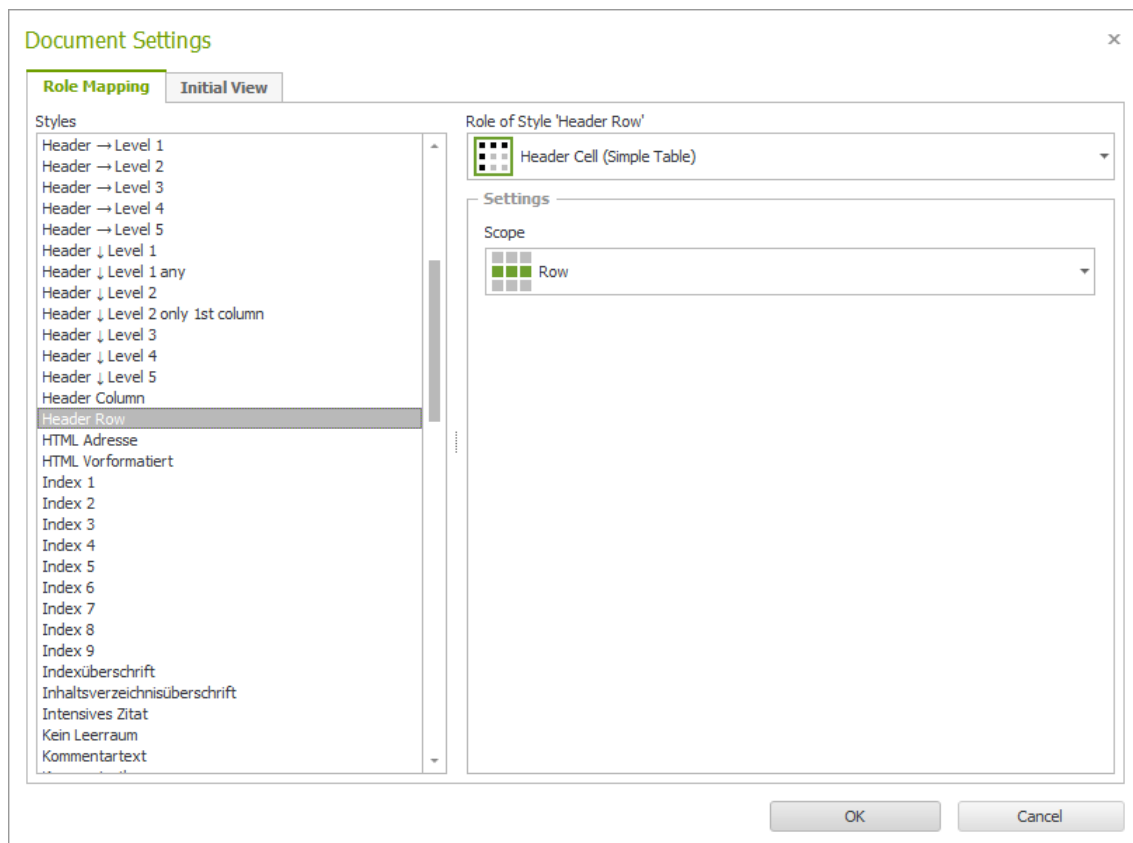


Figure 12: Role Mapping of the style "Header Row"

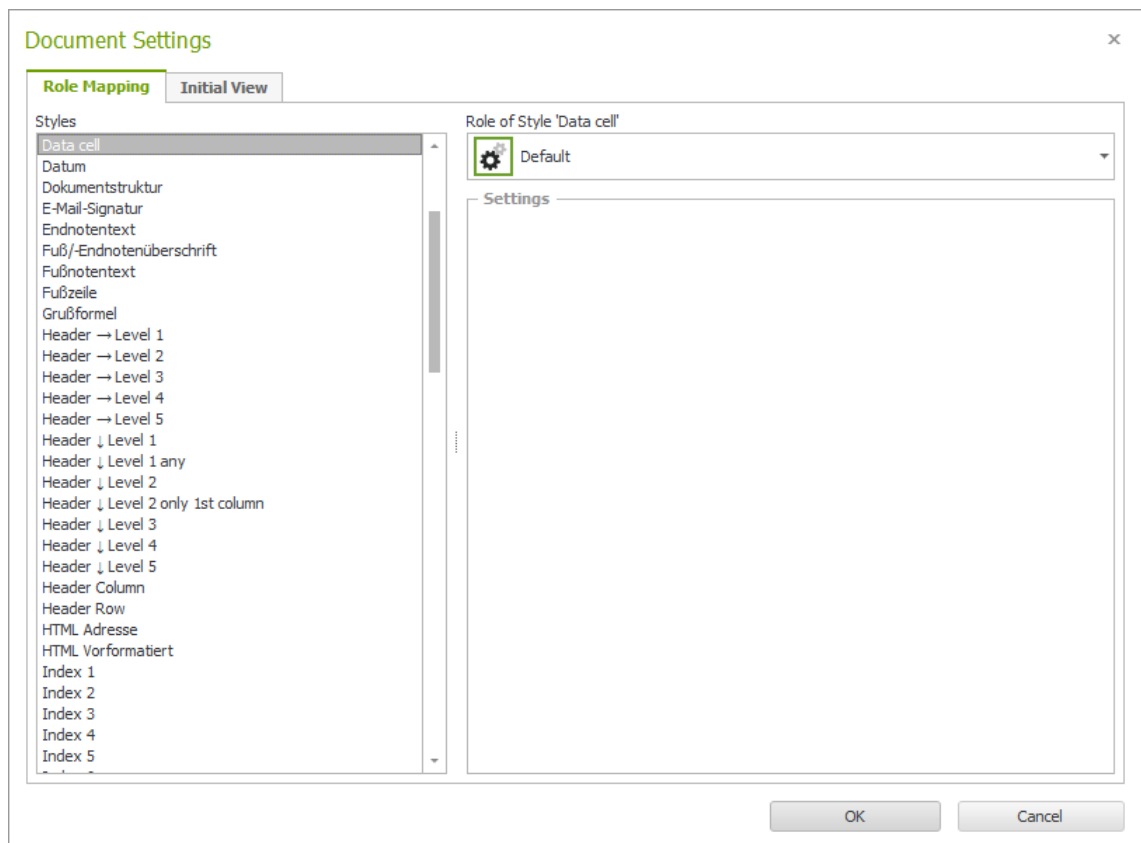


Figure 13: Role mapping of the style "Data cell"

### 4.3 Prioritization of assignments during PDF export

The assignments of the header cells are prioritized as follows during PDF export:

1. Using styles with role mappings:

If styles with the role **Header cell (simple table)** or **Header cell (complex table)** are present in the table, the TH structure elements are created in the PDF according to these styles. For simple tables, the TH-TD-assignments are set via the scope attribute, for complex tables via header IDs.

2. Using Word table style options:

If there are no styles with the role **Header cell (simple table)** or **Header cell (complex table)** used in the table, but the Word table style options **Header Row** and/or **First Column** are activated, the TH structure elements are created using these two options (with the corresponding scope attribute).

