Creating Accessible Spreadsheets in Microsoft Excel 2010/13 (Windows) & 2011 (Mac)

Screen readers and Excel

Users who are blind rely on software called a screen reader to interact with spreadsheets.

- Screen readers will read the cell number as users navigate from cell to cell (e.g., “Grand Total A 23”).
- Spanned cells will be identified by a screen reader (e.g., “Budget A1 through G1”). If content spans multiple cells visually, these cells should be merged. To merge cells, select Home and the Merge menu.

Merged cells should not be used in tables. They can be confusing for screen reader users who expect one row and/or column header for each cell.

- A screen reader user will usually start with the first cell (A1), so this is a good place to put important information about the sheet.
- Be careful with empty rows and columns. While they may sometimes be necessary to visually separate data, they can cause a screen reader user to think the sheet has ended, even when it has not.

Images and Charts

- While images can be given alternative text in the same way as other Office tools, they can sometimes introduce reading order issues and should typically not be added to spreadsheets. If you have to add an image, the instructions are below.
- Charts cannot be given alternative text. Ensure the data used to create the chart is available and clearly structured, and preferably precedes the chart.
Add alternative text to images and objects

Alternative text, also known as alt text or Alt Text, appears when you move your pointer over a picture or object, and helps people that use screen readers to understand the content of images in your file. For many readers, this is the only information they will have about the images and objects in your file. Alt text should be included for any of the following objects in your workbook:

- Pictures
- Clip art
- Charts
- Tables
- Shapes (that don’t contain text and are not in groups)
- SmartArt graphics
- Groups (all objects in this list, with the exception of shapes, should also have alt text when in groups)
- Embedded objects
- Ink
- Video and audio files

Note The compatibility checker will display a message when items such as tables or pivot tables have alt text because it isn’t supported by some earlier versions of Excel. It does not cause a significant loss, but you may want to remove alt text before you save your workbook as an earlier version.

Add alt text by doing the following:

1. Right click the image or object, and then click Format.
Note For tables, click Tables.

1. Click Alt Text.
2. Type a description of the image or object into the Title and Description text boxes.

Tip Use clear, but concise descriptions. For example, “a red Ferrari” tells the reader more about the image than “a car.”

1. Click Close.

Use hyperlink text that is meaningful

Hyperlink text should provide a clear description of the link destination, rather than only providing the URL. For example, Mike’s Auto Shop is more meaningful than http://www.mikefixescarsforyou.com

To add a hyperlink to your workbook, do the following:

1. Place the cursor in the cell where you want to add the hyperlink.
2. On the Insert tab, in the Links group, click Hyperlink to open the Insert hyperlink dialog box.
3. In the Text to display box, type the name or phrase that will briefly describe the link destination.
4. In the Address box, type the link URL.
5. Click **OK**.

To change the text of a hyperlink, do the following:

1. Select the link, and then, on the **Insert** tab, in the **Links** group, click **Hyperlink** to open the **Insert hyperlink** dialog box.
2. In the **Text to display** box, make any necessary changes to the text.
3. Click **OK**.

Additionally, you can include **ScreenTip** text that appears when your cursor hovers over a hyperlink, and can be used in a similar way to alt text. To add **ScreenTip** text, do the following:

1. Place your cursor in the hyperlink you want to add **ScreenTip** text to.
2. On the **Insert** tab, in the **Links** group, click **Hyperlink** to open the **Hyperlink** dialog box.
3. Click **ScreenTip**.
4. Type in your text in the **ScreenTip text** box.
5. Click **OK**.

**Avoid using blank cells, rows, or columns for formatting**

Blank cells, rows, or columns could mislead someone using a screen reader into thinking that there is nothing more in the table. You can fix this by removing unnecessary blank cells, rows, or columns.

