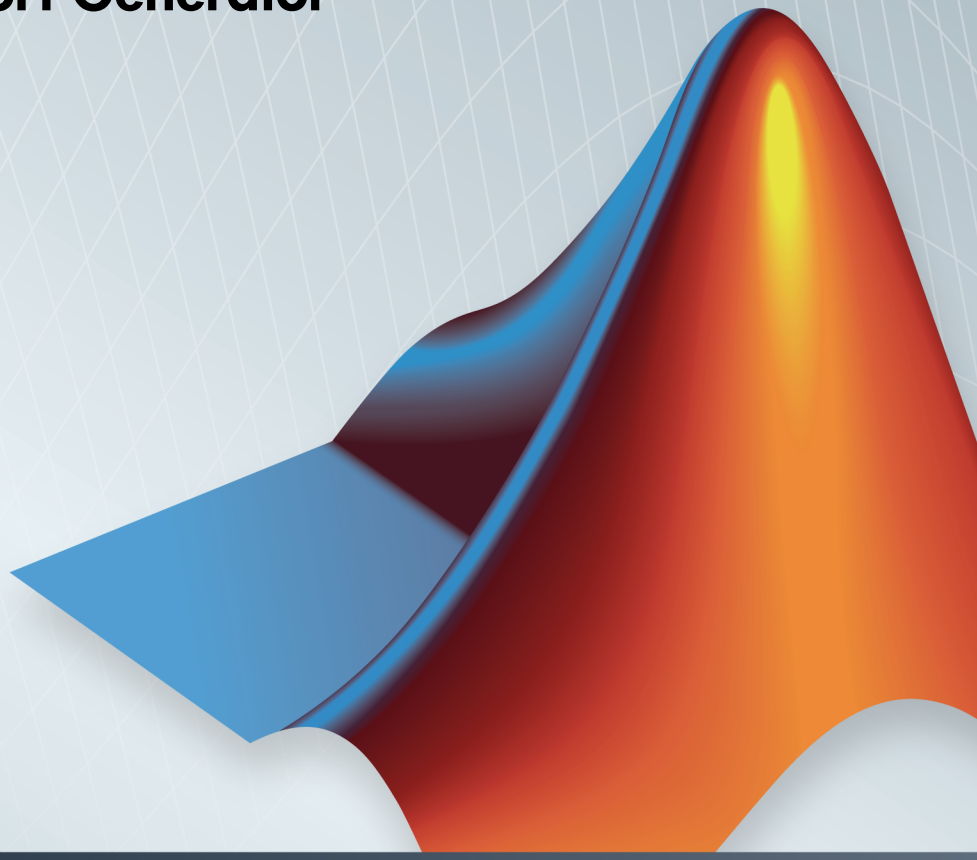
MATLAB® Report Generator™

User's Guide

R2014**b**



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MATLAB® Report Generator™ User's Guide

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1

Getting Started

MATLAB Report Generator Product Description

Design and generate reports from MATLAB applications

MATLAB Report Generator lets you create richly formatted Microsoft® Word, HTML, or PDF reports that present results from your MATLAB programs and applications. You can use the prebuilt, customizable Word and HTML templates to lay out and format reports. You can also design and create reports based on your organization's templates and standards.

MATLAB Report Generator automatically captures results and figures across multiple MATLAB functions and presents them within a single report.

Key Features

- Automated reporting from MATLAB
- Report formatting based on Word and HTML templates
- Report designer for creating custom Word, HTML, and PDF reports
- Selective report generation via logical control flow components, such as IF, THEN, ELSE, and WHILE
- API for forms-based Word and HTML report generation

MATLAB Code and Results Presentation

You can use the MATLAB Report Generator to create reports for sharing your MATLAB code and presenting the results of the code.

In addition, MATLAB provides several methods for presenting MATLAB code and results, including:

- MATLAB `publish` command
- MATLAB `notebook` command

MATLAB enables you to publish your MATLAB code quickly, so that you can describe and share your code with others, even if they do not have MATLAB software. You can publish in various formats, including HTML, XML, and LaTeX. If Microsoft Word or Microsoft PowerPoint® applications are on your Microsoft Windows® system, you can publish to their formats as well.

On Windows platform, you can use the `notebook` command to create a Microsoft Word document that contains text, MATLAB commands, and the output from MATLAB commands. The document is a record of an interactive MATLAB session annotated with text or a document embedded with live MATLAB commands and output.

To compare the MATLAB tools for presenting MATLAB code and results and MATLAB Report Generator, see “Options for Presenting Your Code”.

Report Creation Workflow

Approaches for Creating Reports

You can create and generate reports :

- Interactively, using the Report Explorer
- Programmatically, using the DOM (Document Object Model) API

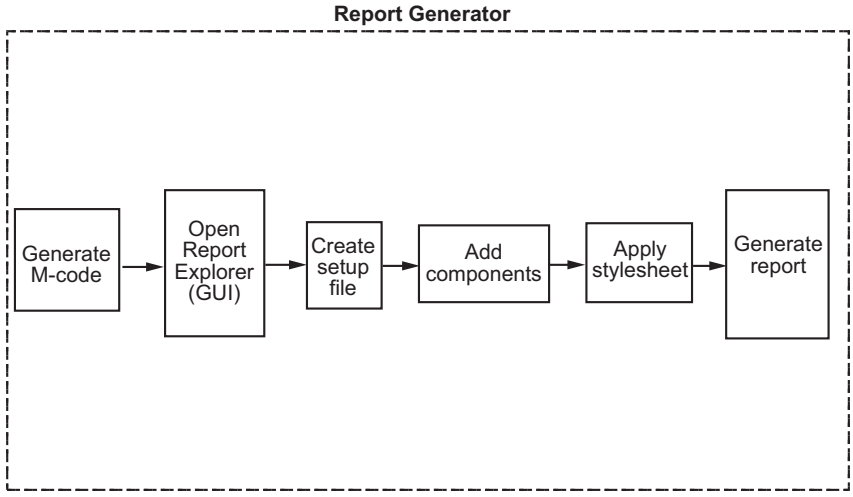
You can use the Report Explorer graphical interface to create reports without having to write code.

Using the programmatic approach, you can integrate report generation into analysis and testing applications. For more information, see “Programmatic Report Creation”.

Interactive Report Generation

1. Open the Report Explorer.
2. Create a report setup file. For details about report setups, see “Report Setup”.
3. Add content by adding to the report setup file existing components or custom components that you create. For details about using components, see “Working with Components”.
4. Apply styles and standards to the report by choosing an existing stylesheet or a custom stylesheet. For details on stylesheets and attributes, see “Layout Stylesheets”.
5. Generate the report. See “Generate Reports”.

The following figure illustrates a typical MATLAB Report Generator workflow.



To practice using this report creation workflow, see “Working with Components”.

How MATLAB Report Generator and MATLAB Software Interact

The MATLAB Report Generator and MATLAB software interact to create reports. You can access the Report Explorer from the MATLAB command line.

The following table summarizes these interactions.

User Interface	MATLAB Report Generator Interaction	Description
Report Explorer	The Report Explorer provides a graphical interface. For more information, see “Report Explorer” on page 1-8.	Use the Report Explorer to edit existing report templates, components, stylesheets, and attributes, or to customize your own.
MATLAB command line	Enter commands at the MATLAB command line to: • Start the Report Explorer • Create and modify report template files • Apply stylesheets • Specify output formats for reports • Generate reports	The following MATLAB commands work with the MATLAB Report Generator software: • `report` — Start the Report Explorer. • `setedit` — Edit a report template with the Report Explorer. • `rptconvert` — Convert a source file created by the report generation process to the desired output format. • `rptlist` — List `.rpt` files in the current path.

Report Components

Types of Report Components

Components are MATLAB objects that specify the content of a report. The MATLAB Report Generator provides a set of components for specifying the types of content that commonly occur in MATLAB-based reports. The Simulink® Report Generator provides additional components to facilitate generation of reports from Simulink models. You can also create custom components to handle content specific to your application.

Using the Report Explorer, you can interactively combine components to create a report setup (see "Report Setup") that specifies the content of a particular report or type of report. You can then run the setup from the Report Explorer or the MATLAB command line to create instances of the report.

Use a combination of the following types of components in your report setup file, based on the goals for the report.

Type of Component	Description
"Report Structure Components"	Include a title page, chapters, sections, paragraphs, lists, tables, and other standard document structure elements.
"Table Formatting Components"	Organize generated content into tables.
"Property Table Components"	Display tables with property name/ property value pairs for objects.
"Summary Table Components"	Display tables with specified properties for objects.
"Logical and Looping Components"	Run child components a specified number of times. There are several looping components, including logical loops and Handle Graphics® loops.

Use the Report Explorer to add components to a report setup file and to specify component properties.

Report Explorer

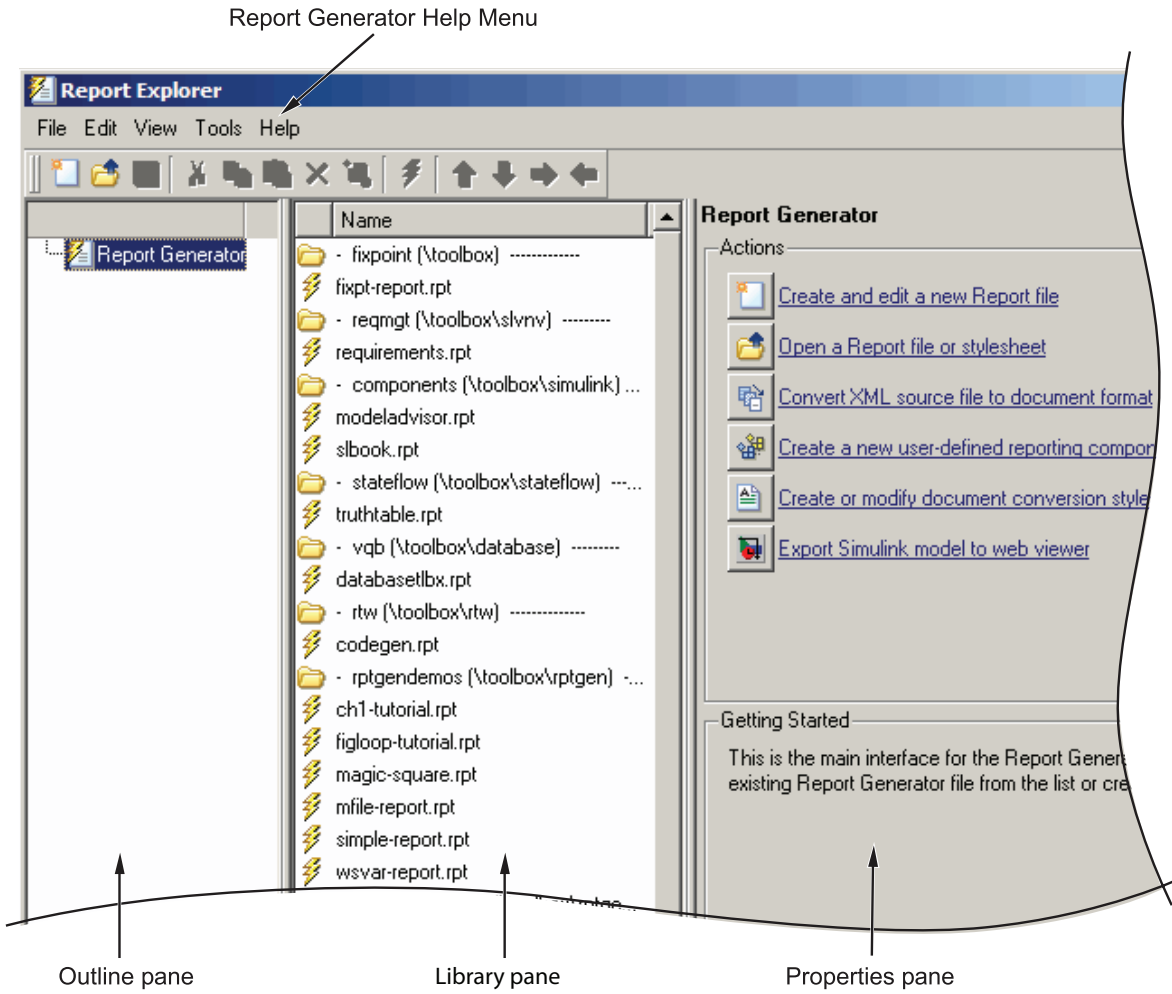
About the Report Explorer

Use the *Report Explorer* to:

- Create and modify report setup files.
- Apply stylesheets to format the generated report.
- Specify the report file format.
- Generate reports.

Open the Report Explorer using one of these approaches:

- From the MATLAB Toolstrip, in the **Apps** tab, in the **Database Connectivity and Reporting** section, click **Report Generator**.
- In the MATLAB Command Window, enter `report`.



The Report Explorer has three panes:

- The *Outline pane* on the left shows the hierarchy of components in currently opened report setup files. Report components can reside within other report components, creating parent, child, and sibling relationships.
- The *Library pane* in the middle lists the objects available in the context of the Outline pane.

Outline Pane Context	Library Pane Contents
No report setup file is open.	Reports
Report setup file is open.	Components
Stylesheet is open.	Stylesheet attributes

- The *Properties pane* contents depend on the Outline pane context. If no report setup file is open, on the right displays tasks the Report Explorer can perform. If a report setup file is open, the Properties pane displays the properties for the item that is currently selected in the Options pane.

Outline Pane Context	Properties Pane Contents
No report setup file is open.	Tasks that the Report Explorer can perform
Report setup file is open.	Properties for the item that is currently selected After you create a report setup file, the Properties pane initially displays properties for the report setup file as a whole.

Tip If the Report Explorer window opens with only two panes, one of the panes is hidden. You can move the vertical boundaries between the panes to reveal any hidden pane, or to make visible panes wider or narrower.

Supported Report Formats

When the report-generation process first creates a report, it generates a DocBook XML source file. You can customize this XML as needed. For more information on how to customize DocBook XML, see the OASIS™ DocBook TC Web page at `http://www.oasis-open.org/committees/docbook` and the online version of DocBook: The Definitive Guide by Norman Walsh and Leonard Muellner, with contributions from Bob Stayton at http://www.docbook.org/tdg/en/html/docbook.html.

Next, the report-generation process converts the XML source to one of these user-specified report formats:

- Adobe® Acrobat® PDF
- Hypertext Markup Language (HTML)
- Microsoft Word (`.doc`)
- Rich Text Format (RTF)

Note: RTF reports use placeholders (field codes) for dynamically generated content, such as page numbers or images.

On Windows platforms, to display that content, press **Ctrl+A**, and then press **F9**.

On Linux® and Mac platforms, use the field code update interface for the program that you are using to view the RTF document.

Limitations for Report Formats

PDF reports only support bitmap (`.bmp`), jpeg (`.jpg`), and Scalable Vector Graphics (`.svg`). The SVG format is only supported for Simulink models and Stateflow® charts.

For reports that use the `Word Document` format, you must have Microsoft Word software installed on the machine that you use to generate the report.

Create Your First Report

Create a MATLAB Report

This example shows how to create a report that explains and illustrates magic squares – matrices whose columns, rows, and diagonals each add up to the same number (see the `magic` function reference in the MATLAB documentation).

To create this report, you perform these main tasks:

- "Create a Report Setup File" on page 2-3
- "Add Report Content Using Components" on page 2-5

Note: You do not need to know the MATLAB software to use this example. However, knowledge of MATLAB is helpful for understanding the MATLAB code that executes during report generation.

This example includes separate sections for different kinds of report creation and generation tasks. Each section builds on the previous sections. However, if you want to work through a later section without having done the previous sections, you can view the completed report setup file: `Magic Squares Report`.

Create a Report Setup File

To set up the magic squares report, first create a setup file to store the setup. Then add MATLAB objects, called components, to the setup to specify the report content.

To create the report setup file:

1. Start a MATLAB software session.
2. Open the Report Explorer. From the MATLAB Toolstrip, in the **Apps** tab, in the **Database Connectivity and Reporting** section, click **Report Generator**.
3. Select **File** > **New** to create a report setup file. The new report setup has the default name `Unnamed.rpt`.
4. In the Properties pane on the right:
   a. To save the report in the current working folder, select `Present working directory` from the **Directory** list.
   b. Set **File format** to `web (HTML)` to create the report as an HTML file.
   c. In the **Report description** text box, replace the existing text with the following text.

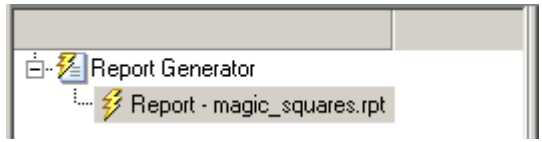
   Tip Copy and paste this text from the HTML documentation into the Report Explorer.

   ```
   This report creates a series of magic squares
   and displays them as images.

   A magic square is a matrix in which the
   columns, rows, and diagonal all add up to the
   same number.
   ```

   Note: When you change a Properties pane field, its background color changes. This indicates that there are unapplied changes to that field. As soon as you perform any action with another component, MATLAB Report Generator applies the changes, and the background color becomes white again.
5. Save your report. Select **File** > **Save As** and name your report setup file `magic_squares.rpt`.

The new file name appears in the Outline pane.



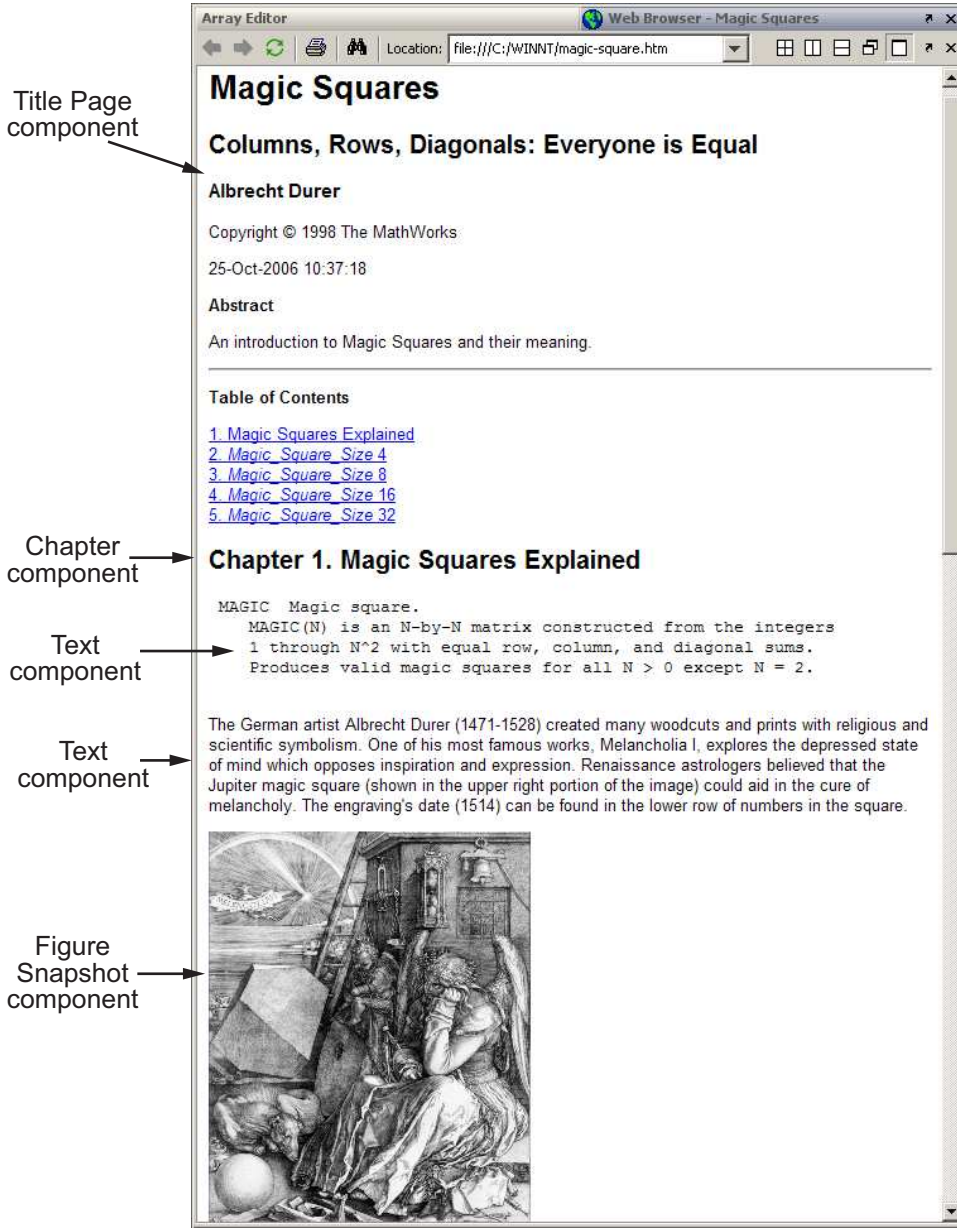
To create the content for the report, see “Add Report Content Using Components” on page 2-5.

Add Report Content Using Components

In this section...

Report Components

Report components specify the information to include in the report. The following figure shows a sample page from the report that you create in this example, highlighting components that you use to produce the report.


Array Editor
Web Browser - Magic Squares
Location: file:///C:/WINNT/magic-square.htm
Title Page component
Chapter component
Text component
Text component
Figure Snapshot component
Magic Squares
Columns, Rows, Diagonals: Everyone is Equal
Albrecht Durer
Copyright © 1998 The MathWorks
25-Oct-2006 10:37:18
Abstract
An introduction to Magic Squares and their meaning.
Table of Contents
1. Magic Squares Explained
2. Magic_Square_Size 4
3. Magic_Square_Size 8
4. Magic_Square_Size 16
5. Magic_Square_Size 32
Chapter 1. Magic Squares Explained
MAGIC Magic square.
MAGIC(N) is an N-by-N matrix constructed from the integers
1 through N^2 with equal row, column, and diagonal sums.
Produces valid magic squares for all N > 0 except N = 2.
The German artist Albrecht Durer (1471-1528) created many woodcuts and prints with religious and scientific symbolism. One of his most famous works, Melancholia I, explores the depressed state of mind which opposes inspiration and expression. Renaissance astrologers believed that the Jupiter magic square (shown in the upper right portion of the image) could aid in the cure of melancholy. The engraving's date (1514) can be found in the lower row of numbers in the square.

Specify Report Variables

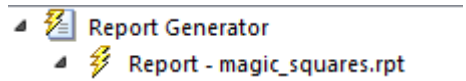
The magic squares report uses variables defined in the MATLAB workspace to specify the number and sizes of squares to display and whether to display the variables as tables of numbers or images of color-coded squares:

- The *magicSizeVector* variable specifies an array of magic square sizes
- *largestDisplayedArray* variable specifies the size of the largest magic square to be displayed as an array of numbers

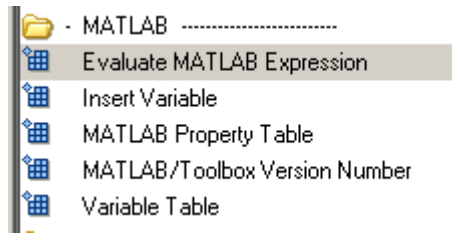
You could require that a user create these variables in the MATLAB workspace before running the report. However, a better solution is to let the report itself create the variables, using the "Evaluate MATLAB Expression" component.

To use the Evaluate MATLAB Expression component to define the report variables.

1 In the Outline pane on the left, select the root component of the report setup.



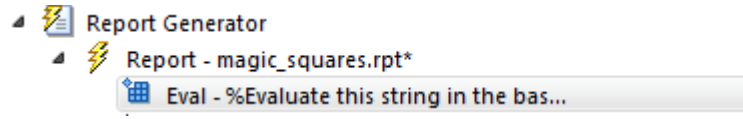
2 In the Library pane in the middle, under the `MATLAB` category, select `Evaluate MATLAB Expression`.



3 In the Properties pane on the right, click the icon next to **Add component to current report** to insert the Evaluate MATLAB Expression component into the report.

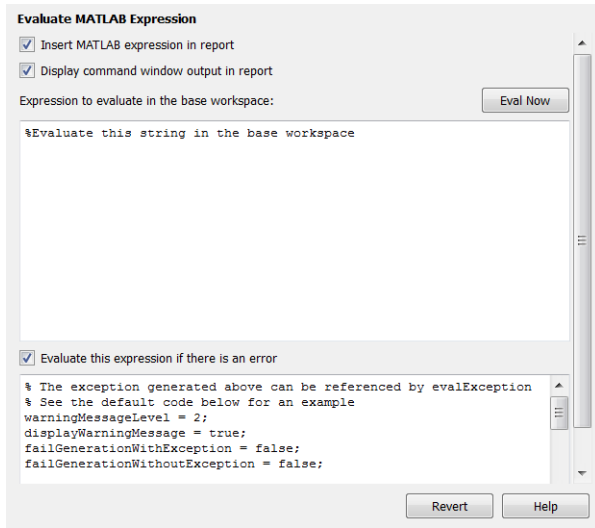
You cannot edit the component information in the Properties pane until you have added the component to the report.

In the Outline pane, the `Eval` component appears under the `magic_squares` report.



The icon in the upper left corner of the `Eval` component indicates that this component cannot have child components. By default, any components you add with the `Eval` component selected are siblings to this component.

The options for the Evaluate MATLAB Expression component appear in the Properties pane.



4 To exclude the MATLAB code details and its output in this report, clear the **Insert MATLAB expression in report** and **Display command window output in report** check boxes.

5 In the **Expression to evaluate in the base workspace** text box, replace the existing text with the following MATLAB code.