3. Using neither styles with role mappings nor Word table style options:

If there are no styles with the role **Header cell (simple table)** or **Header cell (complex table)** in the table and the Word table style options **Header Row** and **First Column** are not activated, no TH structure elements will be created in the PDF.





## 5 Example tables with multiple headers

### 5.1 Variant 4: Table with multiple headers at the top and one header column on the left (marked via Scope attribute)

Table 4: Weather forecast for Zurich for the next 5 days

Date	Temperature		Weather
	Maximum	Minimum	
29.04.2020	23 °C	13 °C	cloudy
30.04.2020	20 °C	11 °C	light rain
01.05.2020	19 °C	8 °C	cloudy
02.05.2020	21 °C	13 °C	slightly cloudy
03.05.2020	20 °C	11 °C	slightly cloudy

Date	Temperature		Weather
	Maximum	Minimum	
29.04.2020	23 °C	13 °C	cloudy
30.04.2020	20 °C	11 °C	light rain
01.05.2020	19 °C	8 °C	cloudy
02.05.2020	21 °C	13 °C	slightly cloudy
03.05.2020	20 °C	11 °C	slightly cloudy

Figure 14: Identification of the used styles in the sample table

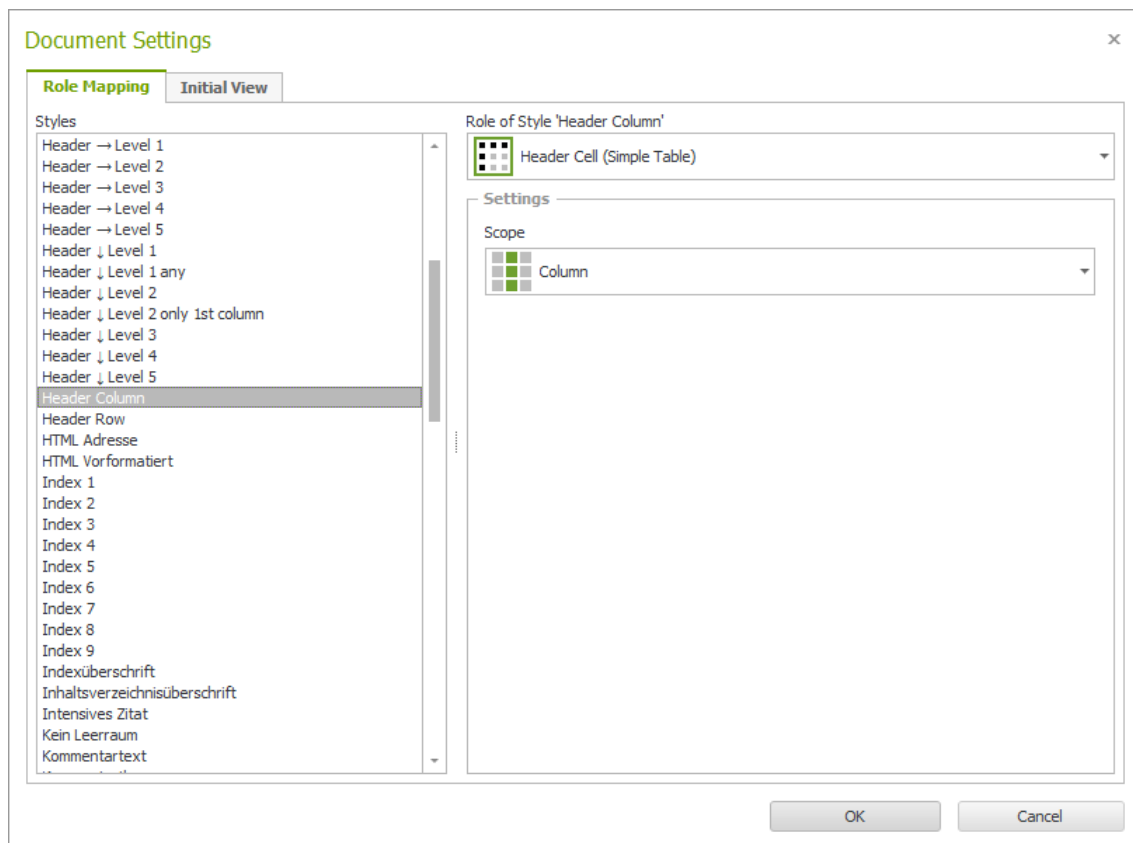


Figure 15: Role Mapping of the style "Header Column"

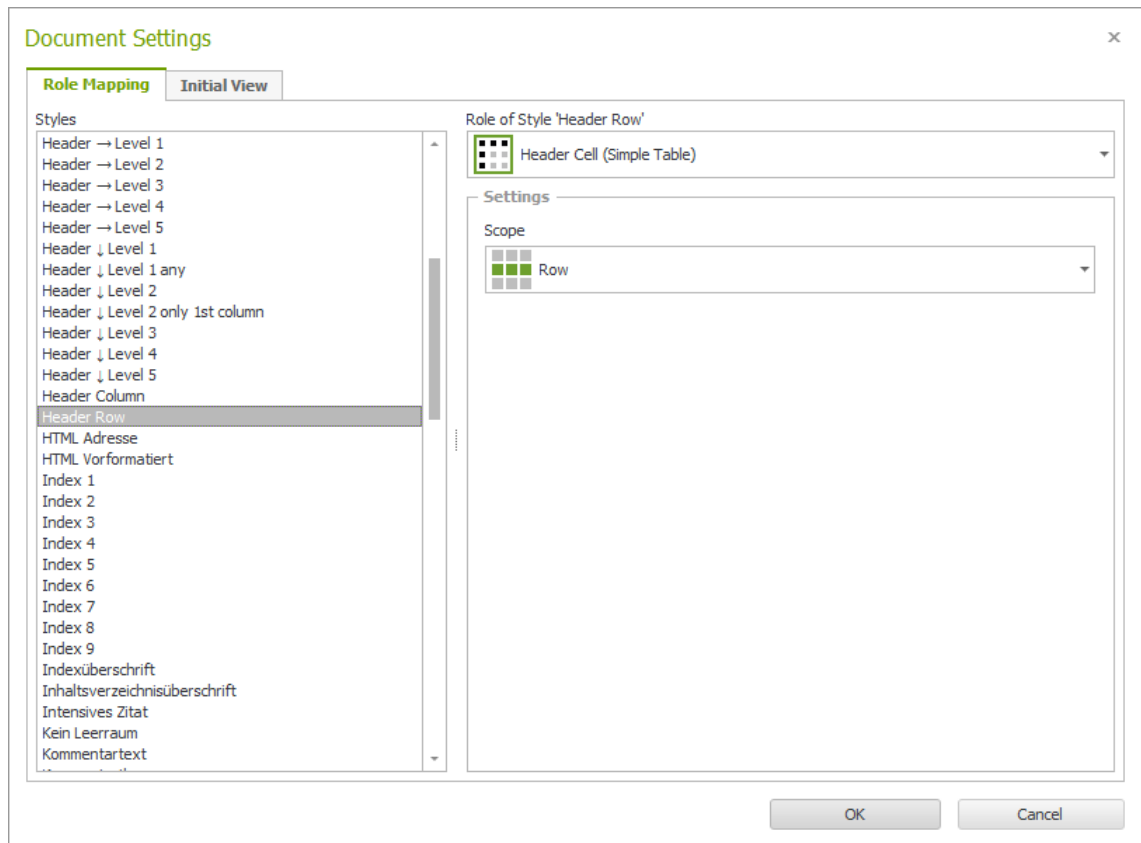


Figure 16: Role Mapping of the style "Header Row"