**Other principles**

- **Spell check is not automatic** as it is in Word/PowerPoint. Make sure to spell check each sheet.
- **Do not use color alone to convey information.**

<table>
<thead>
<tr>
<th>Assignments (overdue in red)</th>
<th>Assignments</th>
<th>Overdue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>Introduction</td>
<td>Yes</td>
</tr>
<tr>
<td>Chapter 1</td>
<td>Chapter 1</td>
<td>No</td>
</tr>
</tbody>
</table>
Table ‘Headers’

If your spreadsheet includes tables, there is a special way to add table ‘header’ information that will be read in some screen readers. Tables can be identified with formula names of **Title**, **TitleRegion**, and others.

- These formulas do not update when the table changes, so be sure your table is complete first.
- This only works for a single level of headers. Complex tables will need to be simplified or restructured.

One table per sheet:

For sheets with one table only, select the cell in the upper-left corner of the table (not the table title).

In Windows, select **Formulas > Define Name** and the **New Name** dialog opens. In Mac, select **Insert > Name > Define** and the **Define Name** dialog opens.

In the **Name** field, replace the existing text with one of the following 3 values, depending on your table layout:

- If the table has column and row headers, enter **Title**
- If the table has row headers only, enter **RowTitle**
If the table has column headers only, enter ColumnTitle

Don't Confuse "Column" and "Row" headers. Remember that ColumnTitle is for vertical headers and RowTitle is for horizontal headers. Also be sure to type RowTitle or ColumnTitle as one word, without a space.

After entering the correct value in the Name field, select Ok. Although the initial text is still visible, accessibility information has been added for a screen reader user.

Only add a Name to the first cell in the table. Do not repeat this step for other header cells within the same table.

Multiple tables per sheet:

If a single sheet has multiple tables, if the table has sortable columns, or if you want to specify an explicit beginning and end of a table, you need to use TitleRegion.

Select the cell in the upper-left corner of the table (not the table title). In Windows, select Formulas> Define Name and the New Name dialog opens. In Mac, select Insert> Name> Define and the Define Name dialog opens.

In the Name field, enter TitleRegion followed by the following 4 values (no spaces, separated by periods):

1. Unique number within the sheet (e.g., 1 for the first table)
2. First (upper-left) cell in the table (e.g., A2)
3. Last (lower-right) cell in the table (e.g., C5)
4. Sheet number (e.g., 2 for the second tab in the workbook)
The above table Name would be TitleRegion1.A2.C5.2

Note: RowTitleRegion or ColumnTitleRegion can be used for tables that only have row or column headers.

After entering the correct value in the Name field, select Ok. This table is now accessible. Repeat this process for every table on the sheet, remembering to select the upper-left corner cell of each new table.

Deleting formula names

You may occasionally create a formula name for the wrong field or give a single cell more than one name. These unnecessary formula names should be removed.

1. To remove formula names in Windows, select Formulas> Name Manager. In Mac select Insert> Name> Define.
2. Then choose the *desired name* and select *Delete.*
Include closed captions for any audio or video

If you use additional audio or video components in a workbook, ensure that the content is available in alternative formats for users with disabilities, such as closed captions, transcripts or alt text.

Accessibility Barriers

- The ribbon style menu layout may make navigation difficult for screen reader users.
- Graphs and charts are inaccessible to screen reader users.
- Large data sets with undefined parameters are not accessible to blind users, low vision users or users with cognitive impairments.
- External data sources may be inaccessible to screen reader users.

Best Practices

- Use clear and meaningful row and column labels.
- Create and/or provide an electronic document listing any relevant formulas and/or macros.
- Provide text-based alternatives for charts and graphical data.
- Provide descriptions of charts and graphs in the comment area.
- Highlight important cells in data sets to aid users with learning/cognitive impairments locate relevant data.
- Define the parameters for datasets (e.g., lowest and highest values, rows/columns that define the limits of the dataset).
- Use clear and specific language to identify cells, cell values, and other relevant information when presenting Excel spreadsheets and/or data.
- Use clear and specific language to describe charts and graphs.