Tip Copy and paste this text from the HTML documentation into the Report Explorer.

```
%This MATLAB code sets up two variables
%that define how the report runs.
%magicSizeVector is a list of MxM
%Magic Square sizes to insert into
%the report. Note that magic
%squares cannot be 2x2.

magicSizeVector=[4 8 16 32];

%largestDisplayedArray sets the
%limit of array size that will be
%inserted into the report with the
%Insert Variable component.

largestDisplayedArray=15;
```

6 In the **Evaluate this expression if there is an error** text box, replace the existing text with the following text.

```
disp(['Error during eval: ', evalException.message])
```

This causes an error to display if the MATLAB code fails.

Tip To execute these commands immediately, in the top right corner of the Report Explorer, click the **Eval Now** button. This confirms that your commands are correct, to reduce the chances of report generation problems.

---

7 Save the report. Select **File** > **Save**.

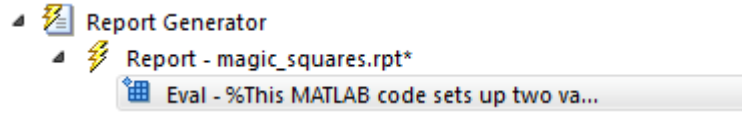
Create a Title Page

Note: This section builds on the previous tasks described in the step-by-step example summarized in "Create a MATLAB Report" on page 2-2.

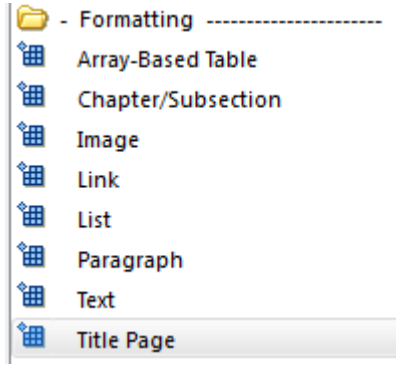
If you have not completed the previous sections of this example, see open the completed report setup file: `Magic Squares Report`.

To create a title page for the report, use the Title Page component.

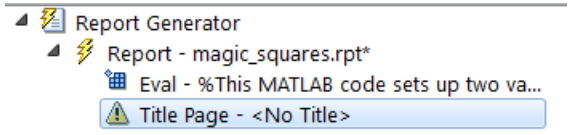
1 In the Outline pane on the left, select the `Eval` component.



2 In the Options pane in the middle, under the `Formatting` category, double-click `Title Page` to add the component to the report.



Because the `Eval` component icon indicates that this component cannot have children, the `Title Page` component is a sibling of the `Eval` component. Likewise, the `Title Page` component also cannot have child components.



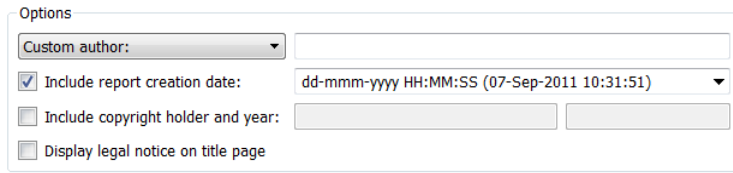
Note: To use a Title Page component, you need to have a Chapter component in your report. You have not yet added a Chapter component, so the Properties pane displays a message indicating that a chapters is required for the Title Page component to appear correctly. Because later in this example you add Chapter components to this report, you can ignore that message.

3 In the Properties pane on the right, use the **Main** tab to enter the following title page information.

a In the **Title** text box, enter `Magic Squares`.

b In the **Subtitle** text box, enter `Columns, Rows, Diagonals: Everyone is Equal`.

c Under **Options**, choose `Custom author` from the selection list.



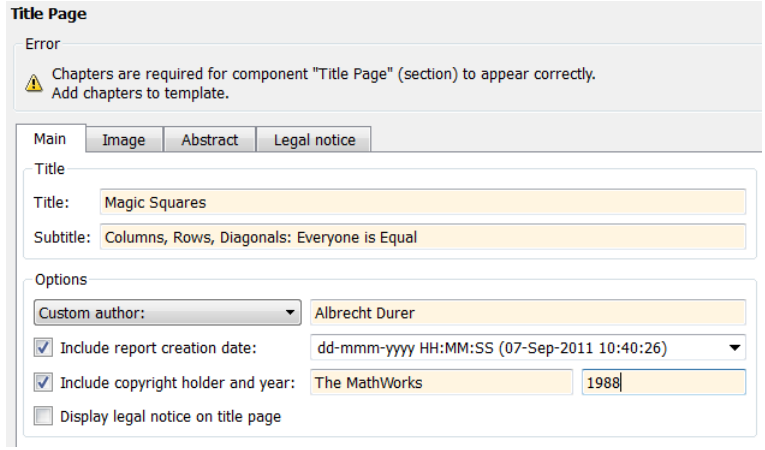
d In the field to the right of the **Custom author** field, enter `Albrecht Durer`.

Albrecht Dürer created an etching that contains a magic square. Your final report includes an image of that etching.

e Select the **Include copyright holder and year** check box.

f In the next text box, enter `The MathWorks`.

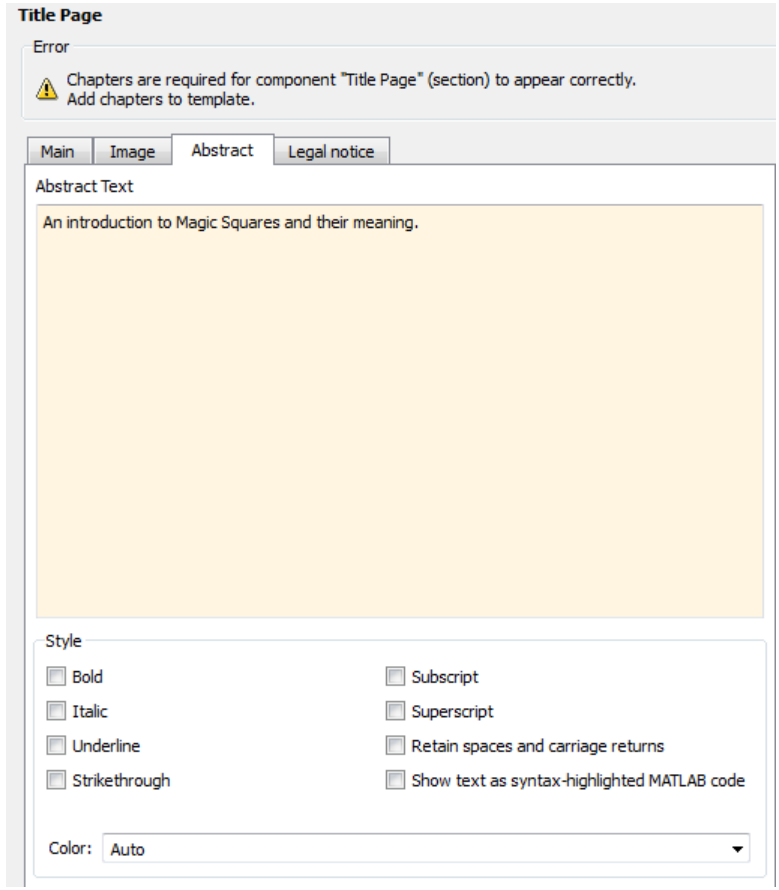
g In the second text box, enter `1988`.



4 In the Properties pane, click the **Abstract** tab and then enter the following text:

```
An introduction to Magic Squares and their meaning.
```

The pane should look as follows:



5 Save the report.

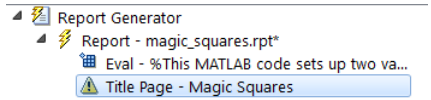
Add a Chapter

Note: This section builds on the previous tasks described in the step-by-step example summarized in “Create a MATLAB Report” on page 2-2.

If you have not completed the previous sections of this example, see open the completed report setup file: `Magic Squares Report`.

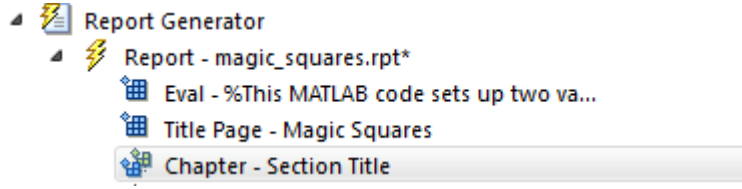
Add a chapter to the report by using the Chapter/Subsection component.

1. In the Outline pane on the left, select the `Title Page` component.



2. In the Library pane in the middle, under the `Formatting` category, double-click `Chapter/Subsection`.

   The Outline pane looks as follows.

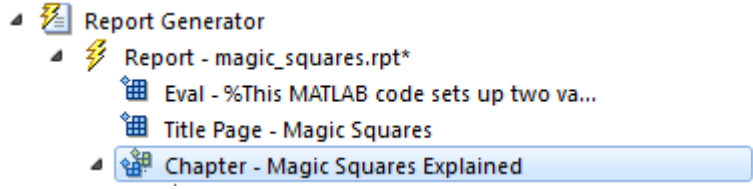


   The `Eval`, `Title Page`, and `Chapter` components are all child components of the report's top level, and are siblings of one another.

   The `Chapter` component can have child components. The next section explains how to add child components to this `Chapter` component.

3. For the custom chapter title, in the Properties pane on the right, enter `Magic Squares Explained`.

   The Outline pane changes to reflect the chapter title.



4. Save the report.

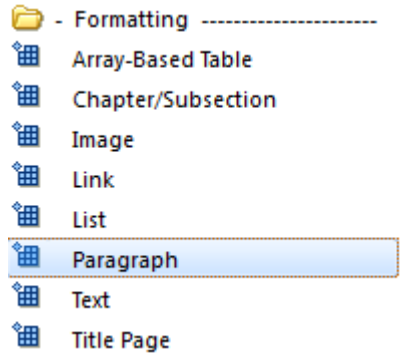
Add Introductory Text to the First Chapter

Note: This section builds on the previous tasks described in the step-by-step example summarized in "Create a MATLAB Report" on page 2-2.

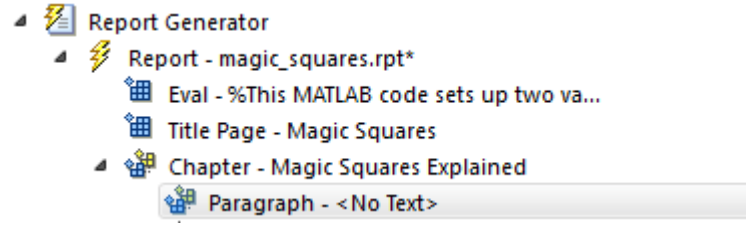
If you have not completed the previous sections of this example, see open the completed report setup file: `Magic Squares Report`.

Include introductory text in the first chapter by adding the Paragraph and Text components.

1. In the Outline pane on the left, select the `Chapter` component.
2. In the Library pane in the middle, under the `Formatting` category, double-click `Paragraph`.



In the Outline pane, the new component appears as a child of the `Chapter` component.



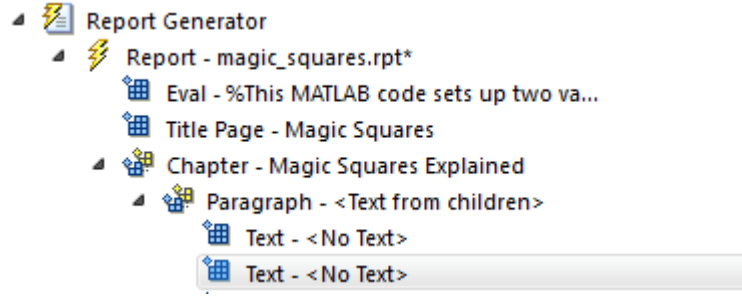
3 By default, the Paragraph component inherits its text from its child components. Add two `Text` components.

Note: The `Text` component must have the `Paragraph` component as its parent.

4 In the Library pane, under the `Formatting` category, double-click `Text`.

5 Double-click `Text` again to add a second component.

The Outline pane looks as follows.



6 In the Outline pane, select the first `Text` component.

7 In the **Text to include in report** text box, enter `%<help('magic')>`.

The `%` sign and angle brackets `<>` indicate to the MATLAB Report Generator software that this is MATLAB code to evaluate. The command `help('magic')` displays information about the MATLAB `magic` function.

8 In the Outline pane, select the second `Text` component.

9 In the **Text to include in report** text box, enter the following text.

Tip Copy and paste this text from the HTML documentation into the Report Explorer.

```
The German artist Albrecht Durer (1471-1528)
created many woodcuts and prints with religious
and scientific symbolism.  One of his most famous
works, Melancholia I, explores the depressed state
of mind that opposes inspiration and expression.
Renaissance astrologers believed that the Jupiter magic
```

```
square (shown in the upper right portion of the image)
could aid in the cure of melancholy. The engraving's
date (1514) can be found in the lower row of numbers
in the square.
```

10 Save the report.

The contents of the first chapter are now complete.

Add an Image

Note: This section builds on the previous tasks described in the step-by-step example summarized in "Create a MATLAB Report" on page 2-2.

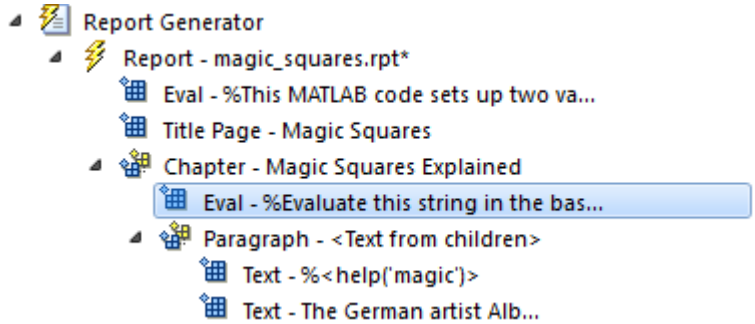
If you have not completed the previous sections of this example, see open the completed report setup file: `Magic Squares Report`.

The next steps create an image of Albrecht Dürer and include it in the report.

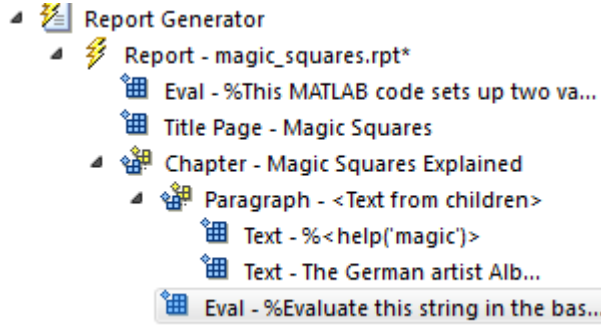
1 In the Outline pane on the left, select the `Chapter` component.

2 In the Library pane in the middle, under the MATLAB category, double-click `Evaluate MATLAB Expression`.

The new component becomes a child of the `Chapter` component.



3 Move the `Eval` component under the `Paragraph` component so that the image follows the introductory text by clicking the **down** arrow on the toolbar.



4 With the `Eval` component still selected, do the following in the Properties pane on the right:

a Clear the **Insert MATLAB expression in report** and **Display command window output in report** check boxes. You do not want to include the code or its output in the report.

b In the **Expression to evaluate in the base workspace** text box, replace the existing text with the following MATLAB code.

Tip Copy and paste this text from the HTML documentation into the Report Explorer.

```
%This loads a self-portrait of Albrecht
%Durer, a German artist. There is a
%magic square in the upper right corner
%of the image.

durerData=load('durer.mat','-mat');
figure('Units','Pixels',...
'Position',[200 200 size(durerData.X,2)*.5 size(durerData.X,1)*.5 ]);

image(durerData.X);
colormap(durerData.map);
axis('image');
set(gca,...
    'Xtick',[],...
    'Ytick',[],...
    'Units','normal',...
    'Position',[0 0 1 1]);

clear durerData
```

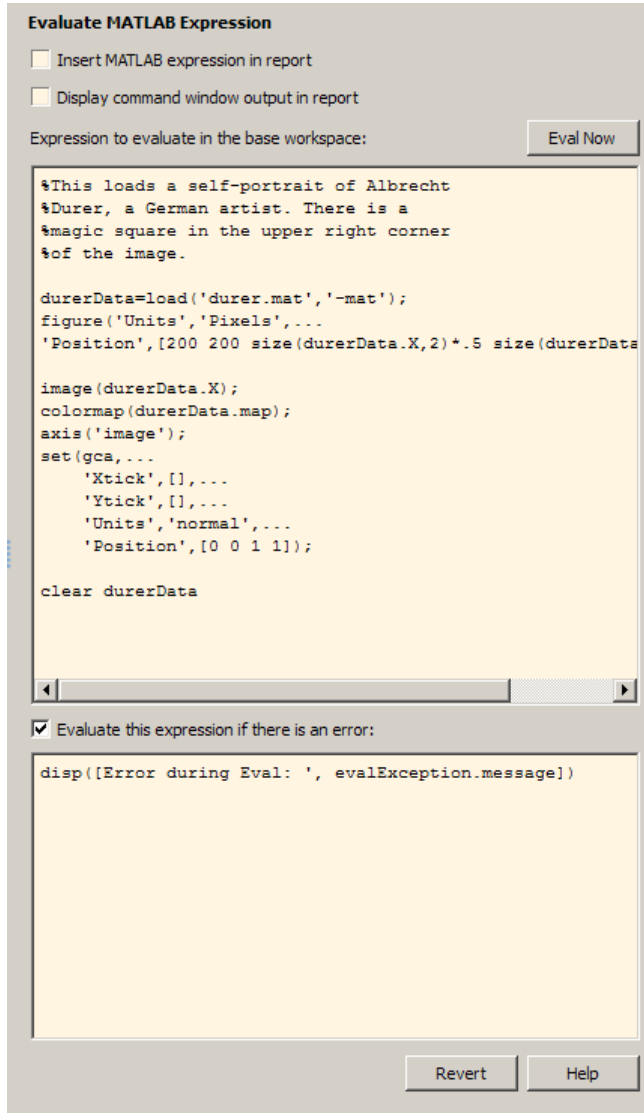
This MATLAB code displays the Dürer etching in a MATLAB figure window.

c In the **Evaluate expression if there is an error** text box, replace the existing text with the following text:

```
disp(['Error during eval: ', evalException.message])
```

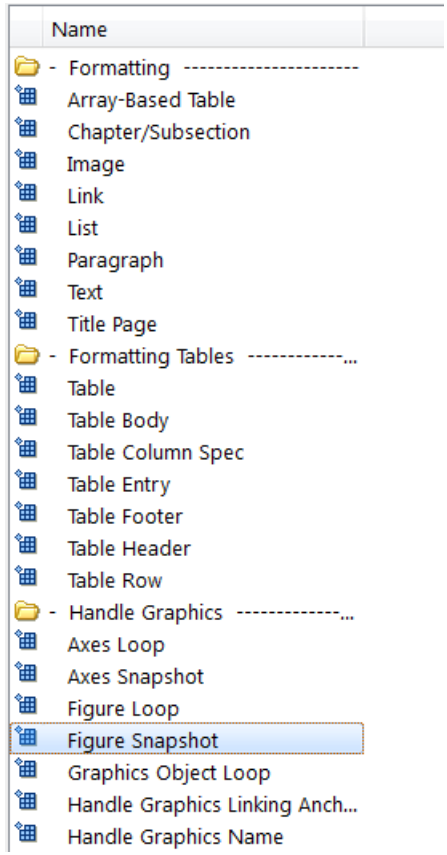
This code executes if an error occurs while loading the Dürer etching.

The Properties pane on the right looks as follows.



5 In the Outline pane on the left, select the `Eval` component.

6 In the Library pane in the middle, under the `Handle Graphics` category, double-click `Figure Snapshot`.



To inline an image component (such as Image or Figure Snapshot), include it within a Paragraph component.

7 In the Properties pane:

a In the **Paper** orientation list, select `Portrait`.

b In the **Invert hardcopy** list, select `Don't invert`.

Selecting this option specifies not to change the image's on-screen colors for printing.

The next three steps set up the report to delete the image from the MATLAB workspace after the image has been added to the report.

8 In the Outline pane, select the `Figure Snapshot` component.

9 In the Library pane, under the `MATLAB` category, double-click `Evaluate MATLAB Expression`.

10 In the Properties pane:

a Clear the **Insert MATLAB expression in report** and **Display command window output in report** check boxes. You do not want to include the code or its output in the report.

b In the **Expression to evaluate in the base workspace** text box, replace the existing text with the following text:

```
%This command deletes the Durer image
delete(gcf);
```

The `delete(gcf)` command deletes the current image in the MATLAB workspace, in this case, the Dürer etching.

c In the **Evaluate expression if there is an error** text box, replace the existing text with the following text:

```
disp(['Error during eval: ', evalException.message])
```

This code executes if an error occurs while deleting the Dürer etching.

11 Save the report.

Create the Magic Squares and Their Images

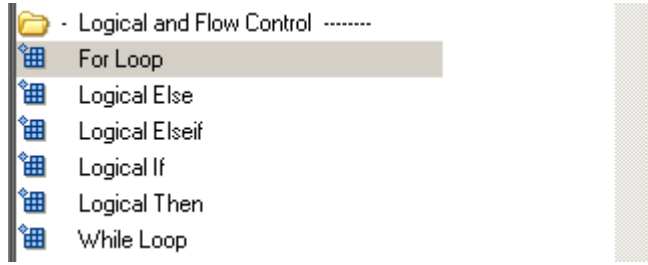
In the next steps, you add a chapter to the report for each magic square specified by the *magicSizeVector* report variable. You use a "For Loop" component to perform this essentially repetitive task. To create the magic squares and their images, you perform these tasks:

Create a For Loop

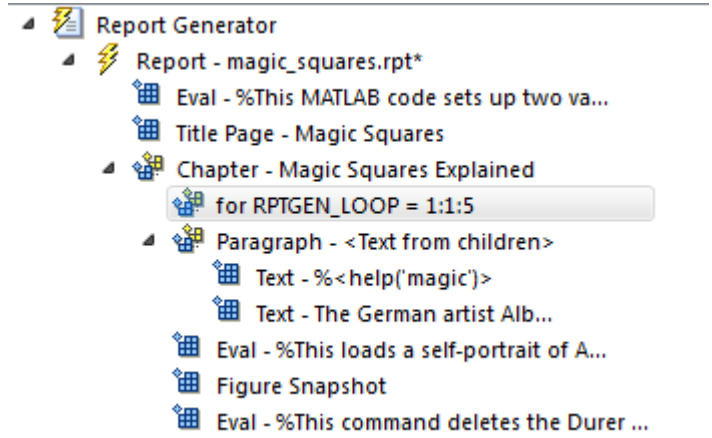
Note: This section builds on the previous tasks described in the step-by-step example summarized in "Create a MATLAB Report" on page 2-2.

If you have not completed the previous sections of this example, see open the completed report setup file: `Magic Squares Report`.

1. In the Outline pane on the left, select the `Chapter` component.
2. In the Library pane in the middle, under the `Logical and Flow Control` category, double-click `For Loop`.



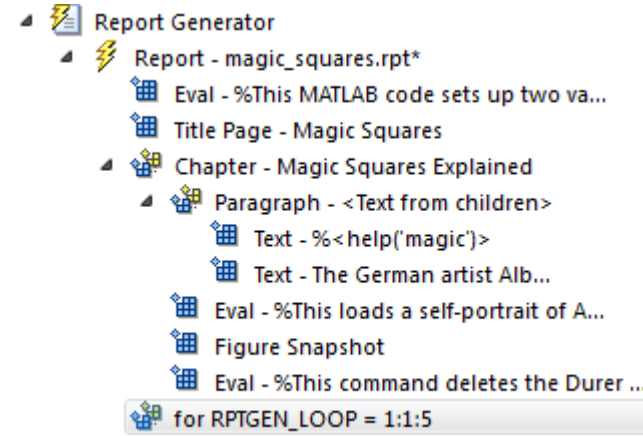
The Outline pane looks as follows.



This For Loop component appears inside the `Chapter` component. However, the magic squares should be processed *after* the first chapter, so the `for` component should be a sibling of the `Chapter` component, not a child.

3 In the Outline pane, select the `for` component.

4 Click the **left** arrow to make the `for` component a sibling, not a child, of the `Chapter` component.



5 In the Properties pane on the right:

a In the **End** text box, replace the existing text with the following text:

```
length(magicSizeVector)
```

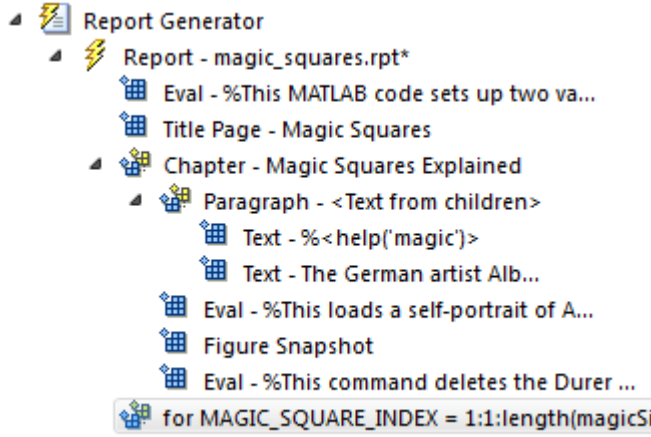
This is the length of the vector that contains the various sizes for the magic square matrices.

b In the **Variable name** text box, replace the existing text with the following text:

```
MAGIC_SQUARE_INDEX
```

This variable acts as a loop index.

The Outline pane looks as follows.



6 Save the report.

Add a Chapter for Each Square

Note: This section builds on the previous tasks described in the step-by-step example summarized in "Create a MATLAB Report" on page 2-2.

If you have not completed the previous sections of this example, see open the completed report setup file: `Magic Squares Report`.