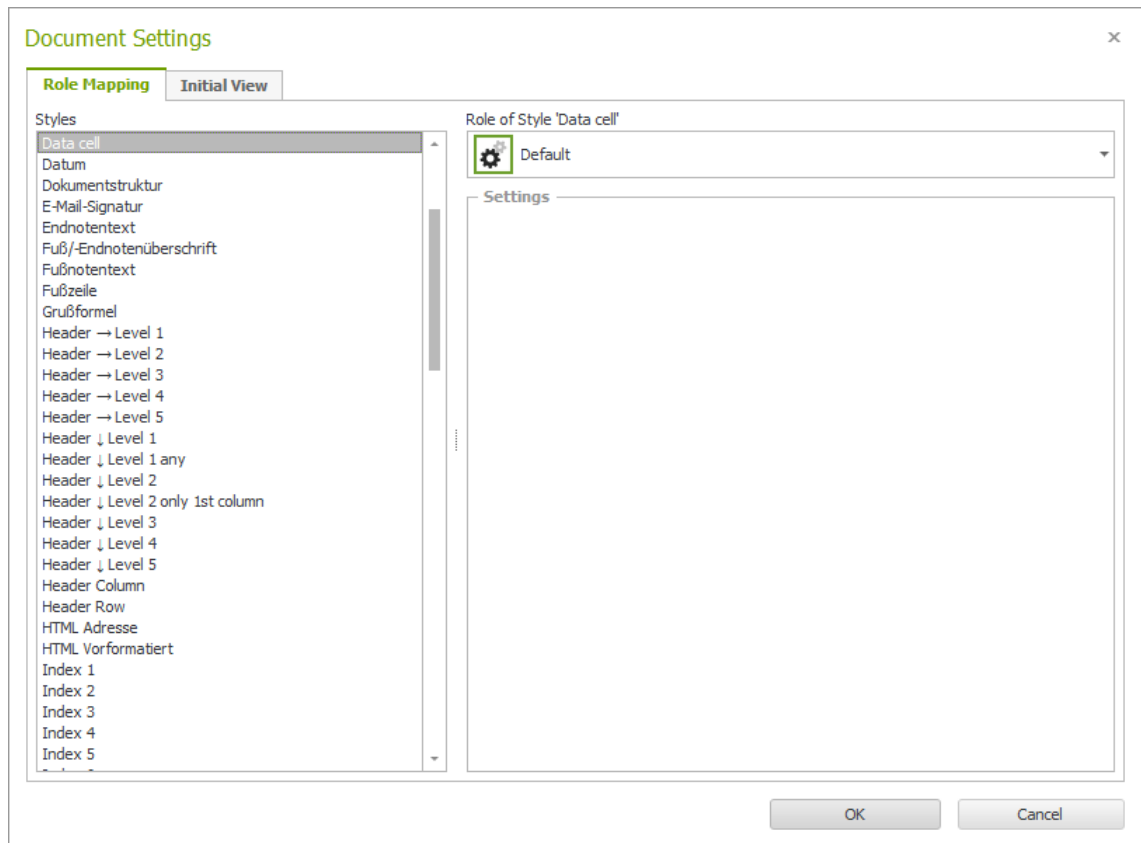


Figure 17: Role mapping of the style "Data cell"

## 5.2 Variant 5: Table with multiple header lines at the top and header columns on the left (identified via header IDs)

Table 5: Weather forecast for the next 2 days for selected locations in Switzerland

Location	Date	Temperature		Weather
		Maximum	Minimum	
Bern	29.04.2020	20 °C	10 °C	sunny
	30.04.2020	18 °C	9 °C	light rain
Lugano	29.04.2020	21 °C	14 °C	cloudy
	30.04.2020	20 °C	13 °C	light drizzle
Zürich	29.04.2020	23 °C	13 °C	cloudy
	30.04.2020	20 °C	11 °C	light rain

Consider which column and row headings are required for this table and which outline level:

This table requires 5 styles:



Location	Date	Temperature		Weather
		Maximum	Minimum	
Bern	29.04.2020	20 °C	10 °C	sunny
	30.04.2020	20 °C	9 °C	sunny
Lugano	29.04.2020	21 °C	14 °C	cloudy
	30.04.2020	20 °C	13 °C	light drizzle
Zurich	29.04.2020	20 °C	13 °C	cloudy
	30.04.2020	20 °C	13 °C	cloudy

Figure 18: Identification of the styles used in the sample table

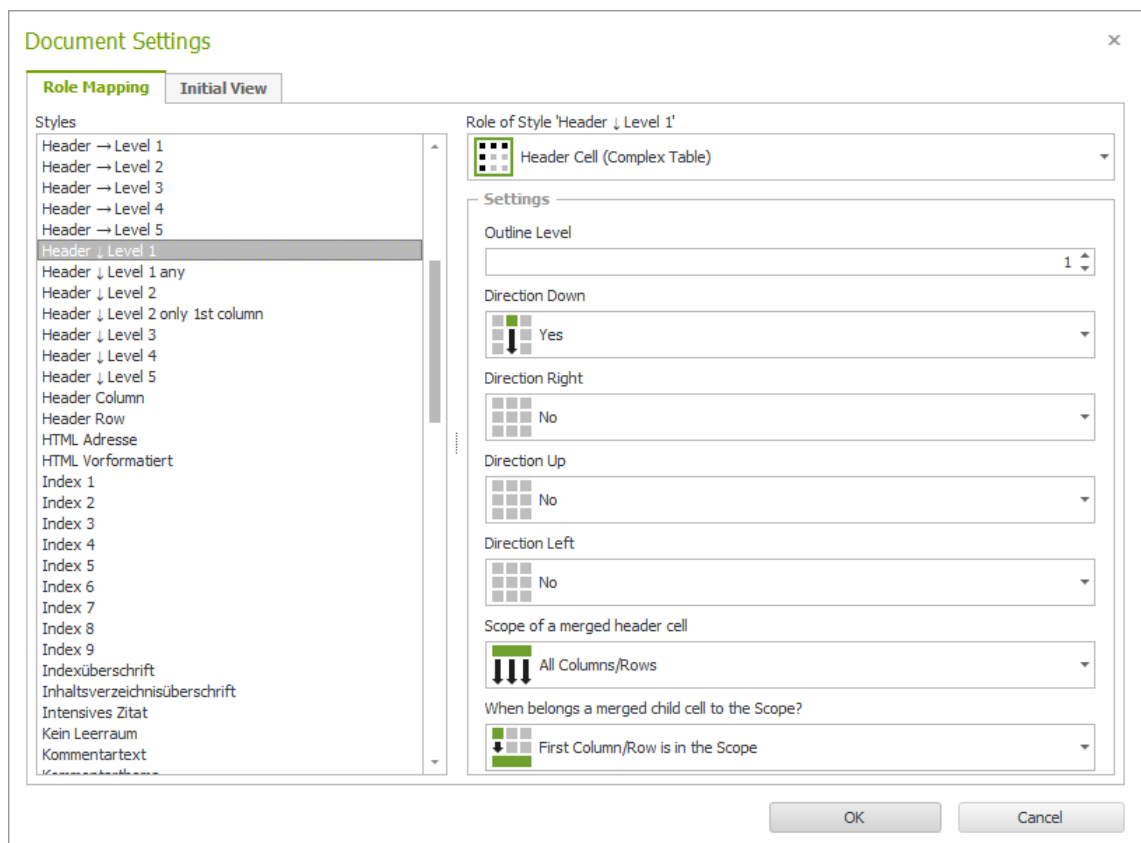


Figure 19: Role Mapping of the style "Header ↓ Level 1"

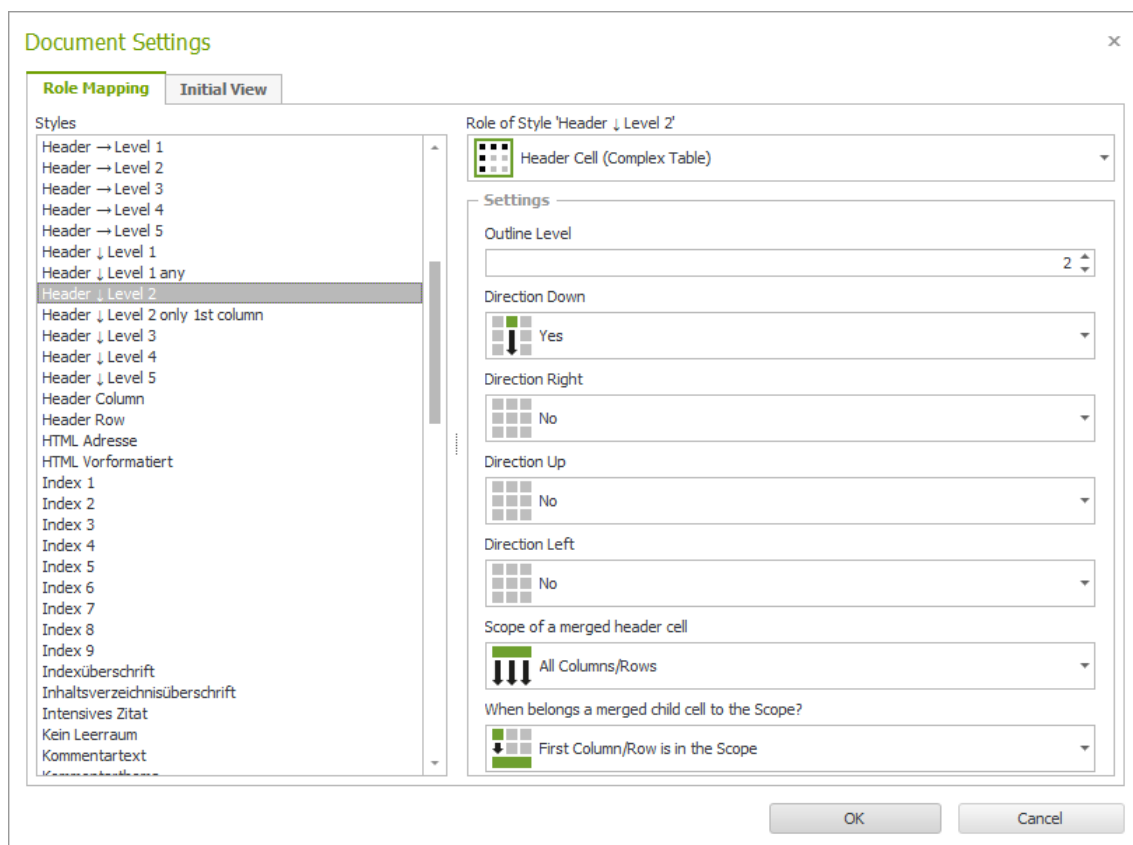


Figure 20: Role Mapping of the style "Header ↓ Level 2"

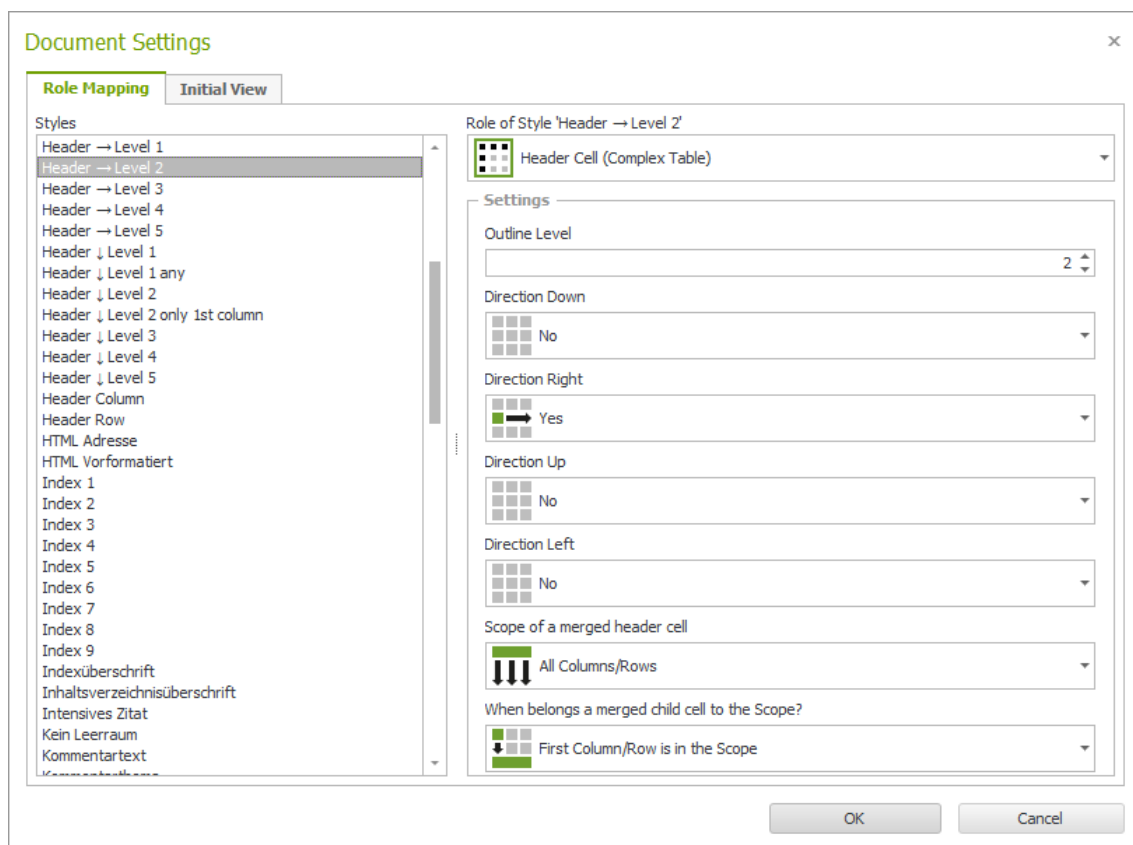


Figure 21: Role Mapping of the style "Header -> Level 2"