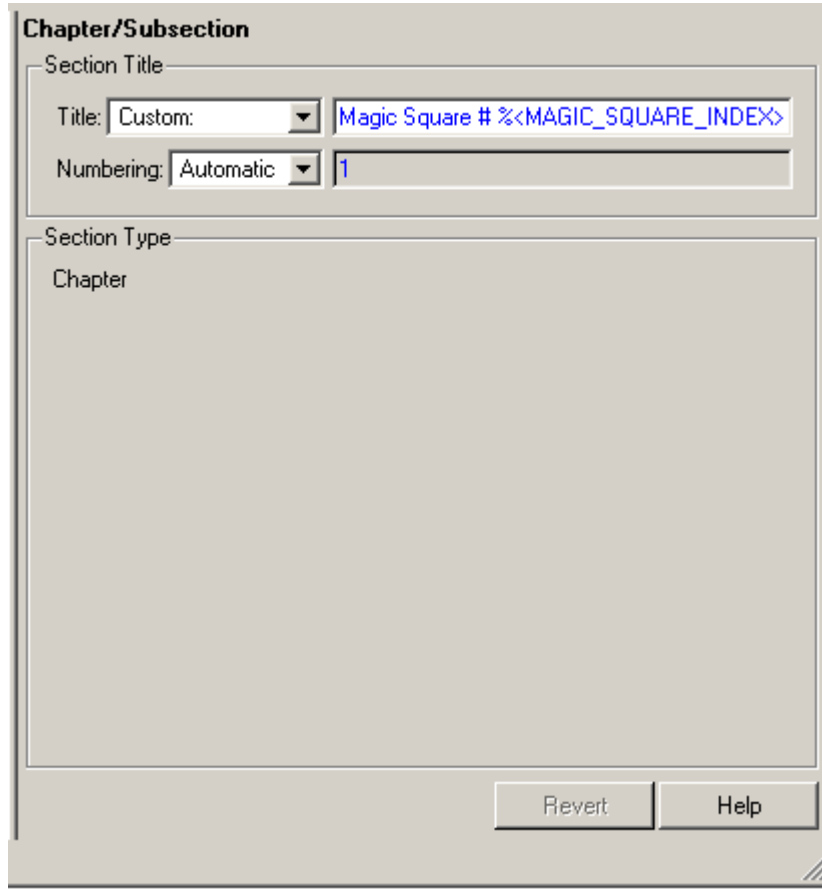
Next create a chapter for each square by adding a Chapter component to the report as a child of the For Loop component. This causes the Report Generator to create a chapter on each iteration of the For Loop during report generation.

1. In the Outline pane on the left, select the `for` component.
2. In the Library pane in the middle, under the `Formatting` category, double-click `Chapter/Subsection`.

   It becomes a child of the `for` component.
3. In the Properties pane on the right, select `Custom` from the **Title** list and enter the following for the chapter title:

   ```
   Magic Square # %<MAGIC_SQUARE_INDEX>
   ```

   The Properties pane looks as follows.



4 Save the report.

Determine the Matrix Size

Note: This section builds on the previous tasks described in the step-by-step example summarized in "Create a MATLAB Report" on page 2-2.

If you have not completed the previous sections of this example, see open the completed report setup file: `Magic Squares Report`.

Extract the size of each magic square matrix from `magicSizeVector` using an Evaluate MATLAB Expression component.

1. In the Outline pane on the left, select the bottom `Chapter` component.
2. In the Library pane in the middle, under the `MATLAB` category, double-click `Evaluate MATLAB Expression`.
3. In the Properties pane on the right:

   a. Clear the **Insert MATLAB expression in report** and **Display command window output in report** check boxes.

   b. In the **Expression to evaluate in the base workspace** text box, replace the existing text with the following text:

   ```
   magic_Square_Size=magicSizeVector(MAGIC_SQUARE_INDEX);
   ```

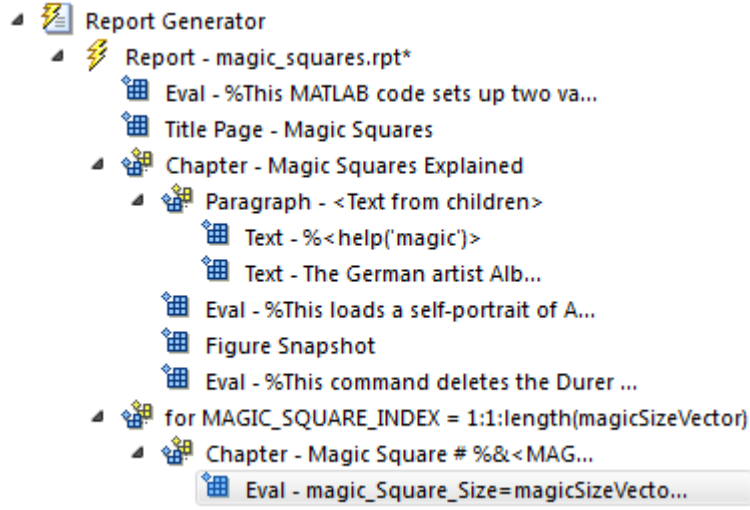
   This command extracts the next size for the magic square from the vector of sizes initialized in the first `Eval` component of the report. The variable `magic_Square_Size` represents the size of the current magic square being processed.

   c. In the **Evaluate expression if there is an error** text box, replace the existing text with the following:

   ```
   disp(['Error during eval: ', evalException.message])
   ```

   This code executes if an error occurs while attempting to extract a value from `magicSizeVector`.

   The Outline pane looks as follows.



4 Save the report.

Insert the Magic Square Size into the Report

Note: This section builds on the previous tasks described in the step-by-step example summarized in "Create a MATLAB Report" on page 2-2.

If you have not completed the previous sections of this example, see open the completed report setup file: `Magic Squares Report`.

Insert the size of the magic square into the report using the Paragraph and Insert Variable components.

1 In the Outline pane on the left, select the bottom `Eval` component.

2 In the Library pane in the middle, under the `Formatting` category, double-click `Paragraph`.

Do not change the properties. The variable that contains the size of the magic square goes in this paragraph.

3 In the Outline pane, select the `Paragraph` component (below the `for` component).

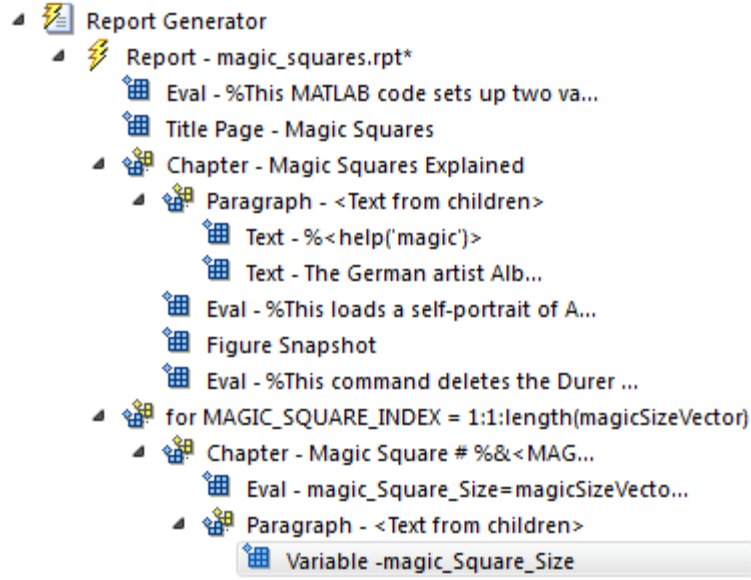
4 In the Library pane, under the `MATLAB` category, double-click `Insert Variable`.

5 In the Properties pane on the right:

   a In the **Variable name** text box, enter `magic_Square_Size`.

   b In the **Display as** list, select `Inline text`.

   The Outline pane looks as follows.



6 Save the report.

Create the Magic Square

Note: This section builds on the previous tasks described in the step-by-step example summarized in "Create a MATLAB Report" on page 2-2.

If you have not completed the previous sections of this example, see open the completed report setup file: `Magic Squares Report`.

To create the magic square and display the associated matrix or image, use the Evaluate MATLAB Expression component.

1. In the Outline pane on the left, select the bottom `Paragraph` component.
2. In the Library pane in the middle, under the `MATLAB` category, double-click `Evaluate MATLAB Expression`.

   Make this component a sibling of the `Paragraph` component, not a child, as described in the next two steps.
3. In the Outline pane, select the `Eval` component.
4. Click the left arrow on the toolbar to make the `Eval` component a sibling of the previous `Paragraph` component.
5. In the Properties pane on the right:
   a. Clear the **Insert MATLAB expression in report** and **Display command window output in report** check boxes.
   b. In the **Expression to evaluate in the base workspace** text box, replace the existing text with the following MATLAB code.

   Tip Copy and paste this text from the HTML documentation into the Report Explorer.

```
%This MATLAB script produces a magic
%square of size magic_Square_Size
%and creates an image of that square.

mySquare=magic(magic_Square_Size);
clf
imagesc(mySquare);
title(sprintf('Magic Square N=%i',magic_Square_Size))
set(gca,'Ydir','normal');
axis equal;
axis tight;
```

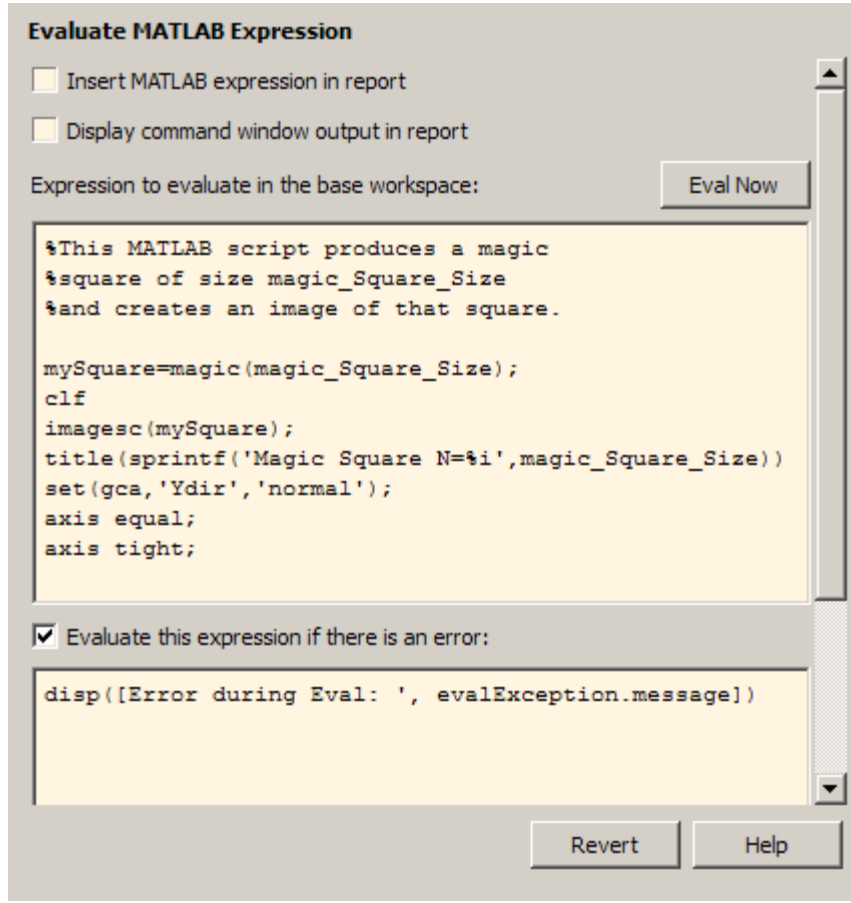
   This code creates a magic square matrix `mySquare` of size `magic_Square_Size`, and opens an image of that matrix in the MATLAB figure window.

c In the **Evaluate expression if there is an error** text box, replace the existing text with the following:

```
disp(['Error during eval: ', evalException.message])
```

This code executes if an error occurs while creating and displaying the magic square.

The Properties pane looks as follows.



6 Save the report.

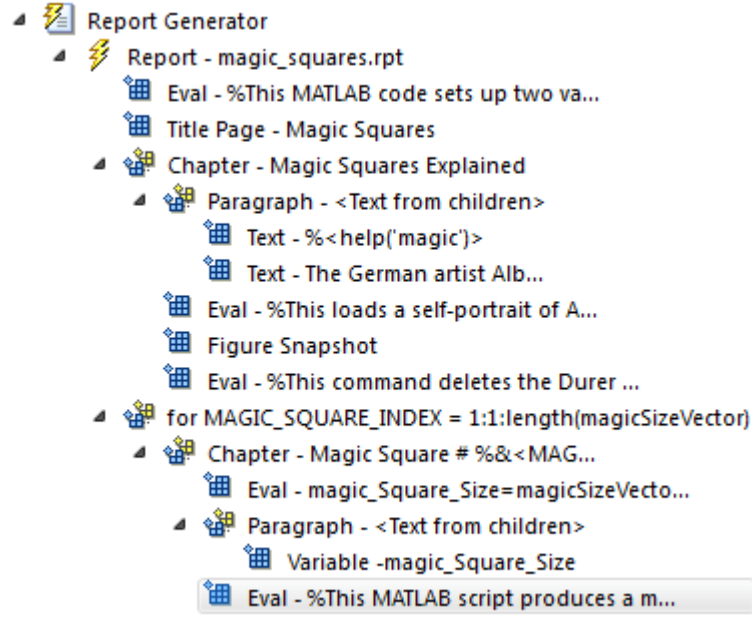
Add Display Logic

Note: This section builds on the previous tasks described in the step-by-step example summarized in "Create a MATLAB Report" on page 2-2.

If you have not completed the previous sections of this example, see open the completed report setup file: `Magic Squares Report`.

Use "Logical If", "Logical Then", and "Logical Else" components to determine whether to display the magic square as an array of numbers or as an image.

1 In the Outline pane on the left, select the `Eval` component.



2 On the Library pane in the middle, under the `Logical and Flow Control` category, double-click `Logical If`.

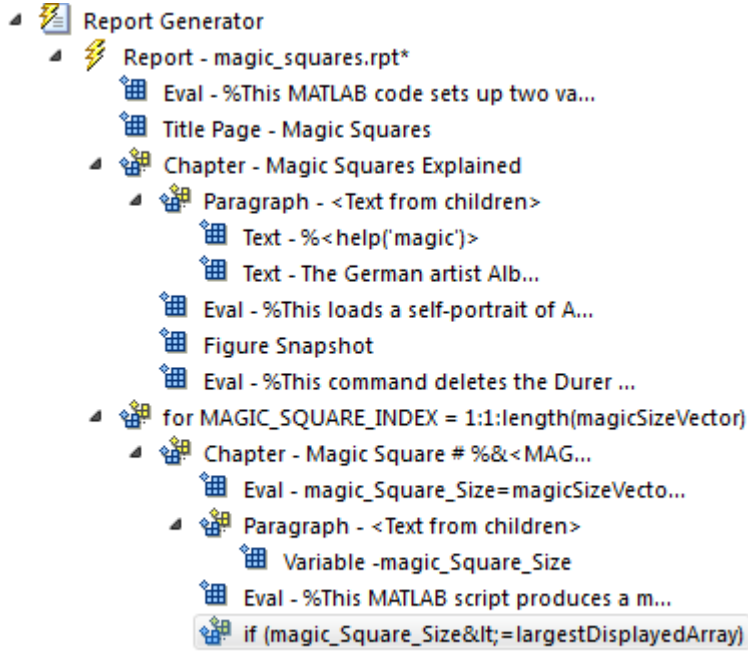
3 On the Properties pane on the right, in the **Test Expression** text box, replace the existing text with the following text:

```
magic_Square_Size<=largestDisplayedArray
```

This command tests whether the current matrix size (`magic_Square_Size`) is less than or equal to the value assigned in the first `Eval` component of the report (`largestDisplayedArray=15`).

To process the result of this `Logical If` component, create two child components —`Logical Then` and `Logical Else`. If `magic_Square_Size` is less than or equal to 15, the matrix variable appears in the report. If `magic_Square_Size` is greater than 15, the matrix image appears in the report.

4 On the Outline pane, select the `if` component.

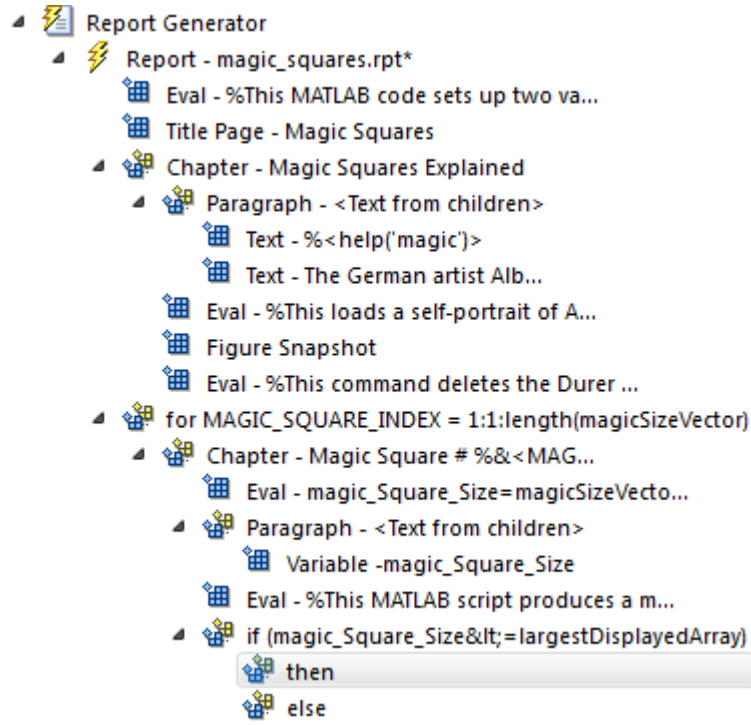


5 On the Library pane, under `Logical and Flow Control`, double-click `Logical Else`.

6 On the Outline pane, select the `if` component again.

7 On the Library pane, under `Logical and Flow Control`, double-click `Logical Then`.

The `then` component appears above the `else` component.



8 Save the report.

Display the Magic Square

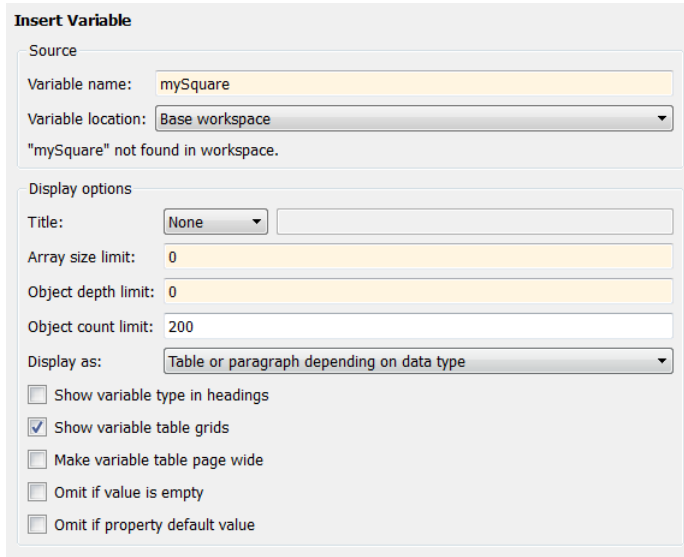
Note: This section builds on the step-by-step example presented in “Create a MATLAB Report” on page 2-2.

To see the completed report setup file, open `Magic Squares Report`.

1 In the Outline pane on the left, select the `then` component.

2. In the Library pane in the middle, under the `MATLAB` category, double-click `Insert Variable`.
3. In the Properties pane on the right:
   a. In the **Variable name** text box, enter `mySquare`, which is the variable that contains the magic square of the specified size.
   b. In the **Title** list, select `None`.
   c. In the **Array size limit** text box, enter `0`.

   The Properties pane on the right looks as follows.



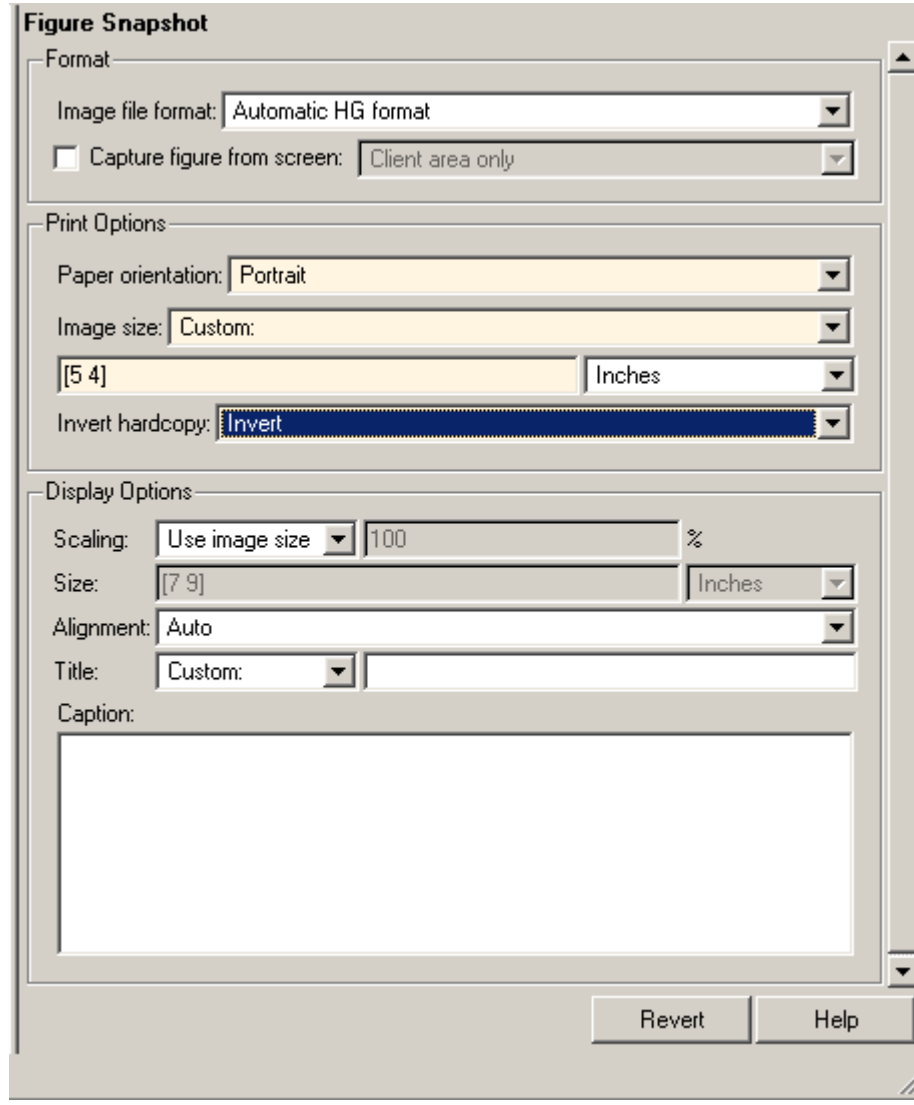
   This Variable component displays the magic square matrix, stored in the `mySquare` variable.
4. In the Outline pane, select the `else` component.
5. In the Library pane, under the `Handle Graphics` category, double-click `Figure Loop`.

   Do not change its properties.
6. In the Outline pane, select the `Figure Loop` component.

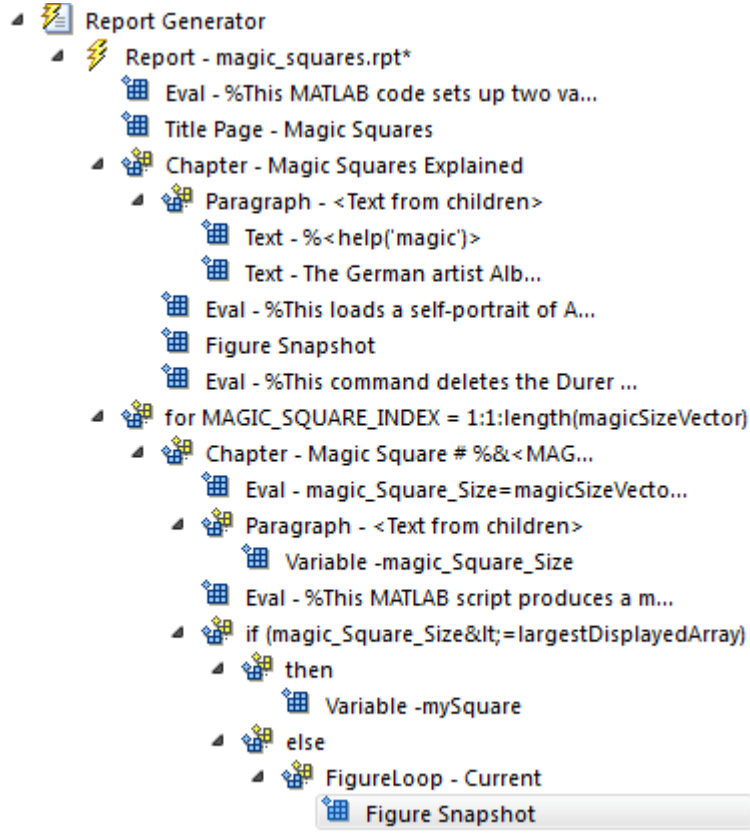
7. In the Library pane, under the `Handle Graphics` category, double-click `Figure Snapshot`.
8. In the Properties pane:
   a. In the **Paper orientation** list, select `Portrait`.
   b. In the **Image size** list, select `Custom`.
   c. Under the **Image size** list, enter `[5 4]` for the custom image size.
   d. In the **Invert hardcopy** list, select `Invert`.

      This option changes dark axes colors to light axes colors, and vice versa.

      The Properties pane on the right looks as follows.



The Outline pane looks like the following.



9 Save the report.

Generate a Report

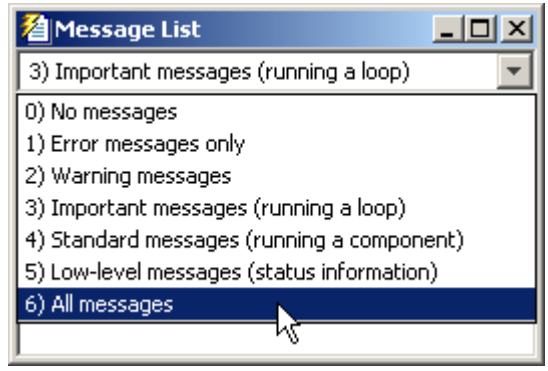
Note: This section builds on the step-by-step example presented in "Create a MATLAB Report" on page 2-2.

To see the completed report setup file, open `Magic Squares Report`.

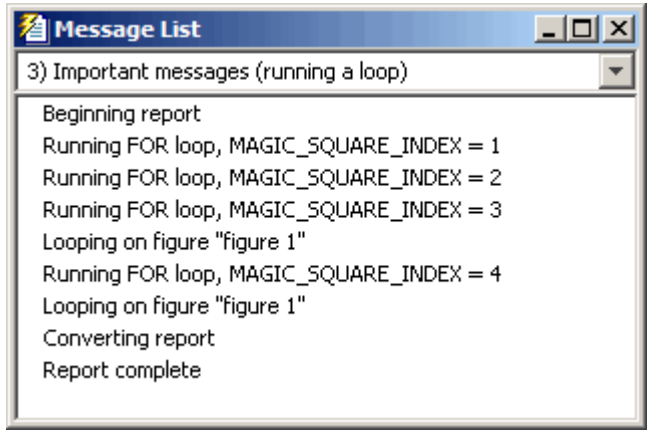
Now the report contains all the components it needs.

On the toolbar, click the Report icon to generate the report. The following dialog box appears.

1 A Message List window appears, displaying informational and error messages as the report processes. While the report generates, specify the level of detail you would like the Message List window to display. Options range from 0 (least detail) to 6 (most detail). Click the list located under the title bar of the Message List window to choose an option, as shown here.

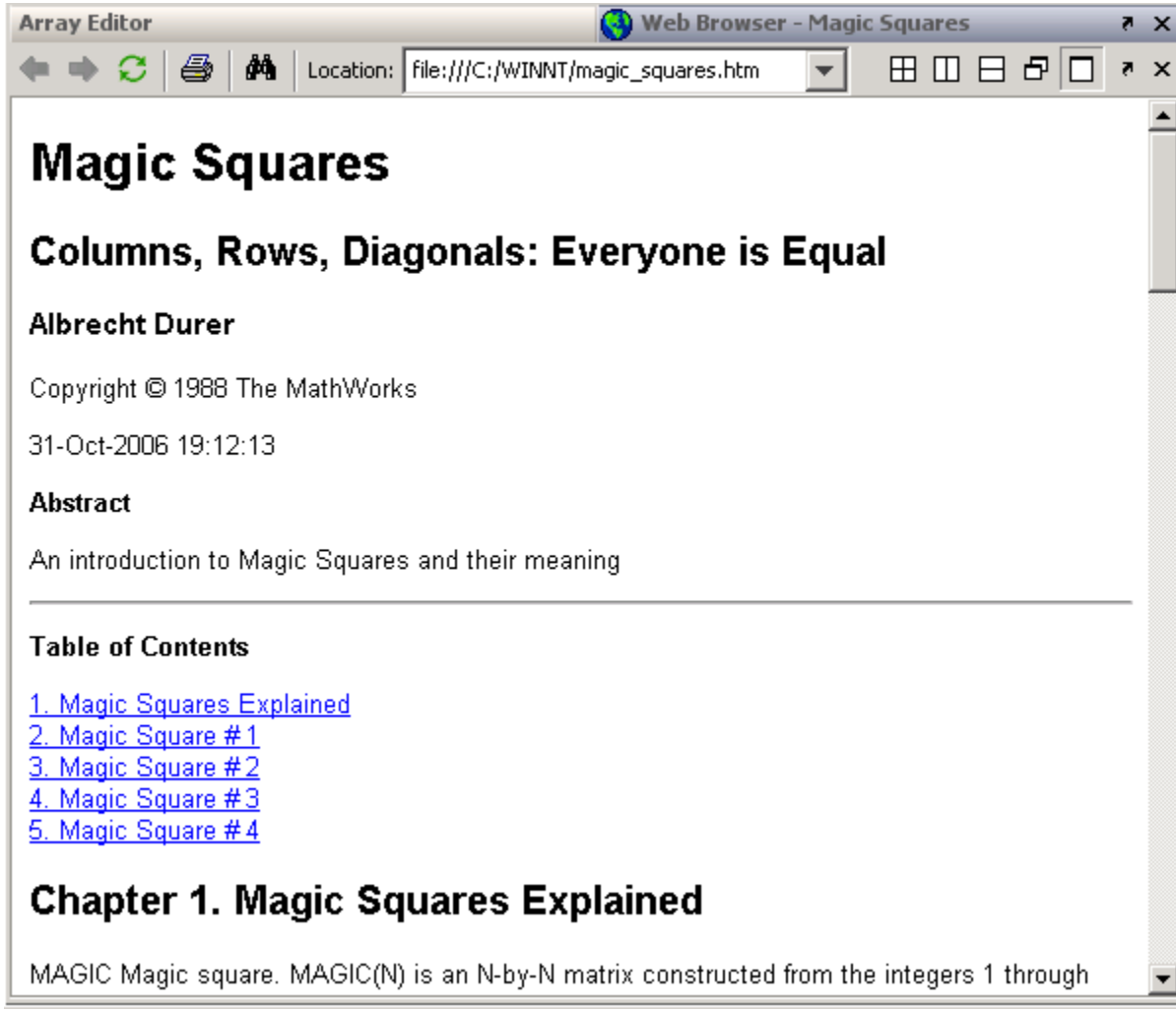


Message level 3 (Important messages) is used for the remainder of this example.



2. An image of the etching appears briefly.
3. Images of two magic square images of sizes 16 and 32 appear briefly.
4. In the Outline pane on the left of your Report Explorer window, each component of the report setup file is highlighted as it is executed.

At the beginning of this example you specified HTML as the output format of this report. When processing finishes, the MATLAB Web browser opens and displays the report's HTML file.


Array Editor
Web Browser - Magic Squares
Location:
file:///C:/WINNT/magic_squares.htm
Magic Squares
Columns, Rows, Diagonals: Everyone is Equal
Albrecht Durer
Copyright © 1988 The MathWorks
31-Oct-2006 19:12:13
Abstract
An introduction to Magic Squares and their meaning
Table of Contents
1. Magic Squares Explained
2. Magic Square #1
3. Magic Square #2
4. Magic Square #3
5. Magic Square #4
Chapter 1. Magic Squares Explained
MAGIC Magic square. MAGIC(N) is an N-by-N matrix constructed from the integers 1 through

Set Up a Report

Report Setups

In this section...

A *report setup* is a set of MATLAB objects, called *components*, that specifies the content and form of a report.

The MATLAB Report Generator provides a setup editor, called the Report Explorer, that you use to create and edit report setups.

Once you create a setup, you can generate a report from it, using the Report Explorer or MATLAB commands.

Setup Hierarchy

A report setup has a hierarchical structure that generally mirrors the structure of the type of report that it defines.

For example, a report typically has a title page and one or more chapters. Each chapter contains one or more sections, each of which contains one or more paragraphs, figures, tables, lists, etc. A report setup typically comprises components that correspond to these structural elements of a report.

In a report setup, child-parent relationships among the components correspond to the containment relationships among the structural elements of the report. In particular, all setups contain a *root component* that serves as the ancestor for all other components in the setup. The root component also specifies the setup name and report generation options, such as the document type of the generated report (for example, HTML or PDF) and the path for the generated report. The root component typically parents a title page component and one or more chapter components that in turn parent one or more section components that parent one or more paragraph, figure, table, and list components.

Setup Files

The report generator stores setups in files called *setup files*. The name of a setup file consists of the name of the setup that it stores followed by the file extension

`.rpt`. For example, the name of the setup file for a setup named `myreport` would be `myreport.rpt`.

Create a Report Setup

To create a report setup:

- Create a new setup file.
- Insert components to define the content and format of the report.
- Set component properties.
- Save the setup.

Once you create a template, you can execute it to generate an instance of the type of report that it defines.

Create a New Setup File

In this section...

Create a new setup file either interactively from the Report Explorer or programmatically.

Create Setup File Using the Report Explorer

1. If the Report Explorer is not already open, from the MATLAB Toolstrip, in the **Apps** tab, in the **Database Connectivity and Reporting** section, click **Report Generator**.
2. In the Report Explorer, use *one* of these approaches:
   - Select **File** > **New**.
   - On the Report Explorer toolbar, click the new template button.

The Outline pane displays a new setup named `Unnamed`, as a child of the `Report Generator` node.

Create Setup File Programmatically

To create a setup file programmatically (from the MATLAB command line), use the `setedit` command. For example, assuming a setup named `myreport` does not already exist in the current directory, use the following command:

```
setedit myreport.rpt
```

Working with Setup Files

For details about performing operations on report setup files, see:

- "Open a Report Setup" on page 3-6
- "Close a Report Setup" on page 3-8

- “Save a Report Setup” on page 3-9

Open a Report Setup

In this section...

To make changes to a saved report setup, you must open its setup file. Open a report setup either interactively from the Report Explorer or programmatically.

Opening a Setup on the MATLAB Path

Tip Use the `setedit` command to obtain a list of all the report setups on the MATLAB path.

To open a setup that resides on the MATLAB path:

1. If the Report Explorer is not already open, from the MATLAB Toolstrip, in the **Apps** tab, in the **Database Connectivity and Reporting** section, click **Report Generator**.
2. In the Report Explorer, in the Outline pane on the left, select the `Report Generator` node.

   The Library pane in the middle displays a list of all the setup files that exist on the MATLAB path.
3. In the Library pane, select the setup file that you want to open.

   The setup properties dialog box appears in the Properties pane on the right.
4. To open the setup, in the Report Explorer use *one* of these approaches:

   - On the Properties pane, click the **Open report** button.
   - On the Library pane, double-click the entry for the setup.
   - On the Library pane, from the context menu for the setup, select **Open report**.

The setup appears in the Outline pane as a child of the `Report Generator` node.

Opening a Setup Not on the MATLAB Path

Tip Use the `setedit` command to obtain a list of all the report setups on the MATLAB path.

To open a setup that resides off the MATLAB path:

1. If the Report Explorer is not already open, from the MATLAB Toolstrip, in the **Apps** tab, in the **Database Connectivity and Reporting** section, click **Report Generator**..
2. In the Report Explorer, select **File** > **Open** or select the file open button on the Report Explorer toolbar.

   A file browser opens.
3. Use the file browser to find the report setup in your file system and enter the setup name in the file browser **File name** field.
4. Select the file browser **Open** button.

The setup appears in the Outline pane as a child of the `Report Generator` node.

Opening a Setup Programmatically

To open a report programmatically, use the `setedit` command. For example, the following command opens the `simple-report.rpt` example that comes with the MATLAB Report Generator.

```
setedit simple-report
```

This command opens the Report Explorer, if it is not already open, and opens the `simple-rpt` setup in the Report Explorer.

Tip If a setup exists on the MATLAB path, you do not need to specify its full path when using the `setedit` command. Use the `setedit` command to obtain a list of all the report setups on the MATLAB path.

The newly opened report appears in the Outline pane as a child of the `Report Generator` node.

Close a Report Setup

In this section...

Closing a setup removes the setup from the Report Explorer and from memory.

Close a Setup Using the Report Explorer

1. In the Report Explorer, in the Outline pane, select the setup root node.
2. In Report Explorer, use *one* of these approaches:
   - Click the **Delete** button.
   - Select **File** > **Close**.
   - From the context menu of the root node of the setup file, select **Close**.

Close a Setup Programmatically

You can close a report that you have previously opened. For example, the following code opens a setup and then closes it.

```
setup('simple-report.rpt');
root = RptgenML.Root;
root.closeReport('simple-report');
```

Save a Report Setup

In this section...

Save a Setup Under Its Existing Name

1. In the Report Explorer, in the Outline pane, select the setup root node.
2. In Report Explorer, use *one* of these approaches:
   - Click the **Save** button.
   - Select **File** > **Save**.
   - From the context menu of the root node of the setup file, select **Save**.

Save a Setup Under a New Name

1. In the Report Explorer, in the Outline pane, select the setup root node.
2. Select **File** > **Save As**.

   A file browser opens.
3. Use the file browser to select a new path for the setup.
4. In the file browser, click **Save**.

Load Report Setup into MATLAB Workspace

To load a setup into the MATLAB workspace without loading it into the Report Explorer, use the `rptgen.loadRpt` function.

You can then modify the setup programmatically. For example, the following code loads a setup into memory, sets its output type to PDF, and generates a report.

```
setupRoot = rptgen.loadRpt('simple-report');
setupRoot.Format = 'pdf-fop';
setupRoot.execute;
```

Insert Components

In this section...

Point-and-Click Method

1. In the Report Explorer, in the Outline pane, select the parent node of the component to be inserted. For example, if you are inserting a paragraph into a section, select the section that will contain the paragraph.
2. In the Library pane, select the type of component that you want to insert in the report setup.
3. In the Properties pane, select the **Add component to current report** button.

Drag-and-Drop Method

1. In the Report Explorer, in the Library pane, select the type of component that you want to insert in the setup.
2. Drag the component from the Library pane into the Outline pane and drop it onto the parent of the component to be created.

Fix Context Violations

The Report Explorer allows you to insert components into invalid contexts.

For example, a Chapter/Subsection component is a valid parent for a Paragraph component, but not vice-versa. Nevertheless, the Report Explorer allows you to insert a Chapter/Subsection as a child of a Paragraph. If you insert a component in an invalid context, the Report Explorer displays a warning.

Although you can create an invalid setup hierarchy, you cannot generate a report from an invalid hierarchy. You must fix the context violations first. For example, move components from invalid contexts to valid contexts (see “Move Components” on page 3-13).

Set Component Properties

In this section...

Edit Component Property Values

Most components have properties that you can set to select optional features. For example, the Text component lets you specify the color of the text that it generates among other properties.

To set component properties:

1. In the Report Explorer, in the Outline pane, select the component.

   The Properties dialog box for the component appears in the Properties pane.
2. Use the Properties dialog box to set component properties.

Computed Property Values

During report generation, the Report Generator can compute the values of component properties, using MATLAB expressions that you specify. This enables dynamic creation of report content. For example, you can use MATLAB expressions to compute the content of Paragraph components and the value of looping components that generate repeated content.

You can use MATLAB expressions to compute the value of any string property of a component. A string property is a property whose value is a string of text. To specify a MATLAB expression as a string property value, in the Properties dialog box, in the property edit box, enter `%<expr>`, where `expr` is a MATLAB expression that evaluates to a string.

Move Components

In this section...

Point-and-Click Method

1. In the Report Explorer, in the Outline pane, select the component that you want to move.
2. Reposition the component in the setup hierarchy, using *one* of these approaches:
   - On the Report Explorer toolbar, use the move buttons.
   - From the **Edit** menu, use the move commands.
   - From the context menu of the component, use the move commands.

Note: The move buttons and commands are enabled only if they are valid in the context of the component to be moved. For example, if a component cannot move further to the right in the hierarchy, the **Move Right** button is disabled.

The following table summarizes the available move buttons and commands.

Move Command or Button	Effect
Move Up	Moves a component ahead of the sibling that formerly preceded it in the hierarchy. If the component is the first child of its parent, the component becomes a sibling of its former parent.
Move Down	Moves a component after the sibling that formerly followed it in the hierarchy. If a component is the last sibling of its parent, it moves up one level in the hierarchy to become a sibling of its former parent.
Move Left	Moves a component up one level in the hierarchy. The component becomes a sibling of its former parent.

Move Command or Button	Effect
Move Right	Moves a component down one level in the hierarchy. The component becomes the child of the sibling that formerly preceded it in the hierarchy.

Drag-and-Drop Method

1. In the Report Explorer, in the Outline pane, select the component that you want to move.
2. Drag the component and drop it on the component that you want to be its parent.

Delete Components

1. In the Report Explorer, in the Outline pane, select the component that you want to delete.
2. Delete the component, using *one* of these approaches:
   - On the Report Explorer toolbar, click the **Delete** button.
   - Select **Edit** > **Delete**.
   - From the context menu of the component, select **Delete**.

Deactivate Components

You can deactivate any component in a report setup. Deactivating a component causes it to be skipped during generation of a report.

Deactivating components can be useful for debugging setups. For example, you can deactivate a component that you suspect is causing an error or you can activate only the components you want to debug, thereby cutting the time required to verify a fix.

To deactivate (or reactivate) a component:

1. In the Report Explorer, in the Outline pane, select the component that you want to deactivate (or reactivate).
2. Select the appropriate **Activate/Deactivate Component** option from either the **Edit** menu or from the context menu of the component.

Send Components to the MATLAB Workspace

You can send the components of a setup from the Report Explorer to the MATLAB workspace. This allows you to inspect and set their properties at the MATLAB command line.

Sending components to the workspace can be useful for creating or debugging MATLAB programs that create report setups and generate reports from them.

To send a component to the MATLAB workspace:

1. In the Report Explorer, in the Outline pane, select the component that you want to send to the workspace.
2. From the context menu of the component, select **Send to Workspace**.

Generate a Report

Generate a Report

In this section...

Run a Report

You can generate a MATLAB Report Generator report using one of these methods:

- In the Report Explorer Outline pane, select a report and do one of the following actions:
  - In the Report Explorer toolbar, click the Report button  .
  - Press **CTL+R**.
  - Select **File** > **Report**.
- From the MATLAB command line, use the `report` command. For example, to print the `system1_description` report in PDF format, use:

```
report system1_description -fpdf
```

Report Output Options

Before you generate a report, you can set options to control aspects of report generation processing such as:

- Output file format (PDF, HTML, or Microsoft Word)
- Stylesheet for the selected output file format, to control the layout of the report (for example, whether to display a title page, font, and section numbering)
- Output file location
- Whether to view the generated report automatically

For details, see:

- “Report Output Format” on page 4-5
- “Location of Report Output File” on page 4-11

- "Create a Report Log File" on page 4-21
- "Report Description" on page 4-12
- "Change Report Locale" on page 4-17

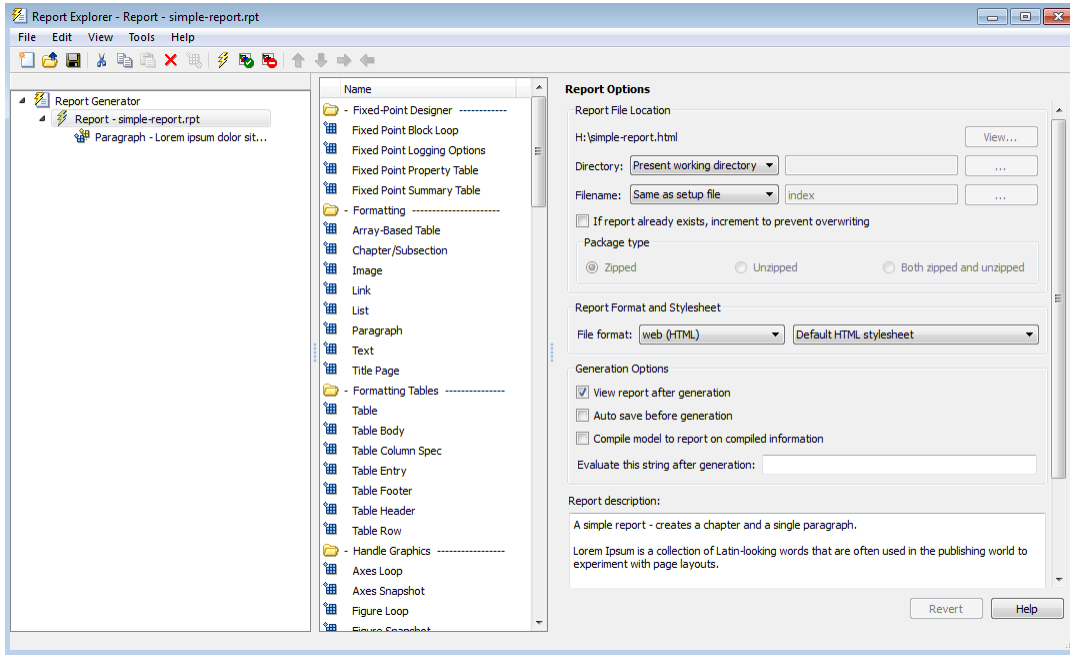
Select Report Generation Options

In this section...

Report Options Dialog Box

To specify report generation options for a specific report, in the Report Explorer, use the Report Options dialog box.

The Report Options dialog box in the Properties (right hand) pane of the Report Explorer.



To set defaults for report generation options that you can override with the Report Options dialog box or with individual components, use the Report Generator Preferences pane. For details, see “Report Generation Preferences” on page 4-13.

Report Output Format

In the Report Explorer, in the **File format** text box, choose the report output format.

Using a template when generating a report provides several benefits, compared to generating a report without using a template.

- Report generation is faster.
- Report generation does not use Java® memory. Generating reports without using a template can cause Java to run out of memory.
- You can customize report formatting using standard techniques for specifying Word and HTML styles.

File Format Using Report Templates

To use a template for report generation, select one of these options:

- `PDF (from template)`
- `HTML (from template)`
- `Word (from template)`

If you use a template, then from the list of templates, you can specify a template other than the default template. Each output format that does not use a template has a default stylesheet associated with it. Specify the stylesheet in the text box next to the **File format** text box.

For more information about using templates for report generation, see "Generate a Report Using a Template".

File Format Using Report Explorer Stylesheets

If you do not use a template, then you can specify in the **Stylesheet** field, you can specify a stylesheet.

Viewer	Format	Description	Stylesheets
Adobe Acrobat Reader	Adobe Acrobat (PDF)	Produce a PDF that you can view using Adobe Acrobat Reader software. See "PDF: Image Formats" on page 4-7.	PDF (see "PDF Stylesheets")
Word processor	`Word Document (RTF)` or `Rich Text Format`	Produce output that is compatible with most word-processing packages, including Microsoft Word software See "RTF: Display of Hidden Content" on page 4-7.	Print (see "RTF (DSSSL Print) and Word Stylesheets")

Viewer	Format	Description	Stylesheets
DocBook	`DocBook (no transform)`	Produce a report in DocBook format	N/A

Tip To create and use customized styles, see "Create a New Stylesheet".

PDF: Image Formats

PDF reports only support bitmap (`.bmp`), `.jpeg` (`.jpg`), and Scalable Vector Graphics (`.svg`).

The SVG format is only supported for Simulink models and Stateflow charts. For example, MATLAB figures do not display in SVG when you select the SVG format for PDF reports.

RTF: Display of Hidden Content

RTF reports use placeholders (field codes) for dynamically generated content, such as page numbers or images.

On Windows platforms, to display that content, press **Ctrl-A**, and then press **F9**.

On Linux and Mac platforms, use the field code update interface for the program that you are using to view the RTF document.

Change the Default Output Format

In the Report Generator Preferences pane, use the **Format ID** preference to specify the default output format for reports.

Stylesheets

For each output format, you can choose from several stylesheets for each report output format. For details, see:

- "PDF Stylesheets" on page 4-8
- "Web Stylesheets" on page 4-8
- "RTF (DSSSL Print) and Word Stylesheets" on page 4-9

Note: Some Web and Print stylesheets include an automatically generated list of titles, which includes table titles and figures with titles.

PDF Stylesheets

PDF Stylesheet	Description
`Default print stylesheet`	Displays title page, table of contents, list of titles
`Standard Print`	Displays title page, table of contents, list of titles
`Simple Print`	Suppresses title page, table of contents, list of titles
`Compact Simple Print`	Minimizes page count, suppresses title, table of contents, list of titles
`Large Type Print`	Uses 12-point font (slightly larger than Standard Print)
`Very Large Type Print`	Uses 24-point font and landscape paper orientation
`Compact Print`	Minimizes white space to reduce page count
`Unnumbered Chapters & Sections`	Uses unnumbered chapters and sections
`Numbered Chapters & Sections`	Numbers chapters and sections
`Paginated Sections`	Prints sections with page breaks
`Custom Header`	Lets you specify custom headers and footers
`Custom Titlepage`	Lets you specify custom title page content and presentation
`Verbose Print`	Lets you specify advanced print options

Web Stylesheets

Web Stylesheet	Description
`Default HTML stylesheet`	HTML on a single page
`Simulink book HTML stylesheet`	HTML on multiple pages; suppresses chapter headings and table of contents

Web Stylesheet	Description
`Truth Table HTML stylesheet`	HTML on multiple pages; suppresses chapter headings and table of contents
`Multi-page Web`	HTML, with each chapter on a separate page
`Single-page Web`	HTML on a single page
`Single-page Unnumbered Chapters & Sections`	HTML on a single page; chapters and sections are not numbered
`Single-page Numbered Chapters & Sections`	HTML on a single page; chapters and sections are numbered
`Single-page Simple`	HTML on a single page; suppresses title page and table of contents
`Multi-page Simple`	HTML on multiple pages; suppresses title page and table of contents
`Multi-page Unnumbered Chapters & Sections`	HTML on multiple pages; chapters and sections are not numbered
`Multi-page Numbered Chapters & Sections`	HTML on multiple pages; chapters and sections are numbered

RTF (DSSSL Print) and Word Stylesheets

RTF or Word Stylesheet	Description
`Standard Print`	Displays title page, table of contents, list of titles
`Simple Print`	Suppresses title page, table of contents, list of titles
`Compact Simple Print`	Minimizes page count, suppresses title, table of contents, list of titles
`Large Type Print`	Uses 12-point font (slightly larger than Standard Print)
`Very Large Type Print`	Uses 24-point font and landscape paper orientation
`Compact Print`	Minimizes white space to reduce page count
`Unnumbered Chapters & Sections`	Uses unnumbered chapters and sections
`Numbered Chapters & Sections`	Numbers chapters and sections

Report Generation Processing

The Report Options dialog box includes several options for controlling report processing.