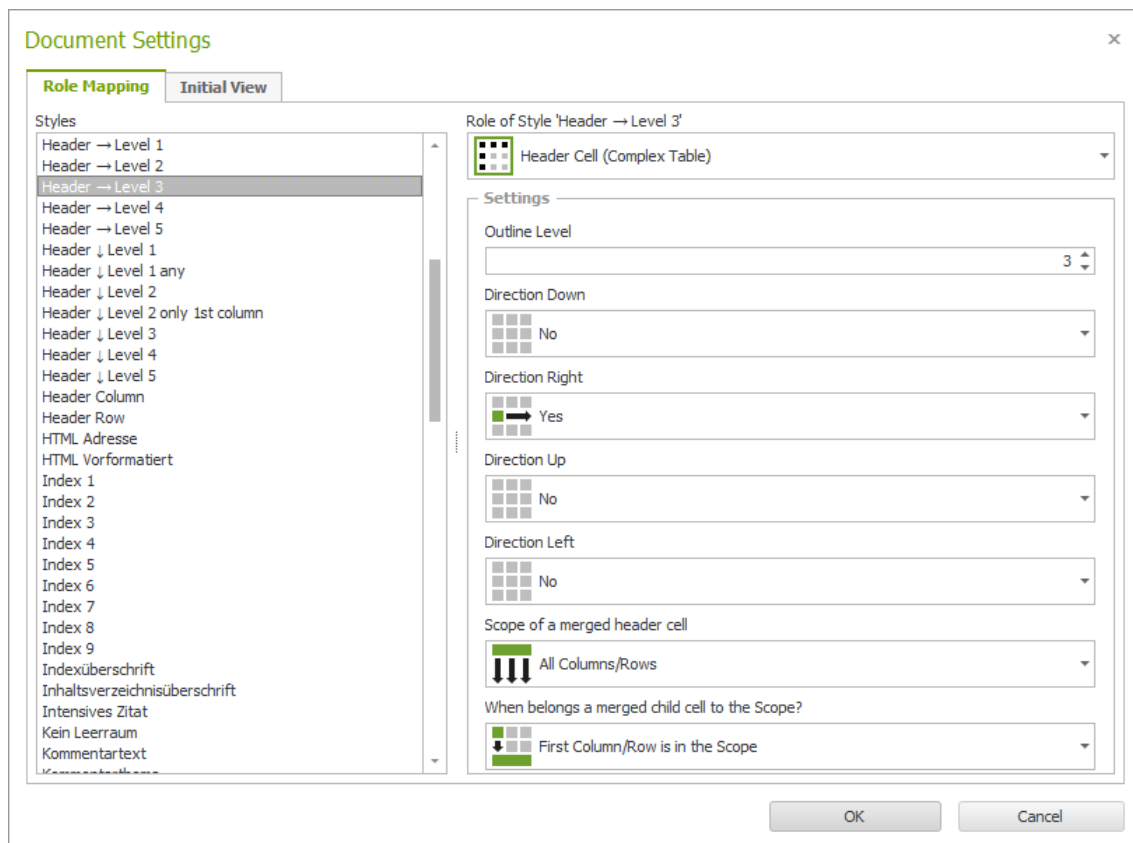


Figure 22: Role Mapping of the style "Header -> Level 3"



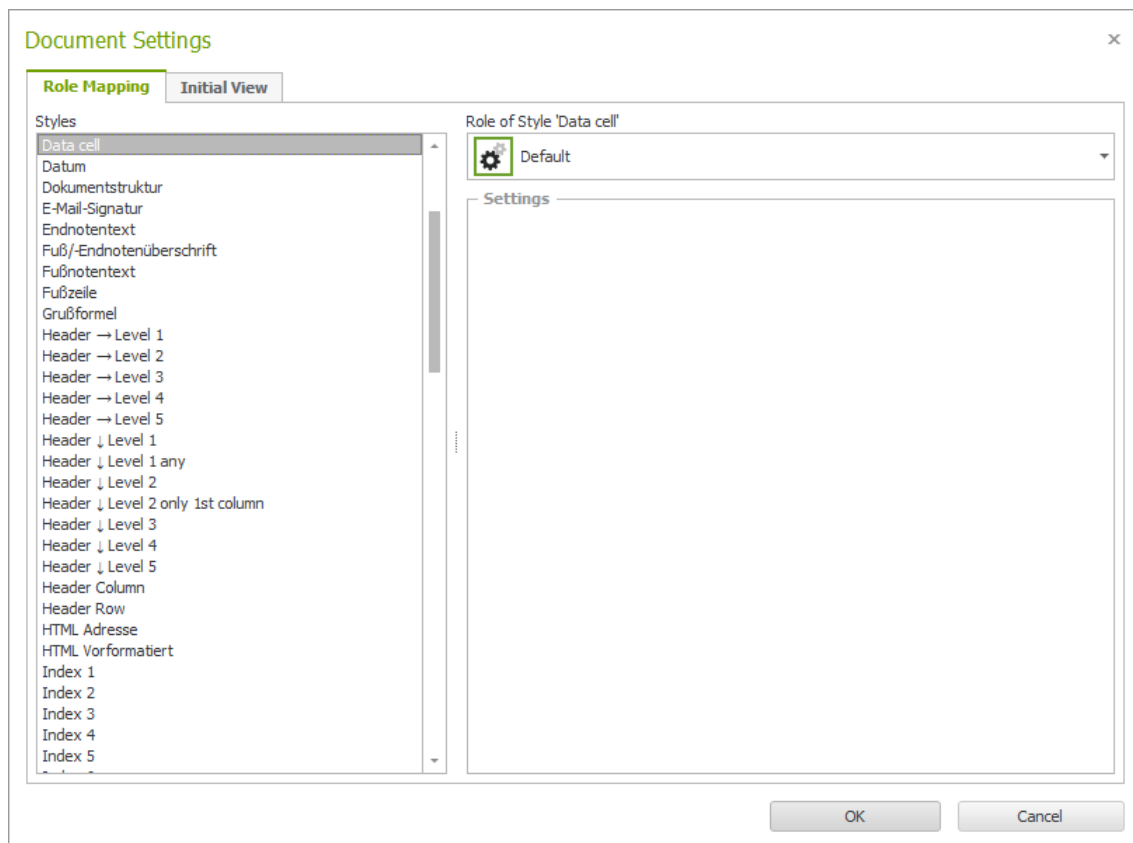


Figure 23: Role mapping of the style "Data cell"



## 6 Complex tables

### 6.1 Nested table

Table 6: Weather forecast for the next 2 days for selected locations in Switzerland and Germany