Option	Purpose
View report after generation	View the report automatically. When report generation finishes, the viewer associated with the report output format displays the report. **Note:** On Linux and Macintosh platforms, the report output displays in Apache OpenOffice, which must be installed in `/Applications/OpenOffice.app`. To view the report manually, browse to the location specified in the **Report File Location** section in the Properties pane on the right, and open the file.
Auto save before generation	Automatically save the report setup file before you generate a report.
Compile model to report on compiled information	Ensure that a report reflects compiled values. By default, the Simulink Report Generator reports uncompiled values of Simulink parameters. The uncompiled values of some parameters, such as signal data types, can differ from the compiled values used during simulation. This option causes the report generator to compile a model before reporting on model parameters. After generating the report, the report generator returns the model to its uncompiled state. **Note:** When you select this option, whenever report generation requires simulating the model (for example, the report includes a “Model Simulation” component), the report generator uncompiles the model and then recompiles the model, if necessary, to report on model

Option	Purpose
	contents. If a report requires multiple compilations, the processing can be quite time-consuming. To minimize compilations, consider using separate reports to report on the contents of a model and on the results of simulating that model.
Evaluate this string after generation	Specify MATLAB code for processing to occur after the report is generated. For example, you could specify to close a model.

Location of Report Output File

Choose a folder to store the report file. You must have write privileges for that folder.

Folder

In the Report Explorer, in the Report Options dialog box, use the **Directory** field to specify the name of the folder in which to store the generated report file. Specify a folder to which you have write privileges.

The following table summarizes the report file location options.

Folder	Option
The same folder as the report setup file	`Same as setup file`
The current working folder	`Present working directory`
Temporary folder	`Temporary directory`
Another folder	`Custom`. Use the **Browse** button (...) to select from a list of directories.

You can use `%<VariableName>` notation to specify a folder in the **Custom** text box. For more information, see "%<VariableName> Notation" on the `Text` component reference page.

Report File Name

In the Report Explorer, in the Report Options dialog box, use the **Filename** field to specify a file name for the report file. Select one of the following options.

File Name	Option
The same file name as the report setup file	`Same as setup file` (default)
A file name different from the report setup file name	`Custom`. Enter the name of the report.

You can use `%<VariableName>` notation to specify a file name in the **Custom** text box. For more information, see "%<VariableName> Notation" on the `Text` component reference page.

Increment to Prevent Overwriting

To maintain the previous version of the setup file when you save updates to the setup file, select **If report already exists, increment to prevent overwriting**.

Image Output File Location

Images are placed in a folder with the same name as the report file. For example, `testreport.html` images are placed in a folder named `testreport_files`.

Report Description

To record notes and comments about your report setup, use the **Report Description** field. This text that you enter appears in the Properties pane when you select a report setup file in the Outline pane.

Report Generation Preferences

In this section...

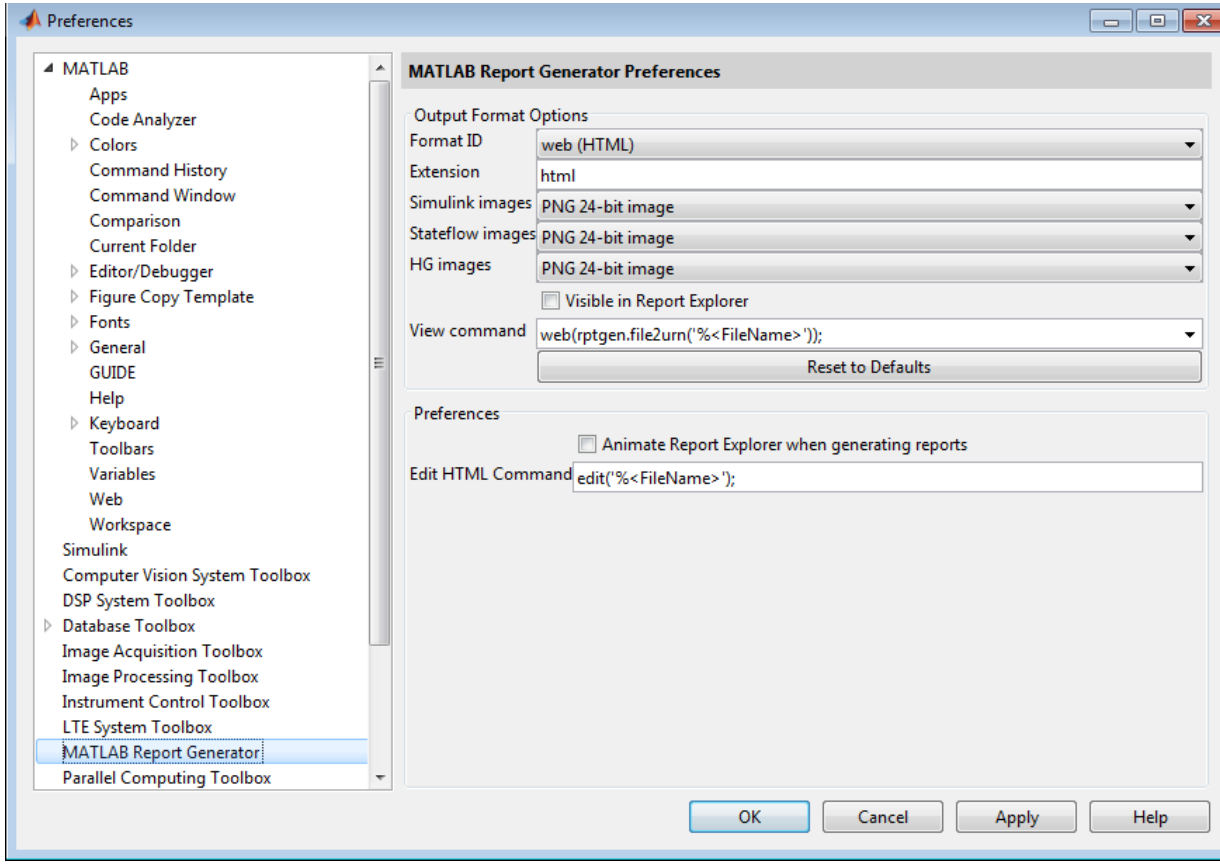
Report Generator Preferences Pane

To set defaults for report generation options, use the Report Generator Preferences pane. You can override these preferences with the Report Options dialog box or with individual components.

To specify report generation options for a specific report, in the Report Explorer, use the Report Options dialog box. For details, see “Select Report Generation Options” on page 4-4.

To open the Report Generator Preferences pane, use *one* of these approaches:

- In the Report Explorer, select **File** > **Preferences**.
- From the MATLAB Toolstrip, in the **Home** tab, in the **Environment** section, select **Preferences** > **Report Generator**.



File Format and Extension

To specify the default file format for reports, use the **Format ID** preference. The default preference is `web (HTML)`. You can select from a range of file formats, such as PDF, Microsoft Word, or LaTex.

Note: For reports that use the Word Document format, you must have Microsoft Word installed on the machine that you use to generate the report.

The **Extension** preference reflects the standard file extension for the file format specified with the **Format ID** preference. You can change the extension.

Image Formats

To set the default image formats associated with the output format for a report, use the following preferences.

Preference	Purpose
`Simulink Images`	Specify the format for Simulink images to include in the report.
`Stateflow Images`	Specify the format for Stateflow charts to include in the report.
`HG Images`	Specify the format for Handle Graphics images to include in the report.

Note: The default preferences for image formats should work in most viewing environments. However, some image formats do not display in some viewing environments.

Several components, such as the Figure Snapshot component, include an option for specifying the image format. The component setting overrides the image format preference.

Report Viewing

To control how you view a generated report, you can set the following preferences.

Preference	Purpose
`View command`	Specify the MATLAB command you want to use to view the report. Each file format has an associated default view command preference. You can modify the view command (for example, to support the use of a system browser).

Preference	Purpose
`Visible in Report Explorer`	Deselect this check box to make the current output format unavailable in the Report Explorer. For example, if your specified report format is `Word document` and you deselect this check box, then the Microsoft Word document format is no longer available for reports created using the Report Explorer.
`Animate Report Explorer when generating reports`	Select this check box if you want components in the Outline pane to be animated as the report generates. This box is selected by default. To speed up the report generation processing, consider clearing this preference.

Reset to Defaults

To reset all of the preferences in the Output Format Options section of the Report Generator Preferences pane, click **Reset to Defaults**.

The **Reset to Defaults** button does not change the **Animate Report Explorer when generating reports** preference.

Change Report Locale

Versions 2.0 and later of the MATLAB Report Generator and Simulink Report Generator software use the locale (system language settings) through the Oracle® Java interface; therefore, they should use the language specified on your system.

Alternatively, you can change the language directly in Java from the MATLAB command line. The following example sets the language to Italian:

```
java.util.Locale.setDefault(java.util.Locale.ITALY)
```

Alternatively, you can set the preferred language directly in your `.rpt` file:

1. Right-click the Report component and select **Send to Workspace**.

   This displays the properties of the report, which are stored in the variable *ans*. Access the report's `Language` property from the command line through this variable. By default, `Language` is `auto`, which indicates that the system's default language is in use.

2. Override the default value of `Language` by setting this property to your desired language; for example, `en` for English or `it` for Italian.

Convert XML Documents to Different File Formats

In this section...

Why Convert XML Documents?

You can generate a report in a different output file format without regenerating it by using either the Report Explorer File Converter or the `rptconvert` command. These utilities convert DocBook XML source files created by the report-generation process into formatted documents such as `HTML`, `RTF`, or `PDF`.

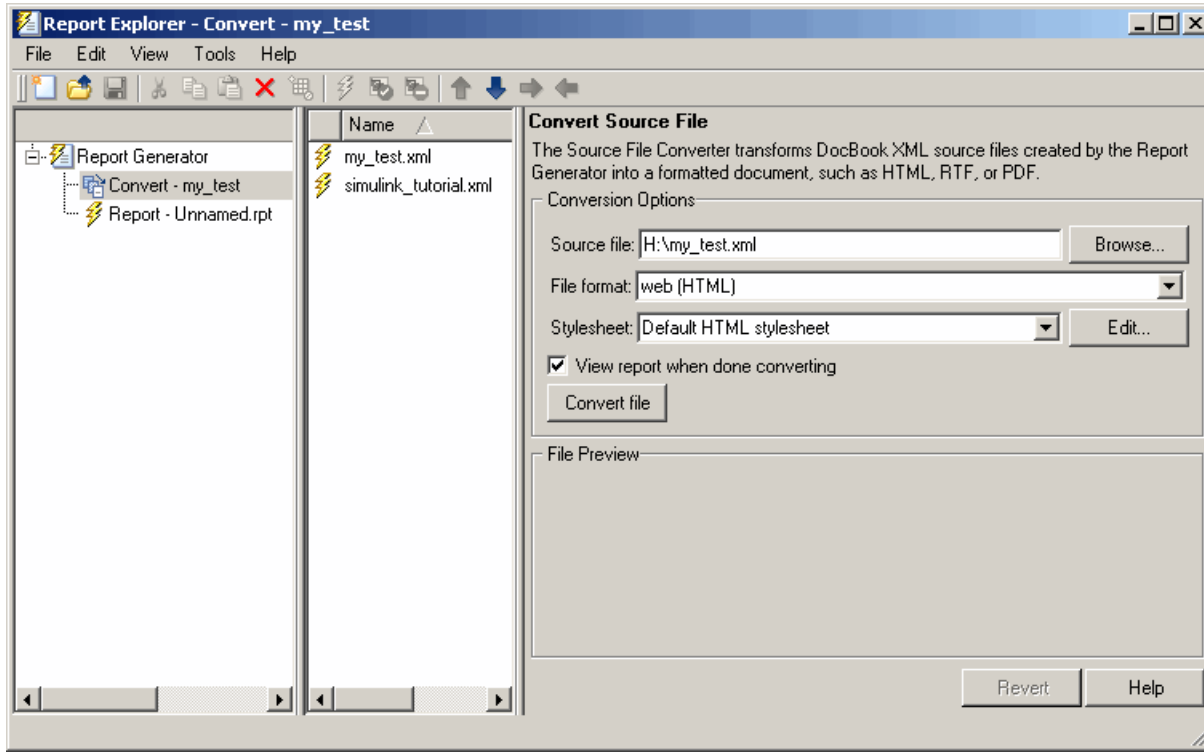
Note: The report-generation process can only convert XML source files created by the latest version of the software.

Convert XML Documents Using the Report Explorer

To open the **Convert** Properties pane:

1. In the Report Explorer, select **Tools > Convert source file**.

   The Convert Source File Properties pane appears. All XML files in your current folder appear in the Options pane in the middle.



2 Select your XML source file using one of the following options:

- Click **Browse** in the Properties pane on the right to browse to the location of your XML source.
- Double-click a file name in the Options pane in the middle to automatically enter it into the **Source file** field in the Properties pane.

3 Select your output format and stylesheet:

a In the **File format** text box, select an output format.

b In the **Stylesheet** text box, select a stylesheet. The stylesheet choice depends on the specified output format. You can use a predefined or customized stylesheet.

For more information about available formats and predefined stylesheets, see "Report Output Format".

For more information about customizing stylesheets, see “Create a New Stylesheet”.

4. Use the **View Report when done converting** check box to indicate whether you want to view the report after it has conversion.
5. To begin the conversion, click **Convert file**.

Convert XML Documents Using the Command Line

To convert files using the command line, use the “rptconvert”function.

Edit XML Source Files

Before you send a source file to the converter, edit it as text in the Report Explorer:

1. In the Outline pane on the left, open the File Converter.
2. Right-click **MATLAB Report Generator** and select **Convert source file**.
3. In the Options pane in the middle, select the source file to edit.
4. In the Properties pane on the right, click **Edit as text**.
5. Use the MATLAB Editor to edit and save the text.

Create a Report Log File

A log file describes the report setup file report-generation settings and components. A log file can be used for many purposes, including:

- As a debugger
- As a reference to a report setup file
- To share information about a report setup file through email

A log file includes the following information:

- Report setup file outline
- Components and their attributes
- Generation status messages currently displayed in the **Generation Status** tab

To generate a log file, click **File** > **Log File**. An HTML version of the log file with the name `<report_template_file_name_log>.html` is saved in the same folder as the report setup file.

Generate MATLAB Code from Report Setup File

You can generate MATLAB code versions of report setup files in the form of a MATLAB file (`*.m`). A MATLAB file of a report setup file is useful for various purposes, including generating reports and modifying report setup files programmatically.

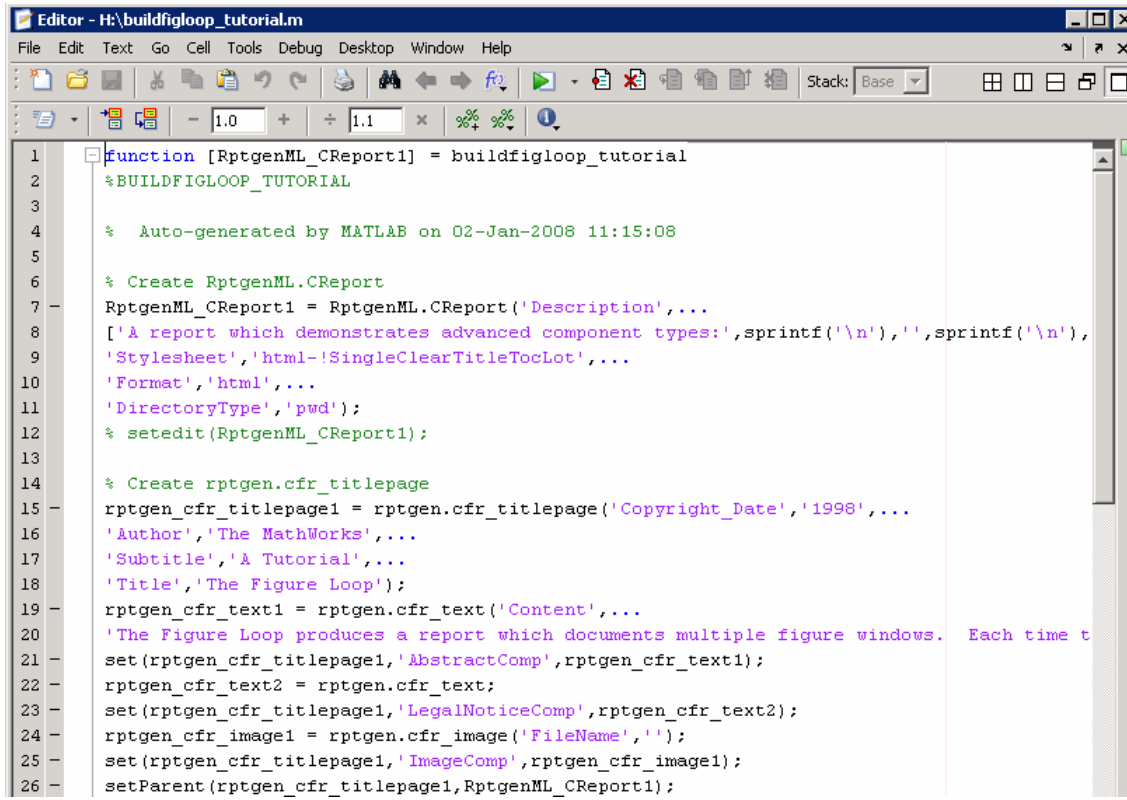
To generate a MATLAB file, load a report setup file into the Report Explorer and click **File > Generate MATLAB File**. After the MATLAB file generates, it opens in the MATLAB Editor. The filename for the generated file is the file name of the report setup file , preceded by "build."

Generate Reports from MATLAB Files

This example generates a MATLAB file from the `figloop_tutorial.rpt` report setup file, which is part of the MATLAB Report Generator software. The example then uses the `report` function to generate a report from the MATLAB file. For more information about this function, see the `report` reference page.

1. Start the Report Explorer by entering `report` in the MATLAB Command Window.
2. In the Options pane in the middle, double-click `figloop_tutorial.rpt` to open its report setup file.
3. In the Outline pane on the left, click `Report - figloop_tutorial.rpt` to select it.
4. In the Report Explorer menu bar, click **File > Generate MATLAB File**.

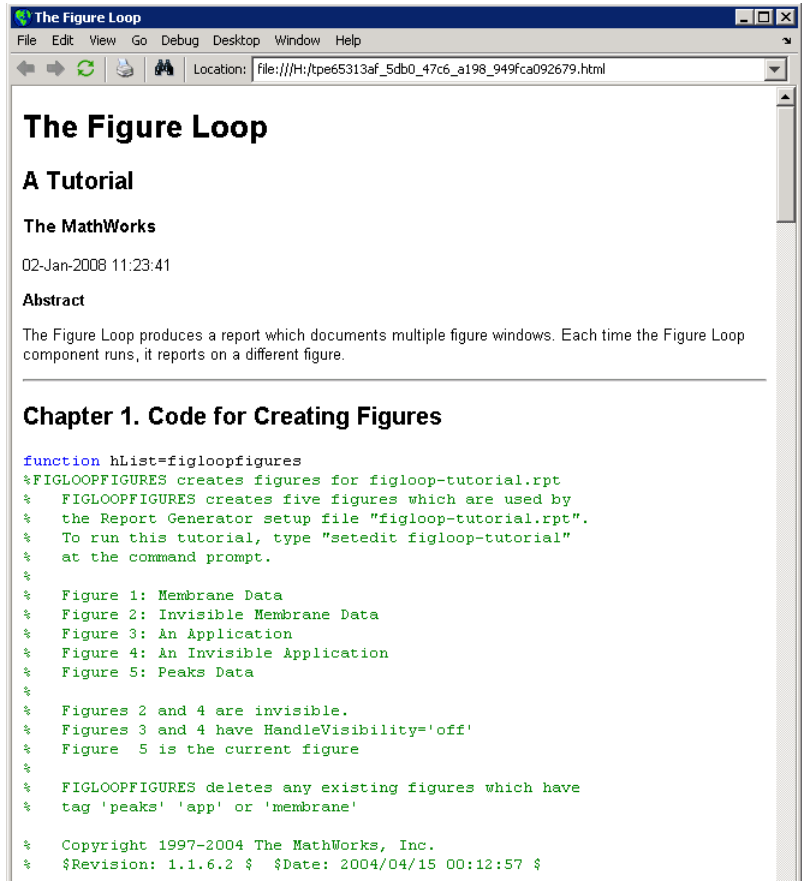
   The MATLAB Report Generator software generates MATLAB code for the `figloop_tutorial.rpt` report setup file. It saves this code in the `buildfigloop_tutorial.m` file in the folder you specify. Part of this file appears in the following figure.



5 To generate the `figloop_tutorial` report from this MATLAB file, run the following command in the MATLAB Command Window:

```
report(buildfigloop_tutorial);
```

The MATLAB Report Generator software runs and displays the report.


The Figure Loop
File Edit View Go Debug Desktop Window Help
Location: file:///H:/tpe65313af_5db0_47c6_a198_949fca092679.html
The Figure Loop
A Tutorial
The MathWorks
02-Jan-2008 11:23:41
Abstract
The Figure Loop produces a report which documents multiple figure windows. Each time the Figure Loop component runs, it reports on a different figure.
Chapter 1. Code for Creating Figures
function hList=figloopfigures
%FIGLOOPFIGURES creates figures for figloop-tutorial.rpt
% FIGLOOPFIGURES creates five figures which are used by
% the Report Generator setup file "figloop-tutorial.rpt".
% To run this tutorial, type "setedit figloop-tutorial"
% at the command prompt.
%
% Figure 1: Membrane Data
% Figure 2: Invisible Membrane Data
% Figure 3: An Application
% Figure 4: An Invisible Application
% Figure 5: Peaks Data
%
% Figures 2 and 4 are invisible.
% Figures 3 and 4 have HandleVisibility='off'
% Figure 5 is the current figure
%
% FIGLOOPFIGURES deletes any existing figures which have
% tag 'peaks' 'app' or 'membrane'
% Copyright 1997-2004 The MathWorks, Inc.
% $Revision: 1.1.6.2 $ $Date: 2004/04/15 00:12:57 $

Troubleshooting Report Generation Issues

In this section...

Memory Usage

By default, the MATLAB software sets a limit of 100 MB on the amount of memory the Oracle Java Virtual Machine (JVM™) software can allocate. The memory that the report generation process uses to build a document must fit within this limit. If you are having trouble processing large reports, it might be helpful to increase the amount of memory that MATLAB Report Generator and Simulink Report Generator software can allocate. See the following sections for more information.

Run the MATLAB Software Without a Desktop

One way to increase the amount of JVM memory available to the MATLAB Report Generator and Simulink Report Generator software is to run the MATLAB software with `-nodesktop` mode enabled.

Increase the MATLAB JVM Memory Allocation Limit

To increase the amount of JVM memory available by increasing the MATLAB JVM memory allocation limit, from the MATLAB Toolstrip, in the **Home** tab, in the **Environment** section, select **Preferences**. Use the **General** > **Java Heap Memory** dialog box.

HTML Report Display on UNIX Systems

HTML reports may not automatically display on some UNIX® platforms. To work around this issue, configure the MATLAB Report Generator software to launch an external browser:

1. In the Report Explorer, click **File** > **Preferences**.
2. Enter the following text in the **View command** field:

   ```
   web(rptgen.file2urn('%file name'), '-browser')
   ```

   Where *file name* is the name of your report setup file.

5

Add Content with Components

Components

Components are MATLAB objects that specify the content of a report. Add components to specify the types of content that commonly occur in reports. The MATLAB Report Generator provides a set of components for specifying the types of content that commonly occur in MATLAB-based reports. The Simulink Report Generator provides additional components to facilitate generation of reports from Simulink models. You can also create custom components to handle content specific to your application.

Using the Report Explorer, you can interactively combine components to create a report setup that specifies the content of a particular report or type of report. For general information about working with components, see:

- "Insert Components"
- "Set Component Properties"

Use a combination of the following types of components in your report setup file, based on your goals for the report.

Type of Component	Description
"Report Structure Components" on page 5-4	Include a title page, chapters, sections, paragraphs, lists, tables, and other standard document structure elements.
"Table Formatting Components" on page 5-5	Organize generated content into tables.
"Property Table Components" on page 5-6	Display tables with property name/ property value pairs for objects.
"Summary Table Components" on page 5-17	Display tables with specified properties for objects.
"Logical and Looping Components" on page 5-21	Run child components a specified number of times. There are several looping components, including logical loops and Handle Graphics loops.

Component Formatting

When you generate a report, in the Report Options dialog box, in the File format field you specify the type of report output you want. For example, you can generate a report in PDF, HTML, or Microsoft Word format.

For each format, you can choose to apply styles from either of these style definition sources:

- An HTML or Word report template
- A Model Explorer stylesheet for HTML, Word, or PDF.

The output format and the associated template or stylesheet that you select for a report determines most aspects of the formatting of the generated report. For example, a report template or stylesheet typically uses different font sizes for chapter titles and section titles. For details, see "Report Output Format".

Several components include properties that you can set to specify formatting details for that specific instance of a component. For example, for the `MATLAB Property Table`, you can specify formatting such as whether to display table borders or the alignment of text in table cells.

Report Structure Components

Use report structure components to organize the content of your report into chapters, sections, paragraphs, lists, tables, and other standard document structure elements. The following table summarizes the report structure components.

Component	Usage
“Title Page”	Generate a title page for a report.
“Chapter/Subsection”	Parent components that generate the content of a chapter or chapter subsection.
“Paragraph”	Specify the content and text format of a paragraph of text. Can serve as the parent of one or more text components, enabling use of multiple text formats (for example, bold, regular, or italic) in the same paragraph.
“Text”	Format strings of generated text.
“List”	Generate a list from a cell array of numbers or strings or parent components (for example, Paragraph components) that specify the items in a list. You can create multilevel lists by embedding list components within list components.
“Link”	Generate a hyperlink from one location in a report to another or to an external location on the user’s file system or the Worldwide Web.
“Image”	Insert an image into a report.
“Array-Based Table”	Generate a table from a cell array of numbers or strings.
“Table”	Parent a table body component. See “Table Formatting Components”.

Table Formatting Components

Use table formatting components to organize generated content into tables. The following table summarizes the table formatting components.

Component	Usage
“Table”	Parent a table body component. Can also parent column specification components and a table header and a table footer component. Specifies properties of the table as a whole (for example, its title, number of columns, and border).
“Table Body”	Parent the rows that make up the table body. Specifies the default vertical alignment of entries in a table body.
“Table Column Specification”	Specify attributes of a table column, such as its width and borders and the default horizontal alignment of column entries.
“Table Entry”	Parent a component that determines a table entry’s content, such as a paragraph, image, list, or another table component. Specifies attributes of a table entry, such as the number of rows and columns that it spans.
“Table Footer”	Parent the row components that generate the content of a table footer.
“Table Header”	Parent the row components that generate the content of a table header.
“Table Row”	Parent the table entry components that generate the content of a table row.

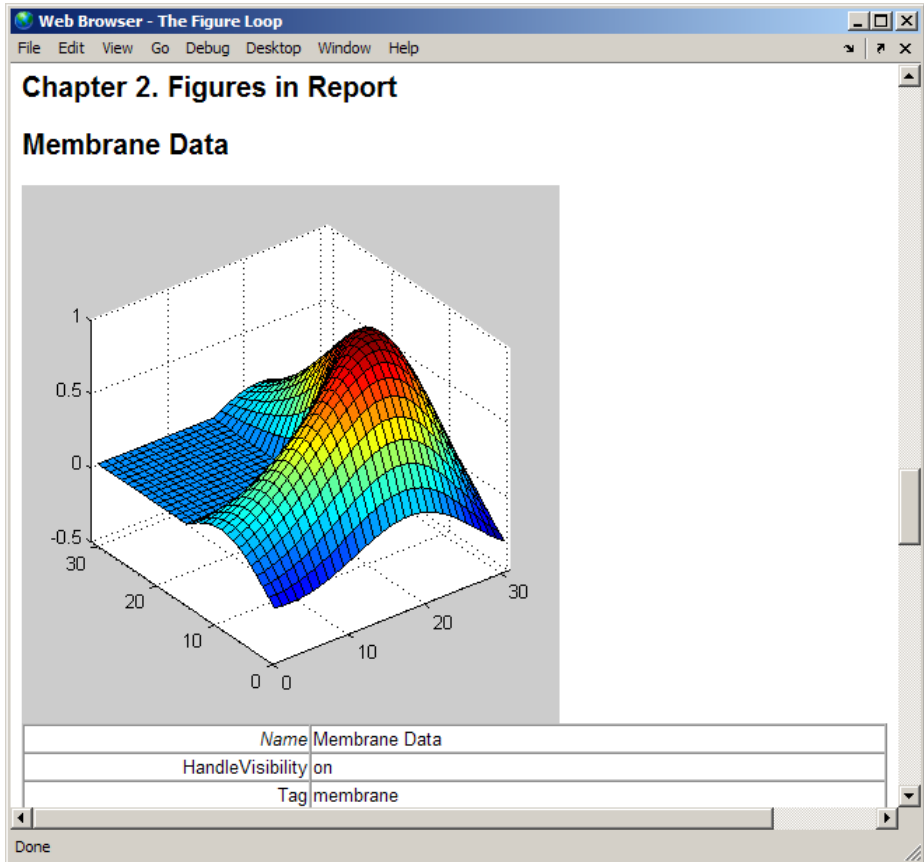
Tip Inserting a Table component into a setup also inserts all the descendant components required to generate a 2x2 table, creating a table template. Edit this template to create a table that suits your needs.

Property Table Components

In this section...

About Property Table Components

Property Table components display property name/property value pairs for objects in tables. The following example shows a property table from the `figloop-tutorial` report.



Many types of property table components are available, including:

- MATLAB Property Table
- Simulink Property Table (requires Simulink Report Generator)
- Stateflow Property Table (requires Simulink Report Generator)

The component used in this example represents MATLAB Report Generator property table components, all of which exhibit similar behavior.

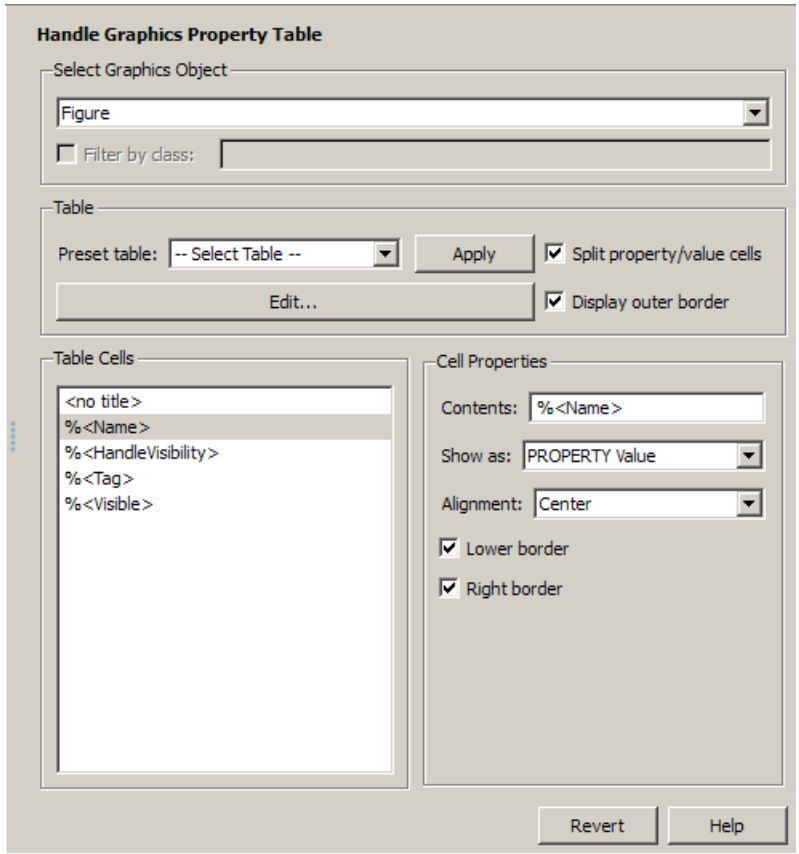
Open the Example Report Template

This example uses the `figloop-tutorial` report template. To open the figure loop tutorial report template, at the MATLAB command line enter:

```
setedit figloop-tutorial
```

Examine the Property Table Output

Property pages for all property table components are similar in form. In the Outline pane, select the `Figure Prop Table` component. To modify table settings, in the Handle Graphics Property Table dialog box, click the **Edit...** button.



Select Object Types

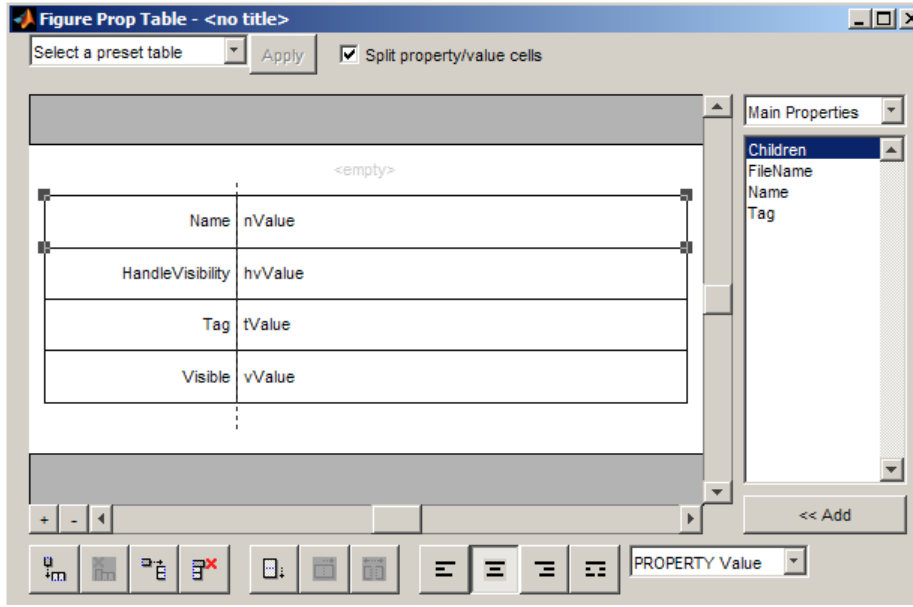
Property table components offer multiple object types on which to report. For example, the Handle Graphics Property Table lets you report on a figure, an axes object, or a Handle Graphics object.

You can select a different object type on which to report in the **Object type** list in the Properties pane for the component.

Display Property Name/Property Value Pairs

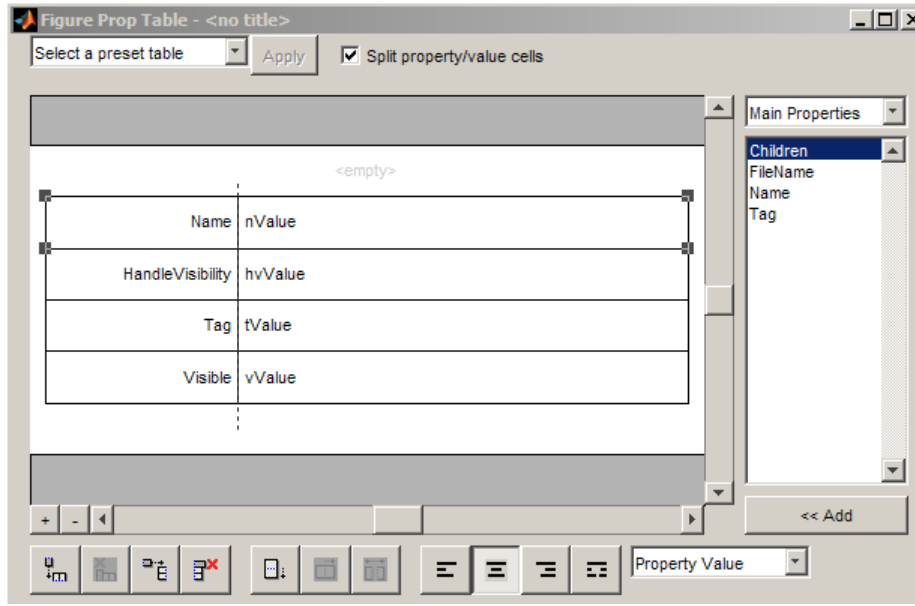
Split Property/Value Cells

1. In the Properties pane for the Handle Graphics Property Table component, clear the **Split property/value cells** check box.
2. Click **Edit**. The table is now in *nonsplit mode*. Nonsplit mode supports more than one property name/property value pair per cell and text.



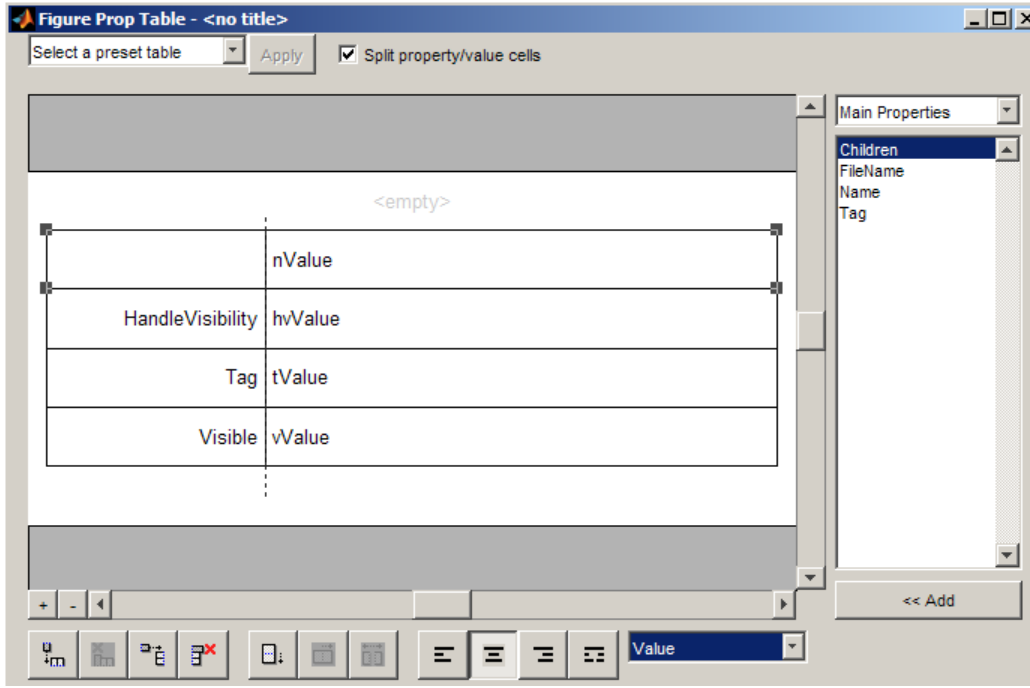
3. For the property name and property value to appear in adjacent horizontal cells in the table, select the **Split property/value cells** check box. The table is now in

split mode. Split mode supports only one property name/property value pair per cell. If more than one property pair appears in a cell, only the first pair appears in the report; all subsequent pairs are ignored.



Display Options

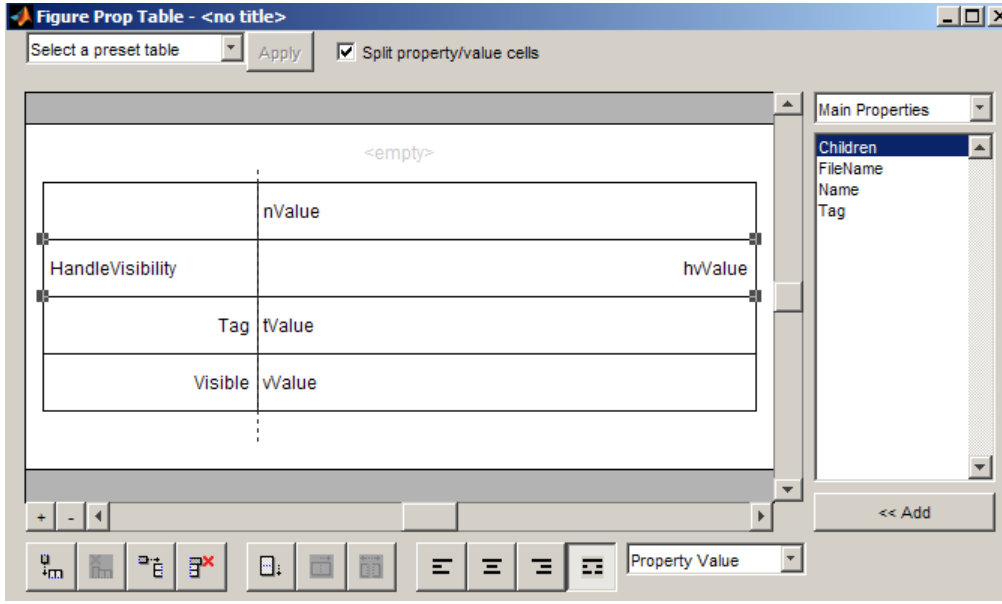
Property name/property value pairs can appear in cells in several ways. To specify how a given property name/property value pair appears in a cell, select that field in the table (for this tutorial, select the `Name` property). Choose `Value` from the display options drop-down list at the bottom of the dialog box. In the selected table row, only the value appears.



Format Options

To specify alignment for text in a given cell, in the toolbar at the bottom of the dialog box use the four justification buttons.

Select the `HandleVisibility` table row. Then select the double-justify button (the last button to the right).



Edit Table Titles

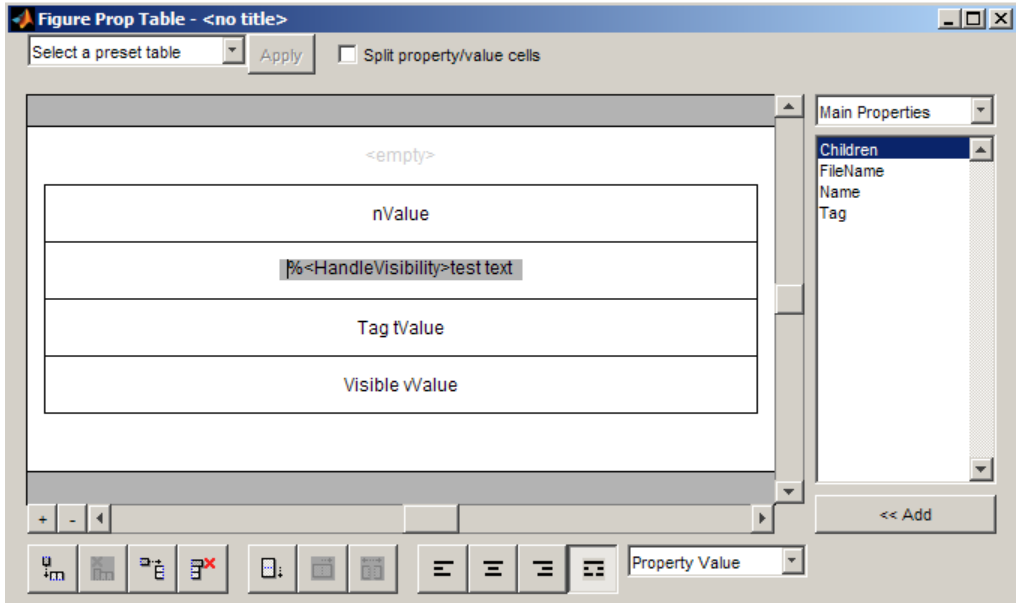
Table titles can contain properties and text. By default, the title of a table is the same as the value of the `%<Name>` property. You can modify this property to modify the table title.

Note: Table titles are always in nonsplit mode.

Enter Text into Table Cells

For the text to be visible, the table must be in nonsplit mode. Clear **Split property/value cells**.

To enter text into the `HandleVisibility` table cell, double-click the cell. A gray box appears with the label for the cell property.



If you type text outside the angle brackets, the text appears as is in the report. Text inside the table brackets must specify a valid property name. If you enter an invalid property name, the property name appears in the report without a property value.

Add, Replace, and Delete Properties in Tables

Adding Table Properties

To add a Handle Graphics property to a table, use the following steps.

1. In the Figure Property Table window, select a table row above which you want add a new property.
2. Click the Add Row Above Current Cell  button

   A new row appears above the current row.
3. Add the property to the new table row.

   a. Select the new table row.

b In the Properties Type drop-down list at the upper-right of the dialog box, select a property type.

c In the **Properties** list, select the property you want to add.

d Click the **<< Add** button, or double-click the property name. The property appears in the table row.

Alternatively, if you know the name of the property you want to add, enter the property name directly into the cell as described in "Enter Text into Table Cells". For information about adding new table rows, see "Add and Delete Columns and Rows".

Replace Table Properties

To replace a property in a cell of a table in split mode, follow the instructions in "Adding Table Properties" on page 5-13.

Note: You cannot use these steps to delete a property in a cell when the table is in nonsplit mode.

Delete Table Properties

Delete a property by backspacing over it or using the **Delete** key.

Format Table Columns, Rows, and Cells

Add and Delete Columns and Rows

To add or delete a column or row, select a cell and then click one of the buttons described in the following table.

Note: You cannot delete a row or column when it is the only row or column in the table.

Button	Action
	Add column (added to the left of the selected column)

Button	Action
	Delete selected column
	Add row (added above the selected row)
	Delete selected row

Resize Columns

To resize the width of a column, click and drag its vertical borders as needed.

Merge and Split Cells

To merge or split table cells, select a row and then click one of the buttons described in the following table.

Button	Action
	Merge cells downward
	Merge cells to the right
	Split cells

Display or Hide Cell Borders

To toggle cell borders on and off:

1. Place your cursor in a cell and right-click to invoke its context menu.
2. Choose **Cell borders** > **Top**, **Bottom**, **Right**, or **Left** to toggle the specified border on or off.

Zoom and Scroll

You can zoom in and out of the table with the zoom buttons, which are located to the left of the horizontal scroll bar.

Button	Action
	Zoom in
	Zoom out

You can scroll vertically and horizontally using the table scroll bars.

Select a Table

To display property name/property value pairs, you can select a preset table or use a custom table.

- A preset table is built-in and formatted. You can select a preset table in the preset table selection list in the upper-left of the Figure Prop Table window. To apply a preset table, select the table and click **Apply**.
- To create a custom table, select a preset table and modify it to fit your needs by adding and/or deleting rows and properties. You may want to start with the **Blank 4x4** preset table.

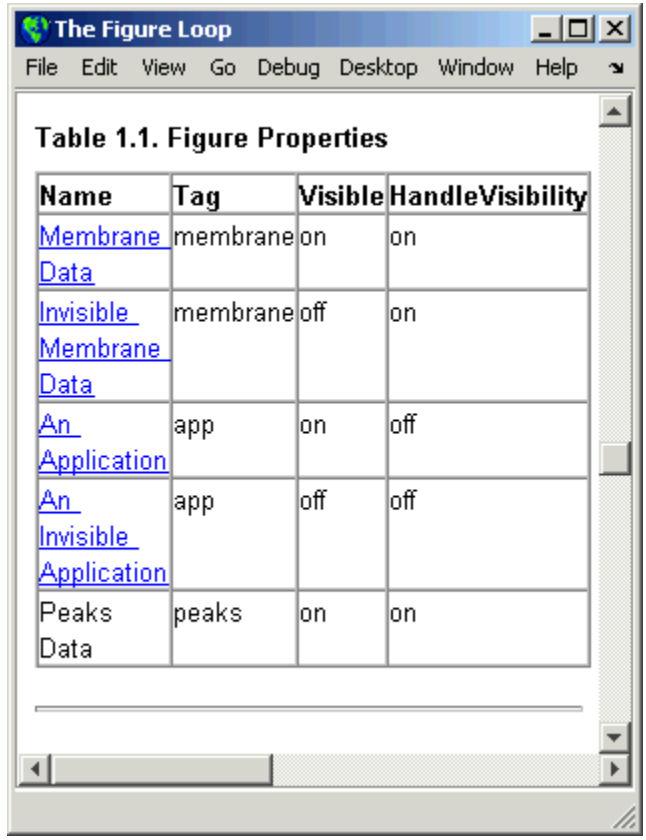
Note: You cannot save a custom table as a preset table. If you do so, you lose all changes to the custom table.

Summary Table Components

In this section...

About Summary Table Components

Summary table components insert tables that include specified properties for objects into generated reports. Summary tables contain one object per row, with each object property appearing in a column, as shown in the following summary table in the `figloop-tutorial` report.



Many types of summary table components are available, including:

- Handle Graphics Summary Table
- Simulink Summary Table (requires Simulink Report Generator)
- Stateflow Summary Table (requires Simulink Report Generator)

The component used in this example represents MATLAB Report Generator summary table components, all of which exhibit similar behavior

Open the Example Report Template

This example uses the `figloop-tutorial` report template. To open the figure loop tutorial report template, enter the following at the MATLAB command line:

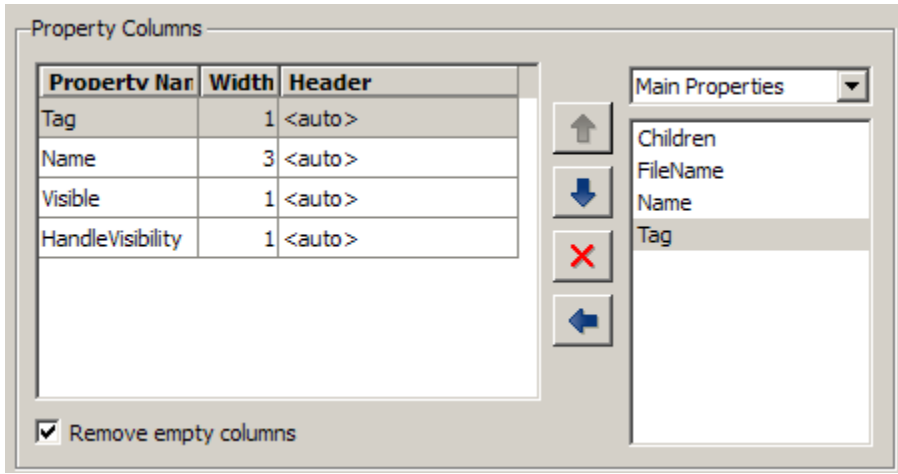
```
setedit figloop-tutorial
```

Select Object Types

You can use the **Object type** selection list to choose Handle Graphics object types for the summary table, including blocks, signals, systems, and models. The `figloop-tutorial` reports on figure objects.

Add and Remove Properties

You can select object properties to appear in the summary table from the Property Columns pane. To add a property to the summary table, select the property category from the property category drop-down box to the right of the **Property columns** table. Each property category has its own list of properties, which appear in the field under the box. The following figure shows `Main Properties` as the selected category.



To add a property:

1. Select the category from the property category drop-down box.
2. Select a property in the properties list.
3. Click the Add property  button.