Location	Date	Temperature		Weather
		Maximum	Minimum	
<b>Switzerland</b>				
Bern	29.04.2020	20 °C	10 °C	sunny
	30.04.2020	18 °C	9 °C	light rain
Lugano	29.04.2020	21 °C	14 °C	cloudy
	30.04.2020	20 °C	13 °C	light drizzle
Zurich	29.04.2020	23 °C	13 °C	cloudy
	30.04.2020	20 °C	11 °C	rain
<b>Germany</b>				
Munich	29.04.2020	21 °C	10 °C	cloudy
	30.04.2020	20 °C	9 °C	light rain
Frankfurt	29.04.2020	19 °C	13 °C	sunny
	30.04.2020	17 °C	10 °C	cloudy
Berlin	29.04.2020	19 °C	12 °C	cloudy
	30.04.2020	17 °C	9 °C	light drizzle



Location	Date	Temperature		Weather
		Maximum	Minimum	
<b>Switzerland</b>				
Bern	29.04.2020	20 °C	10 °C	light rain
Lugano	29.04.2020	21 °C	14 °C	cloudy
	30.04.2020			light drizzle
Zurich	29.04.2020	25 °C		cloudy
	30.04.2020	20 °C	11 °C	rain
<b>Germany</b>				
Munich	29.04.2020	21 °C	10 °C	cloudy
				light rain
Frankfurt	29.04.2020	19 °C	13 °C	sunny
	30.04.2020			cloudy
Berlin	29.04.2020	19 °C	12 °C	cloudy
	30.04.2020	17 °C		light drizzle

Figure 24: Identification of the styles used in the sample table

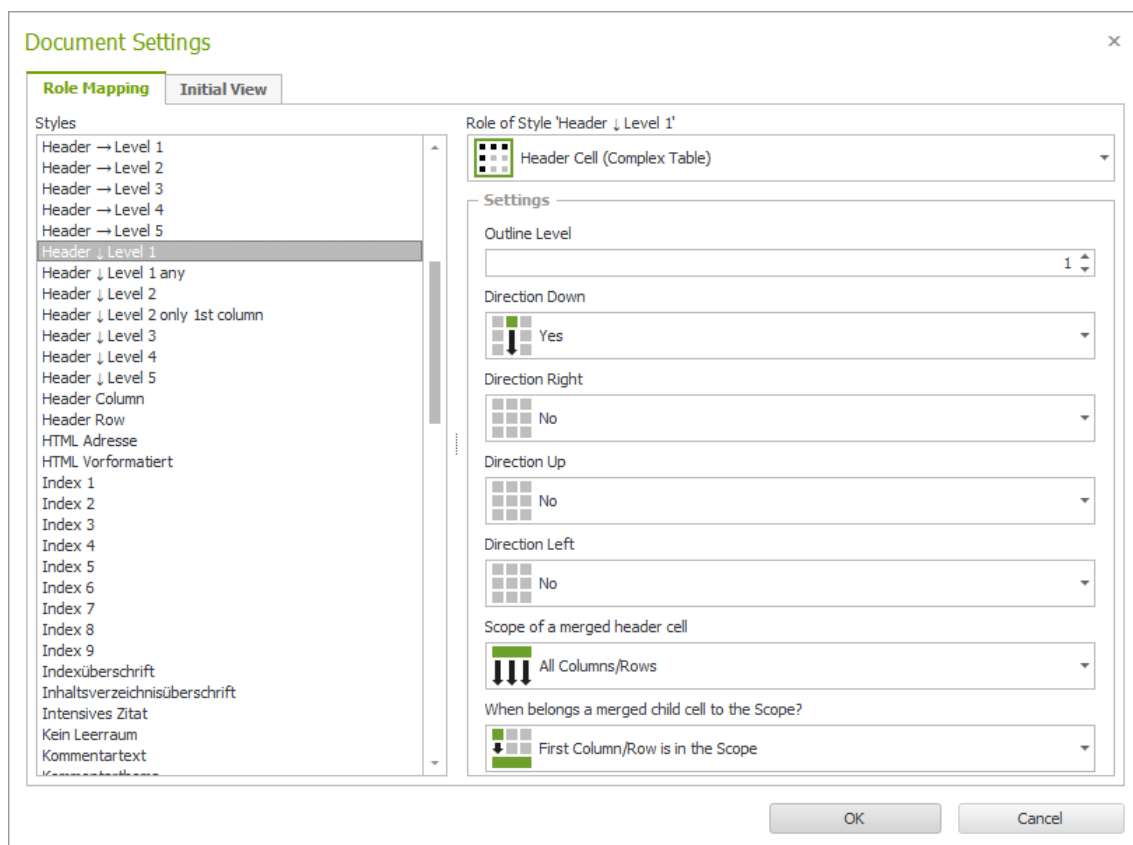


Figure 25: Role Mapping of the style "Header ↓ Level 1"

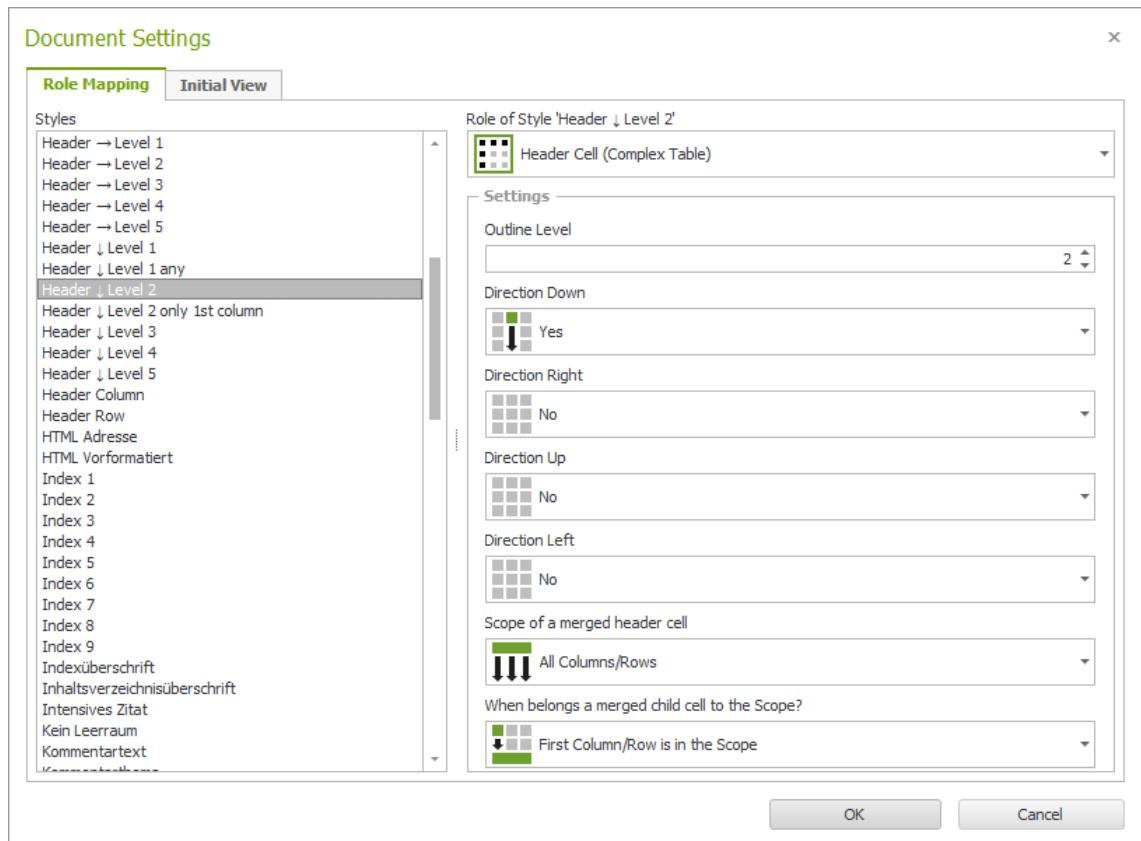


Figure 26: Role Mapping of the style "Header ↓ Level 2"

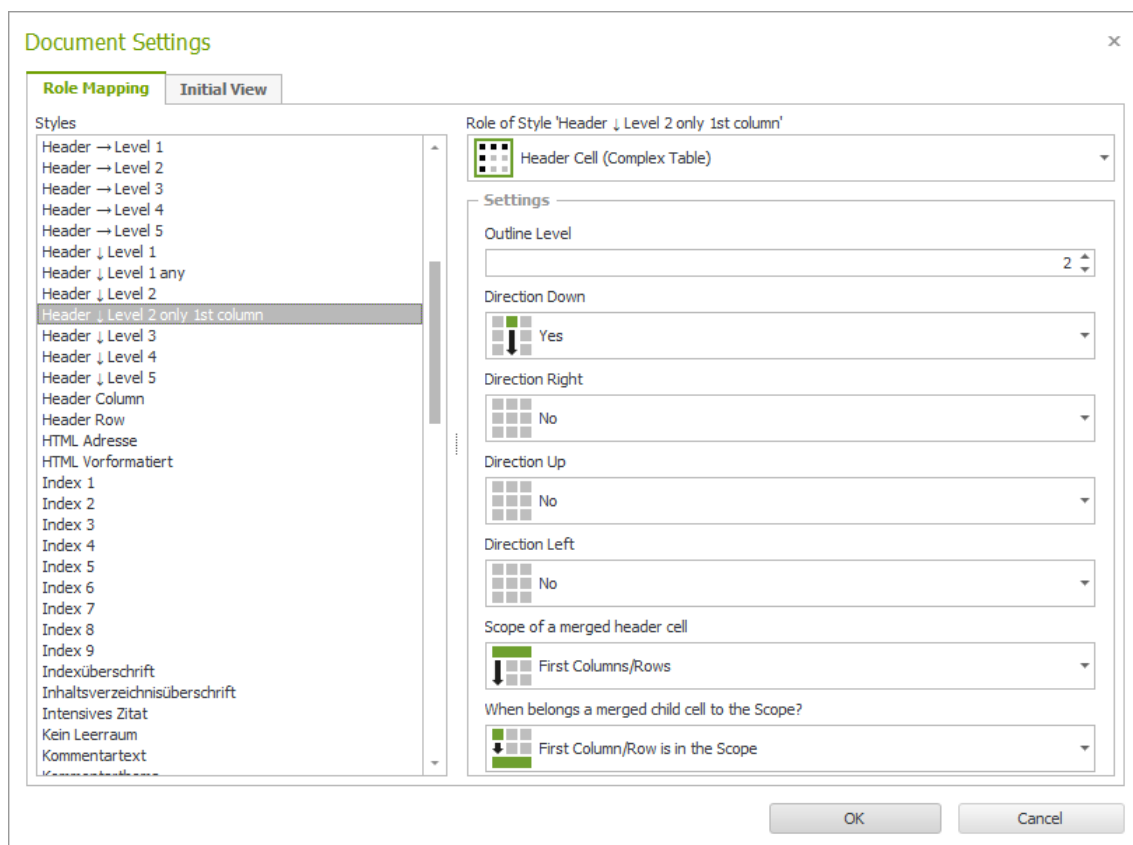


Figure 27: Role Mapping of the style "Header ↓ Level 2 only 1st column"

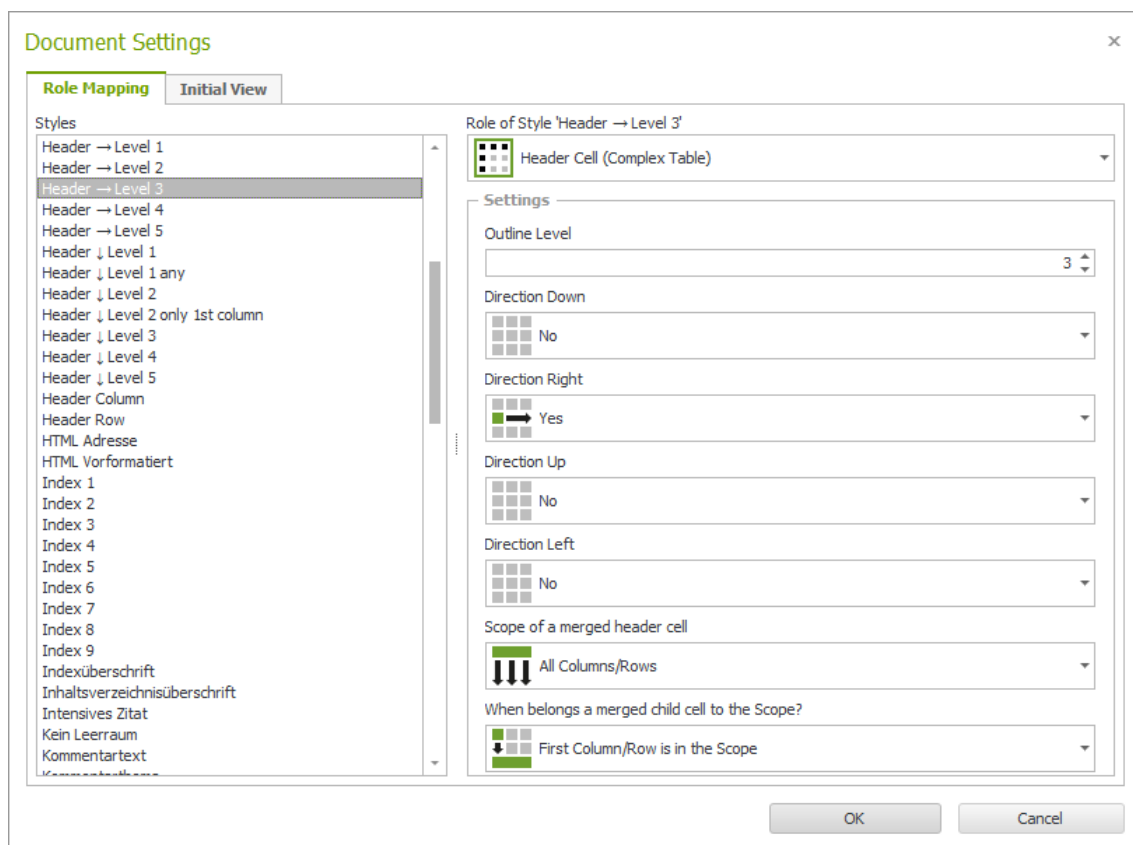


Figure 28: Role Mapping of the style "Header -> Level 3"