   The property appears in the **Property columns** table.

To remove a property from the table:

1. Select the property in the **Property columns** table.
2. Click the Delete property  button.

   The property name is removed from the **Property columns** table.

Note: After making changes in the Report Explorer, click **Apply** to make the changes take effect.

You can define your own properties by entering their names into the **Property columns** table using valid variable notation. For more information, see "%<VariableName> Notation" on the `Text` component reference documentation.

Set Relative Column Widths

To apply a relative column width to the summary table columns in the generated report, double-click on the `Width` column of a row in the **Property columns** table . If you do not specify a value for this field, column widths automatically set.

Set Object Row Options

You can use the Object Rows pane to set options for table rows, including anchor, filtering, and sorting options. Select **Insert anchor for each row** to place an anchor in each table row in the report. Use the **Include figures** list to specify what objects to include in the summary table.

Summary table components in `figloop-tutorial` report on figure objects. For more information on options for these figure objects, see the following sections:

- "Loop on the Current Figure"
- "Loop on Visible Figures"
- "Loop on Figures with Tags"

Logical and Looping Components

Logical and looping components execute conditionally, determining when a child component executes or how many times a child component executes.

A *looping component* runs its child components a specified number of times. There are several looping components, such as logical loops and Handle Graphics loops.

For an example that uses loop components, see “Edit Figure Loop Components”.

Edit Figure Loop Components

In this section...

Figure Loop in a Report

This example uses the Figure Loop, which is representative of many types of loops. The Figure Loop component runs its child components several times. In each iteration, the Figure Loop applies its child components to Handle Graphics figures. The `figloop-tutorial` report setup file creates a report that documents several Handle Graphics figures.

1. At the MATLAB command prompt, enter:

   ```
   setedit figloop-tutorial
   ```

2. To display the Handle Graphics figures, enter:

   ```
   figloopfigures
   ```

   The figures `Membrane Data`, `An Application`, and `Peaks Data` appear on the screen because their `visible` property is `'on'`. The `Invisible Membrane Data` and `An Invisible Application` figures do not appear on screen because their `visible` property is `'off'`. These invisible figures exist, but they are hidden.

3. In the Report Explorer, in the Outline pane on the left, select the Figure Loop component called `Figure Loop Section 1`.

   The Properties pane for the Figure Loop component appears.

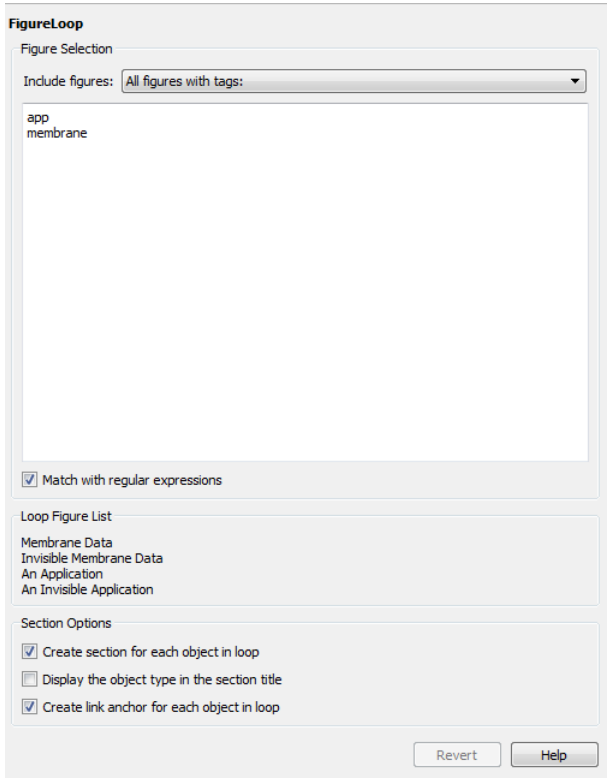


Figure Properties

Figure properties control which figures appear in the report. Table 1.1 of the `figloop-tutorial` report includes a summary of the properties of the figures used in this tutorial.

Table 1.1. Figure Properties

Name	Tag	Visible	HandleVisibility
Membrane Data	membrane	on	on
Invisible Membrane Data	membrane	off	on
An Application	app	on	off
An Invisible Application	app	off	off
Peaks Data	peaks	on	on

For this example, do not change these properties. For more information, see “Add, Replace, and Delete Properties in Tables” on page 5-13.

Loop on the Current Figure

To include only the current figure in the report, select `Current figure only` from the **Include figures** selection list. The current figure is the figure that is current when the report generates. This figure may not be the same figure that you selected as the current figure in the Report Explorer before report generation. For example, if the report generation process creates figures in your report, the last figure created with `HandleVisibility` set to `'on'` is the current figure.

Loop on Visible Figures

To include snapshots of all visible figures in your report, in the **Include figures** selection list, select `Visible figures`. This option inserts a snapshot and Property Table for all figures that are currently open and visible.

1. Select the **Data figures only (Exclude applications)** option to exclude figures from the loop whose `HandleVisibility` parameter is `'off'`.
2. To generate the report, in the Report Explorer toolbar click the **Report** button.

In the generated report, scroll down to “Chapter 2 Figures in Report.” The `Membrane Data` and `Peaks Data` figures appear in the generated report.

Loop on Figures with Tags

To include figures with specified tags in the report:

1. In the **Include figures** selection list, select the `All figures with tags` option.
2. In the list of tags, delete `membrane`.
3. Click **Report** to generate the report.

The `An Application` and `An Invisible Application` figures appear in the report. They both have an `app` tag.

Modify Loop Section Options

In a loop, a *section* refers to a space in the generated report in which information, including text, images, and tables, appears. You can alter the appearance of sections

in each loop appear in the report by using the options in the Figure Loop component's Section Options pane.

- **Create Section for Each Object in Loop** — Create an individual section for each object found in the loop, using the object title as the section title. This option is useful when a loop does not contain a Chapter/Subsection component that organizes the loop results.
- **Display the Object Type in the Section Title** — Precede section titles with object titles. Enable this option by selecting **Create section for each object in loop**. For example:

  1. Enter `membrane` back in the list of tags.
  2. Generate the `figloop-tutorial` report.

     The figures produced by the loop are:

     ```
     Membrane Data
     Invisible Membrane Data
     An Application
     An Invisible Application
     ```

  3. Enable the **Create section for each object in loop** option.
  4. Enable the **Display the Object Type in the Section Title** option.
  5. Generate the `figloop-tutorial` report.

     The figures produced are now:

     ```
     Figure - Membrane Data
     Figure - Invisible Membrane Data
     Figure - An Application
     Figure - An Invisible Application
     ```

     The figures produced are now:

     ```
     Figure - Membrane Data
     Figure - Invisible Membrane Data
     Figure - An Application
     Figure - An Invisible Application
     ```

- **Create a Link Anchor for Each Object in Loop** — Create a hyperlink to the object in the generated report.

6

Template-Based Report Formatting

Report Generation Using Templates

In this section...

Report Templates

A report template can contain:

- Style sheet with style definitions for report elements

  A style is a collection of formats for a report element.
- Fixed content

  The default templates do not include fixed content. You can add fixed content.
- Holes (blanks) that the DOM API fills with generated content

You can create custom Word and HTML templates to:

- Tailor report formatting to meet your specific formatting requirements.
- Add fixed content.
- Rearrange the order of the holes for generated content.

Benefits of Using Templates

Using a template when generating a report provides several benefits, compared to generating a report without using a template.

- Report generation is faster.
- Report generation does not use Java memory. Generating reports without using a template can cause Java to run out of memory.
- You can customize report formatting using standard techniques for specifying Word and HTML styles.

Custom Templates

The default templates produce reports that look similar to reports generated without using templates. You can create custom templates.

Component Formatting

For these Report Explorer components, you can specify an applicable style from a template style sheet. The style controls formatting for the component when you generate a report using the template that contains the style definition.

- Chapter/Section
- Text
- Paragraph
- List
- Title Page (the Abstract and the Legal Notice sections)
- Table
- Table Body
- Table Footer
- Table Header

For some components, you can specify a style for the title (for example, the title of a paragraph) and a style for the content.

To change the default formatting for instances of one of these components, in the template edit the style definition for the default style for that component (or component title). You can change the default format for components that have associated style in the template style sheet.

To change the style or format for an instance of a component, open the component property dialog box and use one of these approaches.

- Use the **Style Name** field to associate a different style with that instance.
- Use the component property dialog box to set a specific format. For example, the Paragraph component provides format options such as bold and underline.

Formats that you specify in a component property dialog box have priority over formatting specified using the **Style Name** field.

Related Examples

- “Generate a Report Using a Template” on page 6-5
- “Create Custom Microsoft Word Report Templates” on page 6-6
- “ Create Custom HTML Report Templates” on page 6-10

More About

- “Report Generation Using Templates” on page 6-2

Generate a Report Using a Template

Generate a Report Using a Template for the File Format

1. In Report Explorer, in the **Outline** pane, select the report.
2. In the Report Options dialog box that appears in the **Properties** pane, set the **File format** field to one of these options:
   - `HTML (from template)`
   - `PDF (from template)`
   - `Word (from template)`
3. Optionally, from the list of style sheets available for the current file format, select a selecting a different style sheet than the default style sheet.
4. If you select `HTML (from template)`, choose a packaging options for the output files.
   - **Unzipped** — Generate the report files in a subfolder of the current folder. The subfolder has the report name.
   - **Zipped** — Package report files in a single compressed file that has the report name, with a `.zip` extension.
   - **Both Zipped and Unzipped**
5. In the toolbar, click the **Report** button ().

Related Examples

- “Create Custom Microsoft Word Report Templates” on page 6-6
- “ Create Custom HTML Report Templates” on page 6-10

More About

- “Report Generation Using Templates” on page 6-2

Create Custom Microsoft Word Report Templates

In this section...

Copy a Word Template

To customize the styles used in the default Word template, you need to copy that template (or a template that was copied from the default template) and modify or add style definitions in the copy. You cannot edit the default template.

1. In Report Explorer, select **Tools > Edit Document Conversion Template**.
2. In the Library pane (middle pane), select a template from the list of Word templates. For example, select the `DefaultWordTemplate`.
3. In the Properties pane, click **Copy template**.
4. In the file browser, navigate to the location where you want to save the template file.

   Select a path that is on the MATLAB path (for example, in the `MATLAB` folder in your home directory).

   Specify the file name, using the default file extension for a Word template (`.dotx`). Click **Save**.
5. In the list of templates in the middle pane, select the template copy you just created.
6. In the Properties pane, in the **Template id** and **Display name** fields, specify a unique ID and display name for the template.

   The display name is the name that appears in the Report Explorer list of templates. Commands that act on templates use the template ID to specify the template.
7. Optionally, in the Properties pane, fill in the **Description** and **Creator** fields.
8. To save the template properties you entered, move the cursor outside of the Properties pane and click.

Edit Existing Word Styles in a Template

You can customize or add format styles in a custom Word template.

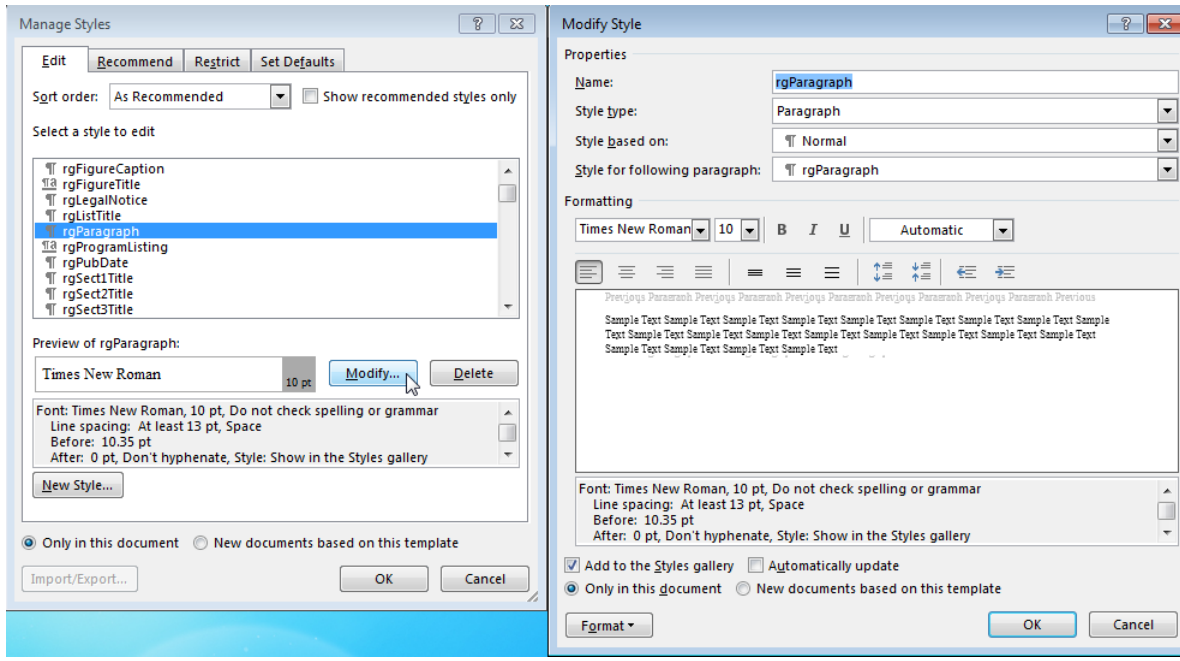
1. In the list of templates in the middle pane, select the custom template that you want to edit.

   Tip If the Report Explorer middle pane does not show a list of templates, then select **Tools > Edit Document Conversion Template**.

2. In the Properties pane, click **Open stylesheet**.
3. In the Manage Styles dialog box, select a style to edit.

   Styles that begin with `rg` (for example, `rgParagraph`) are the default styles used for reports. A default style applies to all instances of a component with which it is associated, unless you override the style.

4. Click **Modify**. The Modify Style dialog box appears.



5 In the Modify Style dialog box, change style definitions to meet your formatting requirements. For example, you can change the font family, font size, indentation, etc. To save your changes, click **OK** and close the dialog box.

6 In Word, save and close the template.

For more information about using Word styles, see the Microsoft Word documentation.

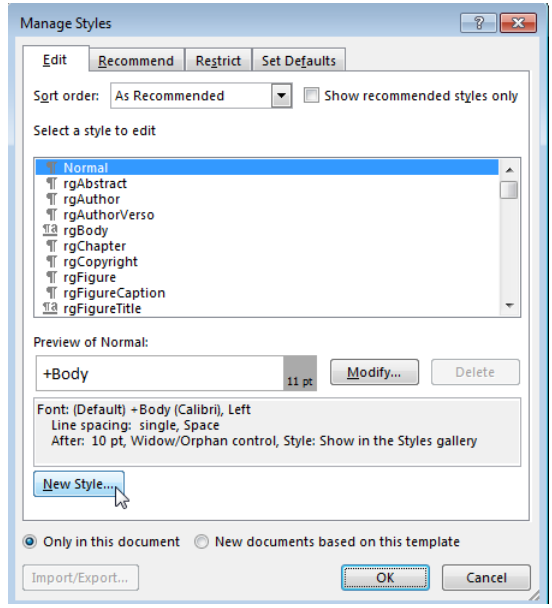
Add a Style to a Word Template

To add a new style to a Word template:

1 Open the Manage Styles dialog box, as described in "Edit Existing Word Styles in a Template" on page 6-7.

2 If applicable, select an existing style to use as a starting point for the new style.

3 Click the **New Style** button.



4 Specify a name for the new style and define the style characteristics. To save the new style definition, click **OK** and close the dialog box.

5 In Word, save and close the template.

Modify or Add Fixed Content

In the Report Content hole for generated content, you can add fixed text. When you generate the report, the fixed text appears before the content generated for the Report Content hole.

Change the Order of Holes

You can change the order of the holes in a template. However, do not:

- Remove any holes from the template.

  The Report Explorer requires that a template includes the holes to successfully generate a report.
- Add any holes.

  The Report Explorer ignores any additional holes.

Related Examples

- " Create Custom HTML Report Templates" on page 6-10
- "Generate a Report Using a Template" on page 6-5

More About

- "Report Generation Using Templates" on page 6-2

Create Custom HTML Report Templates

In this section...

Copy an HTML Template

To customize the format styles used in the default HTML template, copy that template (or a template that was copied from the default template) and modify or add style definitions in the copy. You cannot edit the default HTML template.

1. In Report Explorer, select **Tools > Edit Document Conversion Template**.
2. In the middle pane, select a template from the list of HTML templates.
3. In the **Properties** pane, click **Copy template**.
4. In the file browser, navigate to the location where you want to save the template file.

   Select a path that is on the MATLAB path (for example, in the `MATLAB` folder in your home directory).

   Specify the file name, using the default file extension for a HTML template (`.htmtx`) and click **Save**.
5. In the list of templates in the middle pane, select the template copy.
6. In the **Properties** pane, in the **Template id** and **Display name** fields, specify a unique ID and display name for the template.

   The display name is the name that appears in the Report Explorer list of templates. Commands that act on templates use the template ID to specify the template.
7. Optionally, in the **Properties** pane, fill in the **Description** and **Creator** fields.
8. To save the template properties you entered, move the cursor outside of the Properties pane and click.

Select an HTML Editor

By default, when you edit a Report Explorer HTML style sheet, the style sheet appears in the MATLAB Editor.

To use a different editor for editing an HTML template:

1. In Report Explorer, select **File** > **Preferences**.
2. In the **Edit HTML Command** text box, enter a MATLAB expression that opens the HTML editor you want to use. For example:

   ```
   system('Dreamweaver %<FileName> &')
   ```

   When you open an HTML stylesheet, the Report Explorer automatically replaces `FileName` with the template that you selected.

Edit HTML Styles in a Template

You can customize or add format styles in a custom HTML template.

1. In the list of templates in the middle pane, select the custom template that you want to edit.

   Tip If the Report Explorer middle pane does not show a list of templates, then select **Tools** > **Edit Document Conversion Template**.

2. In the **Properties** pane, click **Open stylesheet**.
3. In the HTML editor, edit the cascading style sheet (CSS).

   For information about editing a cascading style sheet, see documentation such as the W3Schools.com CSS tutorial.

4. Save the style sheet.

Related Examples

- “Create Custom Microsoft Word Report Templates” on page 6-6
- “Generate a Report Using a Template” on page 6-5

More About

- “Report Generation Using Templates” on page 6-2

7

Create Custom Components

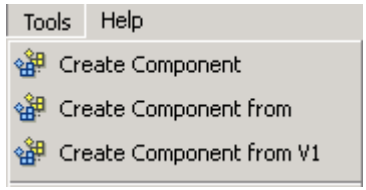
About Custom Components

In most cases, the components provided with the MATLAB Report Generator software should be more than adequate for your needs. You can, however, create custom components if you want to generate a report via functionality that is not available in the standard MATLAB Report Generator components. For example, you can create a component that inserts a corporate logo into your report, or a component that plots data.

Create Custom Components

To create a component:

1. Open the Report Explorer.
2. Select one of the component creation choices from the **Tools** menu:

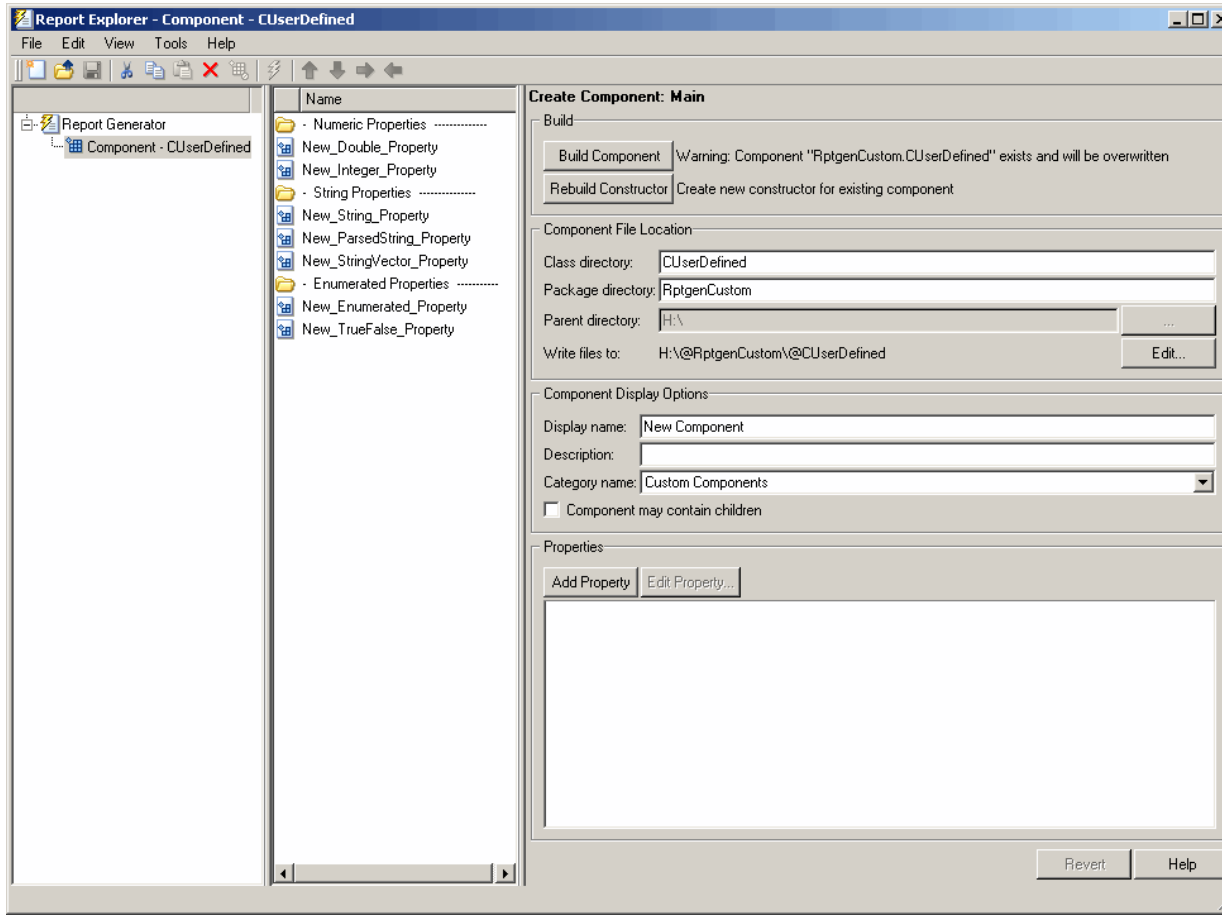


- To create a custom component, select **Create Component**.
- To create a custom component from an existing component, select **Create Component from**.
- To create a component from an existing version 1 component, select **Create Component from V1**.

Tip You can also create a custom component by clicking the **Create a new user-defined reporting component** link in the Report Explorer Properties pane on the right.

The Report Explorer displays as follows:

- The Outline pane on the left displays the structure of components you create.
- The Options pane in the middle lists properties you add to components.
- The Properties pane on the right specifies the behavior of component properties.



3 Specify properties of the component in the Properties pane of the Report Explorer. For more information, see “Define Components” on page 7-6.

4 Specify tasks you want the component to perform by editing the MATLAB files that comprise the framework of the component. For more information, see “Specify Tasks for a Component to Perform” on page 7-13.

5 Build the component. For more information, see “Build Components” on page 7-11.

After you build the custom component, you can use it to specify options for your generated report in the report setup file.

Note: You must restart the MATLAB software session before using a newly created or rebuilt component.

Define Components

In this section...

Required Component Data

You must specify the following information when you create a component:

1. The path where you want to put the folder that contains all files for the component. For information on how to specify this folder, see "Specify the Location of Component Files" on page 7-6.
2. Properties of the component. For more information, see "Specify Component Properties" on page 7-9.
3. Display options for the component, including its display name, category, and description. For more information, see "Set Component Display Options" on page 7-7.

Specify the Location of Component Files

You can create components that perform similar functions and group them in *Package Directories*. Each package folder must have a *Parent Directory* that is in the MATLAB path. When you build a new component, the MATLAB Report Generator software creates files that make up the component. These files are stored in the folder structure `<parent>/@package_name/@class_name`.

Specify these directories in the following fields in the **Component File Location** area of the Properties pane:

1. **Class Directory Field**. Specify a class name for your component. The build process creates a folder with the name you specify and places the component's files in it. The class folder name must be unique for each component in the package. By convention, component class names begin with an uppercase or lowercase letter `c`; for example, `cUserDefinedComponent`.
2. **Package Directory Field.** Specify the folder in which to store files for groups of components you create. Files for each component are stored in a subfolder with the name you entered into **Class Directory Field**.
3. **Parent Directory Field**. Specify this folder when you create a package for the first time. This folder is the parent folder of the Package Directory.

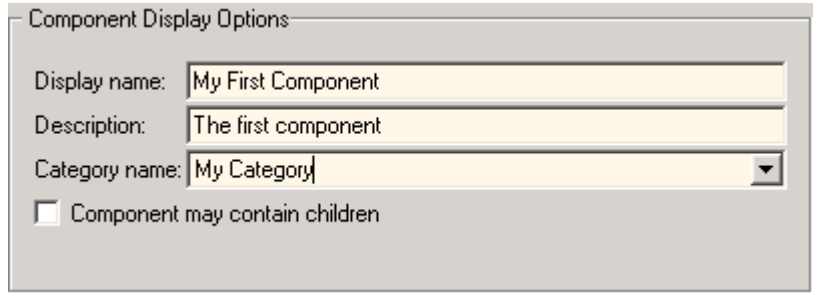
Set Component Display Options

You can specify how you want your component to appear in the Report Explorer by entering data in the **Component Display Options** area of the Properties pane. Enter the following information:

1. **Display Name.** Specify a display name for the component to appear in the list of components for its associated category. Component categories and display names appear in the Options pane in the middle of the Report Explorer.