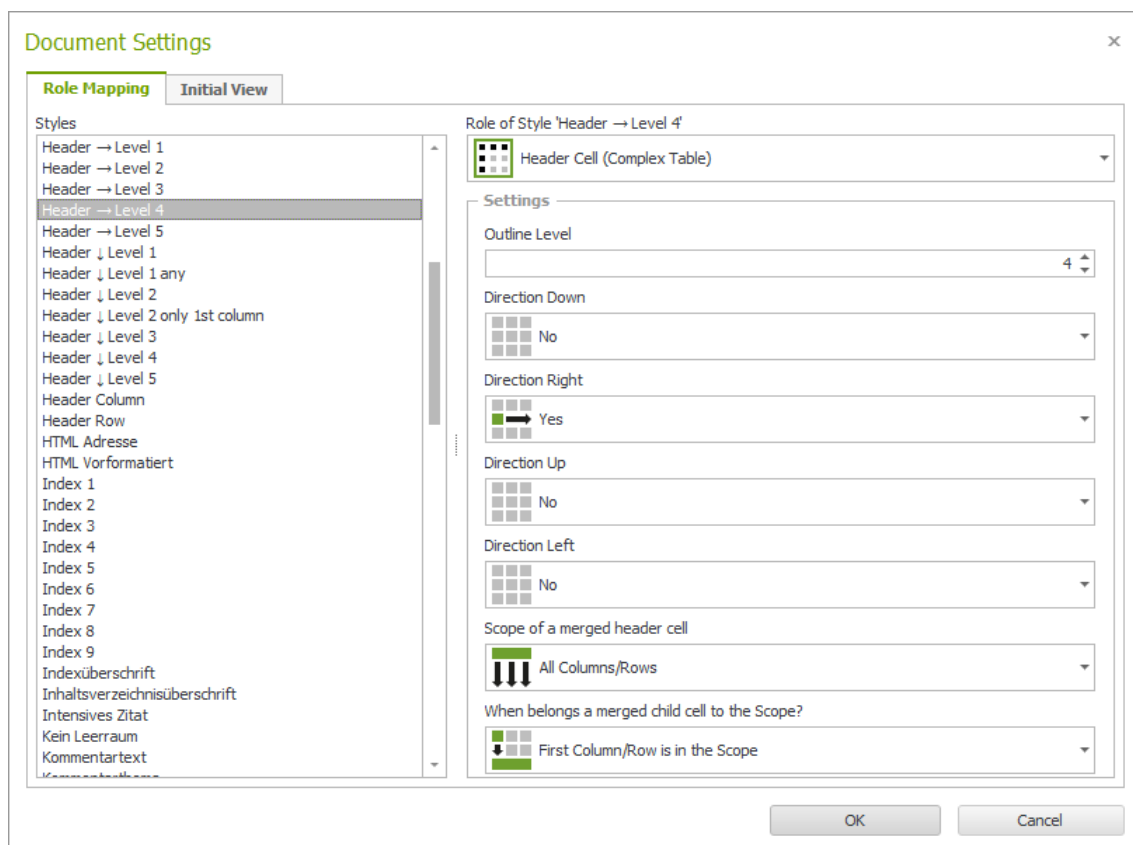


Figure 29: Role Mapping of the style "Header -> Level 4"



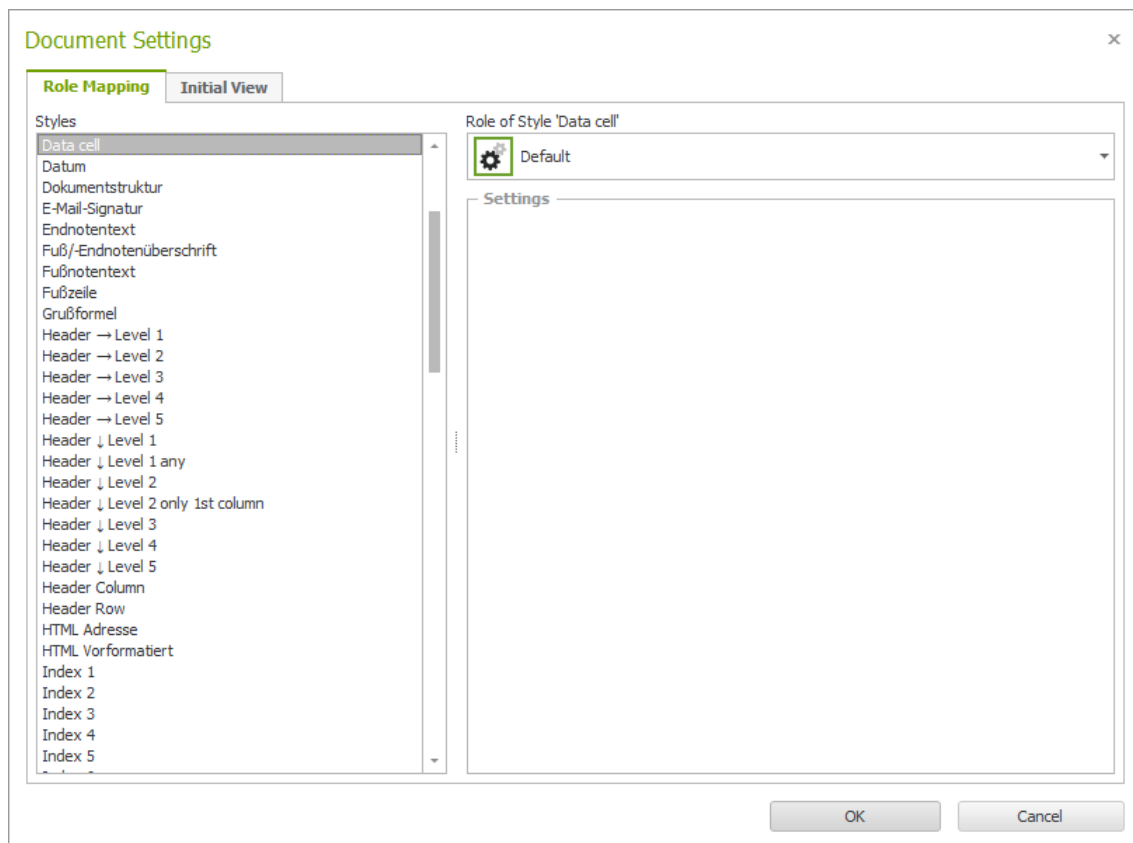


Figure 30: Role mapping of the style "Data cell"



## 7 Keyboard shortcuts for table navigation with screen reader

<b>Function: Tables</b>	<b>Screen reader JAWS</b>	<b>Screen reader NVDA</b>
<b>Dialog window with listing of all tables</b>	Key: CTRL+Insert+T	---
<b>Jump to next table</b>	Key: T	Key: T
<b>Jump/read to next cell on the left</b>	Key: CTRL+ALT+Arrow Left	Key: Arrow Top
<b>Jump/read to next cell on the right</b>	Key: CTRL+ALT+Arrow Right	Key: Down arrow
<b>Jump/read up within the column</b>	Key: CTRL+ALT+Arrow Top	---
<b>Jump/read down within the column</b>	Key: CTRL+ALT+Arrow Bottom	---