   For information on specifying component categories, see step 3, **Category Name**.

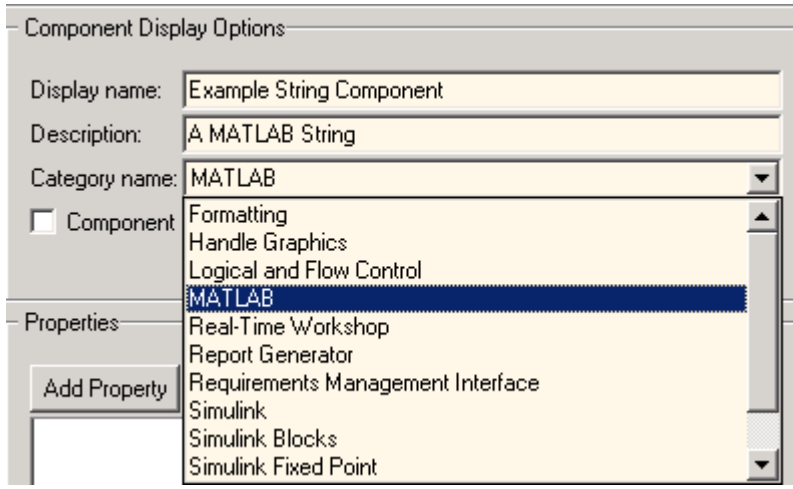
   The following example shows how to create a component called `My First Component` in a category called `My Category`.



2. **Description.** Enter a description for the component. This description appears when you click the component name or category name in the Options pane in the middle of the Report Explorer. Make the description informative, but brief.

3 **Category Name.** Specify the category of components to which the new component belongs. The component appears under this category in the Options pane in the middle of the Report Explorer.

Predefined choices appear in the **Category name** list. Select a component category from this list.



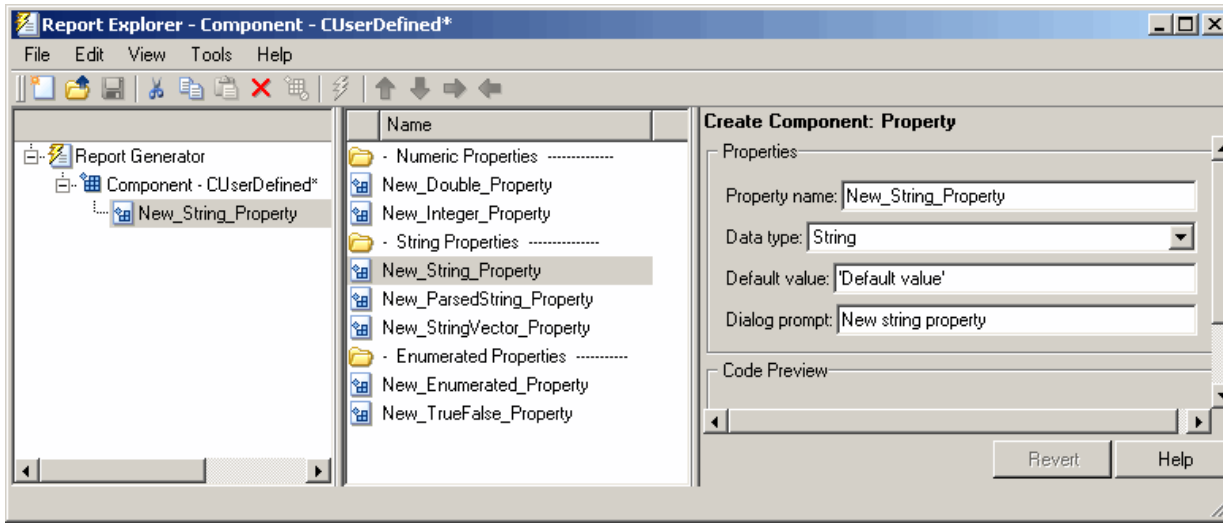
To create a custom component category, type the name for the category into the **Category name** field. This category name appears in the list of available categories in the Report Explorer.

4 **child components**.

Select the **Component may contain children** check box if you want the component to have child components. Child components appear under the component in the Report Explorer hierarchy. During report generation, the component runs all child components and includes their output in the report.

Specify Component Properties

Component properties determine how a component behaves and what information it inserts into a report. To see the current value of a component's property, double-click it in the Outline pane on the left in the Report Explorer. For example, the following figure displays the property values for `New_String_Property`.

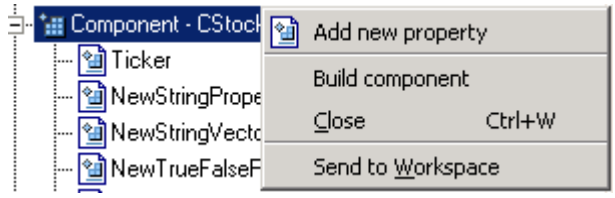


Add Properties to Components

You add properties to a component from the properties list. Each property has a default value that you can modify as needed.

There are several ways to add properties to components:

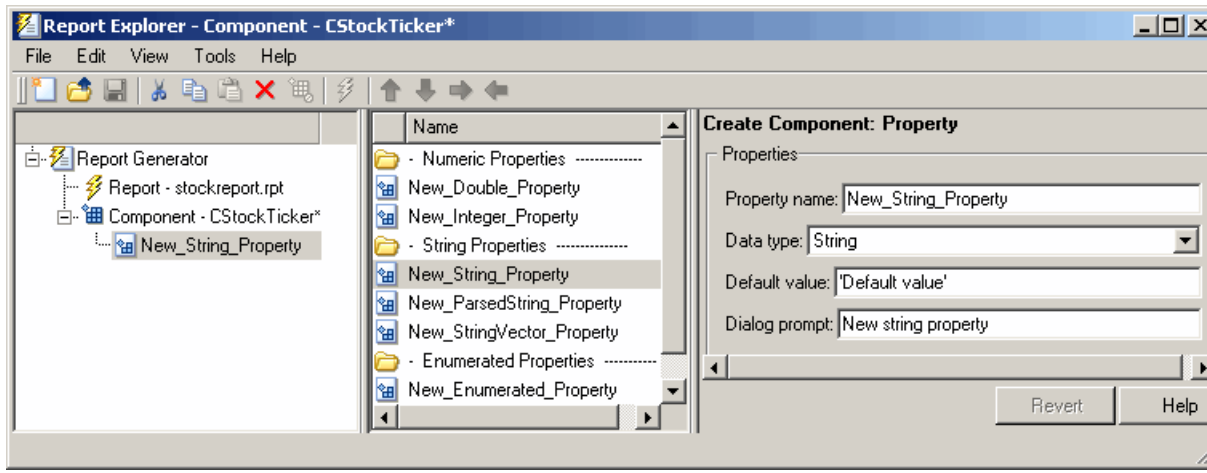
1. Right-click the name of the component to which you want to add properties in the Outline pane on the left. Select **Add new property** from its context menu.



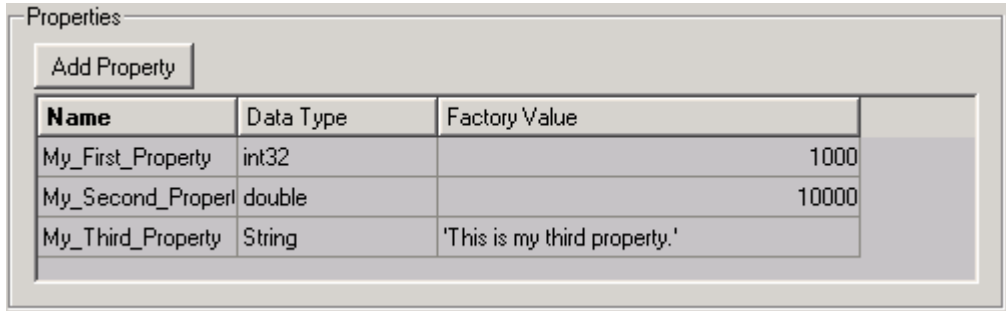
2 Right-click the name of a predefined property in the Options pane in the middle. From the context menu, select **Add property**.

3 Left-click the name of a property in the Options pane, and then drag it on top of a component in the Outline pane on the left.

4 Double-click the property name in the Options pane in the middle. The property is added to the component and property values appear in the Properties pane on the right.



5 Click the **Add Property** button on the Properties pane on the right.



Specify Component Properties

1. **Property Name.** Create a name for the new property. A property name must be a valid MATLAB variable name, and must be unique within a component.
2. **Data Type.** Specify the property's data type. Options are:

   - `Double`
   - `Enumeration`
   - `Integer`
   - `String`
   - `String Vector`
   - `%<Parsed String>`

     Use this data type to include the value of a variable in the MATLAB workspace in a component. For more information about this data type, see "%<VariableName> Notation" on the `Text` reference page.
   - `True/False`
3. **Default Value.** Set a default value for the property. The default value must be compatible with the data type. If incompatibilities exist between the default value and the data type, the component might not build.
4. **Dialog Prompt.** This text appears next to the widget on the component's dialog box. It indicates what the property does and how it affects report generation.

Note: When the component builds, a colon is appended to your entry in the **Dialog prompt** field. Your entry appears in the Properties pane with the colon appended.

Modify Existing Components

Report components are modifiable. You can derive a new component from an existing component by double-clicking the name of the component and modifying its values and properties.

Build Components

After you have entered all data required for defining the component, you build it by clicking the **Build Component** button. The build process creates all files needed for the

component and stores them in the specified folder. For more information about specifying where components are stored, see “Specify the Location of Component Files” on page 7-6.

Note: Existing files in this location are overwritten.

Rebuild Existing Components

To add, remove, or change properties of an existing component, use the **Rebuild Constructor** button. This button becomes active only after you have previously created a component using the **Build Component** button. To activate the **Rebuild Constructor** button, specify the **Package name** and **Class name** for an existing component. These fields are located in the **Component File Location** area of the Properties pane.

If you select a component using **Tools** > **Create component from**, the component's fields are filled in automatically and the button becomes active.

After you have finished modifying the component, click the **Rebuild Constructor** button to rebuild the component. Writable files in the component's folder location are not overwritten.

Remove a Component

To remove a component:

1. Delete its class folder, `<root>/@package_name/@class_name`. If the component you want to remove is the only component in the package, delete the entire package.
2. Edit `<root>/@package_name/rptcomps2.xml` to remove the XML element that registers the component.

Specify Tasks for a Component to Perform

In this section...

About Component Customization

Building a component creates MATLAB files in the MATLAB workspace. Specify tasks that you want your component to perform by editing these MATLAB files.

Note: You *must* specify the format and content of your report output by editing `execute.m`. This file is called during report generation to invoke your component's tasks. Optionally, you can specify additional component properties and behavior by editing other MATLAB files.

For more information, see the following sections:

- “Required Customization: Specify Format and Content of Report Output” on page 7-13
- “Change a Component's Outline String in the Report Explorer Hierarchy” on page 7-15
- “Modify the Appearance of Properties Dialog Boxes” on page 7-16
- “Specify Additional Component Properties” on page 7-17

Required Customization: Specify Format and Content of Report Output

After you build the component, specify the format and content of your report output by editing the `execute.m` file.

The `execute` command has the following syntax:

```
out = execute(thisComp, parentDoc)
```

Where:

- `thisComp` is a handle to the component that you are running.
- `parentDoc` is a handle to the document that you are generating.
- `out` is a Document Object Model (DOM) node or string to add to the report.

  For information on manipulating DOM nodes, see `xmlwrite` in the MATLAB documentation.

One or more default lines of code within the `execute.m` file show each property for the component. Here is an example of a component property line within an `execute.m` file:

```
pstring = thisComp.NewStringProperty;  % New string property;
```

The following sections describe how to edit `execute.m` to create additional report elements.

Create Tables

To create a table, replace the `Source` property value with the name of a cell array or structure:

```
out = execute(rptgen.cfr_table(...
'Source', tableSrc,...
'numHeaderRows',1,...
'TableTitle','Example Title'),...
 parentDoc);
```

For more information, enter `help(rptgen.cfr_table)` at the MATLAB command line.

Create Lists

To create a list, replace the `Source` property value with the name of a cell vector:

```
out = execute(rptgen.cfr_list(...
'Source', listSrc,...
'ListStyle','orderedlist',...
'ListTitle','Example List'),...
 parentDoc);
```

For more information, enter `help(rptgen.cfr_list)` at the MATLAB command line.

Create Text

To create text, replace the `ParaText` property value with a text string:

```
out = execute(rptgen.cfr_paragraph(...
'ParaText', paraSrc,...
 parentDoc);
```

For more information, enter `help(rptgen.cfr_paragraph)` at the command line.

Create Figures

To create figures, specify a figure in the `FigureHandle` property value.

```
figSrc = gcf;
out = execute(rptgen_hg.chg_fig_snap(...
'FigureHandle', figSrc,...
'Title', '',...
'isResizeFigure', 'manual',...
'PrintSize', [6 4],...
'PrintUnits', 'inches'),...
 parentDoc);
```

For more information, enter `help(rptgen_hg.chg_fig_snap)` at the MATLAB command line.

Run Child Components

The following code runs child components. The first line calls `execute.m` for child components. The second line appends the results of running the child components to the report:

```
childOut = thisComp.runChildren(parentDoc);
out = parentDoc.createDocumentFragment(out, childOut);
```

Change a Component's Outline String in the Report Explorer Hierarchy

To change the string used to describe the component in the Report Explorer hierarchy, edit the `getOutlineString` MATLAB file. By default, `getoutlinestring` returns the display name of the component. The `getOutlineString` command has the following syntax:

```
olstring = getOutlineString(thisComp)
```

Where:

- `thisComp` is the component whose description you are specifying.
- `olstring` is a single-line string that displays information about the component. It can contain a maximum of 32 characters.

Customize the string to include additional information about the component, such as information about its properties. In the following example, the `truncatestring` function converts input data into a single-line string. If the data is empty, the second argument is the return value, The third argument is the maximum allowed size of the resulting string.

```
cInfo = '';
pstring = rptgen.truncateString(thisComp.string,'<empty>',16);
```

Use a dash (`-`) as a separator between the name and additional component information, as follows:

```
if ~isempty(cInfo)
   olstring = [olstring, '-', cInfo];
end
```

Modify the Appearance of Properties Dialog Boxes

You can edit the `getdialogschema.m` file to control most aspects of dialog box layout, including:

- Creation and placement of widgets
- Organization of widgets into panes
- Creation of the top-level display within which panes reside

The syntax of the command is:

```
dlgstruct = getdialogschema(thisComp, name)
```

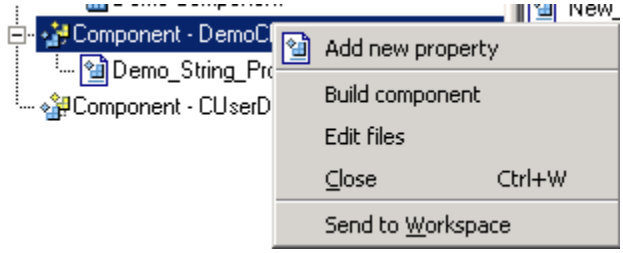
Where:

- `thisComp` is the instance of the component being edited.
- `name` is a string that is passed to `getdialogschema` to build a specific type of pane. Usually, `name` is empty in the Report Explorer.

Note: Do not modify fields that are not explicitly included in this file. These fields are subject to change in future releases.

Specify Additional Component Properties

You can edit additional MATLAB files to customize your component further. To access these files, right-click the component in the Outline pane on the left in the Report Explorer and select **Edit files** from its context menu.



For more information, see the following sections:

Specify Whether Components Can Have Children Components

To specify whether a component can have children, edit `getParentable.m`. This command returns the value `true` or `false`. For example, if you no longer want your component to have child components, modify the value within the code as follows:

```
p = false;
```

Modify a Component Description

The description n `getDescription.m` is the same value as the **Description** field in the Report Explorer. The following example shows how to edit the `compDesc` string in this file to change a component's description to `An example component`:

```
compDesc = 'An example component';
```

Change a Component Display Name

The display name in `getName.m` is the same value as the **Display name** field in the Report Explorer. The following example shows how to edit the `compName` string in this file to change a component's display name to `Example Component`:

```
compName = 'Example Component';
```

Change a Component Category Name

The category name in `getType.m` is the same value as the **Category name** field in the Report Explorer. The following example shows how to edit the `compCategory` string in this file to change a component's category name to `Custom Components`:

```
compCategory = 'Custom Components';
```

Register Components

You can register components in the Report Explorer using `rptcomps2.xml`. This file also helps build the list of available components.

The content of this file must be consistent with the values in the `getName.m` and `getType.m` files. If you have changed values in either of these files, you must also change their values in `rptcomps2.xml`. You must restart the MATLAB software session for the Report Explorer to display new information.

Display Component Help in the MATLAB Help Browser

The `viewHelp.m` file displays a help file for the component within the MATLAB Help browser. To display the help file, highlight the name of the component in the Report Explorer and click **Help**.

Customized Components

In this section...

Note: These examples require the Datafeed Toolbox™ software.

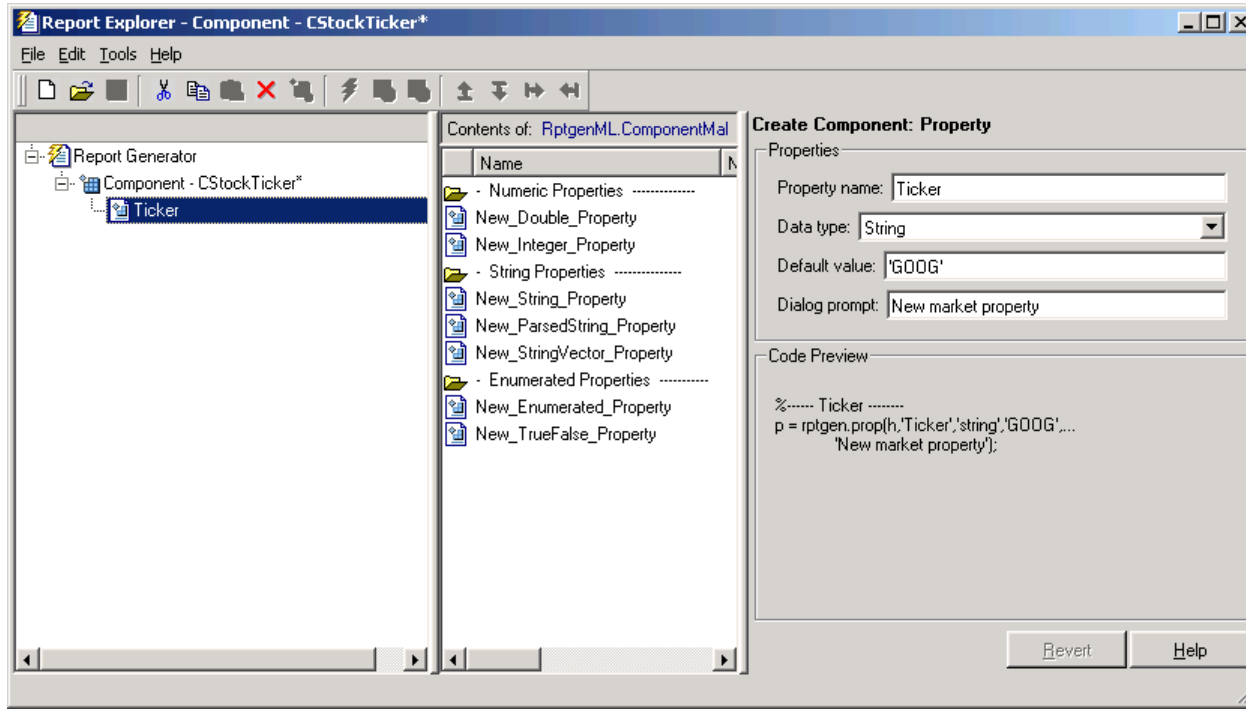
Fetching Securities Data and Displaying It in a Table

This example shows how to create a component that fetches securities data and displays it in a report as a table.

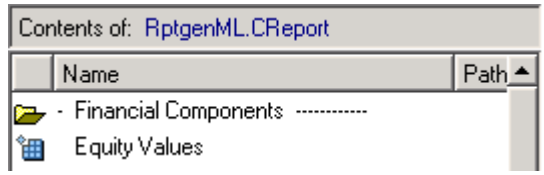
1. Create a component named `Equity Values` in the class folder named `CStockTicker`.
2. Give the component one string property named `Ticker`, and specify its attributes.
   a. In the Options pane of the Report Explorer, double-click **New_String_Property**.
   b. For **Property name**, specify a valid MATLAB variable name.
   c. Specify the property's data type. In this case, `Ticker` is a string value, which is the default data type.
   d. Specify the property's default value.

      Because this example fetches ticker values for the security `Google`, set the **Default value** to `'GOOG'`. (The single quotation marks are required to specify a string value for this field.)

      Your specified settings appear in the **Code Preview** pane.



3 To build the new component, click the **Build** button in the Report Explorer. The Equity Values component now appears in the Options pane in the middle of the Report Explorer.



4 Edit the component's `execute.m` file to retrieve stock market data and display it in a table in the generated report.

a In the `@CStockTicker` folder, open `execute.m`.

b Enter the following text into `execute.m`.

```
function out=execute(thisComp,parentDoc,varargin)
```

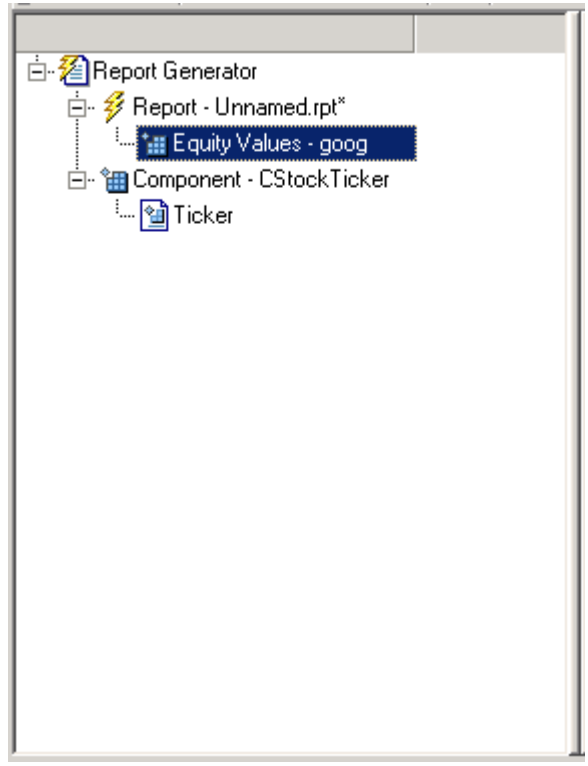
```
stockQuote = fetch(GOOG, thisComp.Ticker);
stockQuote.Date = datestr(stockQuote.Date,1);
stockQuote.Time = datestr(stockQuote.Time,13);
out = execute(rptgen.cfr_table(...
     'Source', stockQuote,...
     'numHeaderRows', 0,...
     'TableTitle', 'Stock Market Pricing Data'),...
    parentDoc);
```

5 Append the security symbol, `goog`, to the component name. Enter the following text into `getOutlineString.m`.

```
function olstring=getOutlineString(thisComp)

olstring = [getName(thisComp),' - ',thisComp.Ticker];
```

The component name now appears as `Equity Values – goog`.



6 Modify the `getdialogschema.m` file to change the appearance of the Properties pane. Enter the following text into this file to display the last quoted price for the security in the Properties pane.

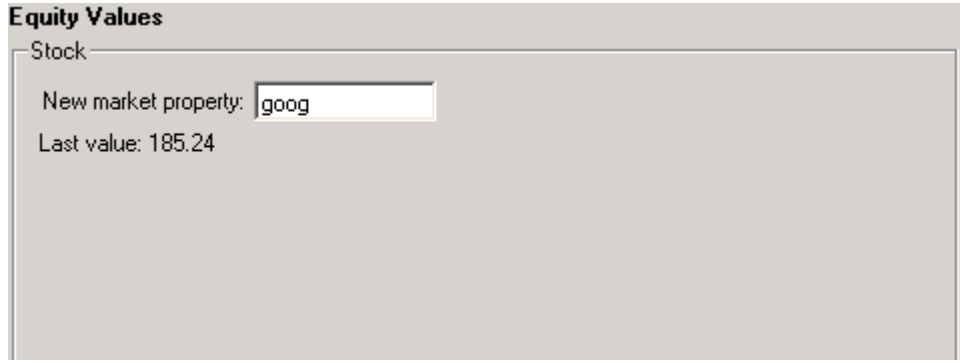
```
function dlgStruct = getdialogschema(thisComp, name)

try
    currQuote = fetch(yahoo, thisComp.Ticker);
    quoteStr = sprintf('Last value: %g', currQuote.Last);
catch
    quoteStr = sprintf('Warning: ...
    "%s" is not a valid symbol.', thisComp.Ticker);
end

dlgStruct = thisComp.dlgMain(name,...
    thisComp.dlgContainer({
```

```
    thisComp.dlgWidget('Ticker',...
      'DialogRefresh',true,...
      'RowSpan',[1 1],'ColSpan',[1 1]);
    thisComp.dlgText(quoteStr,...
      'RowSpan',[2 2],'ColSpan',[1 1]);
  },'Stock',...
    'LayoutGrid',[3 2],...
    'RowStretch',[0 0 1],...
    'ColStretch',[0 1]));
```

The Properties pane for the component, `Equity Values`, now looks as follows.



7 Click **File** > **Report** to generate the report. The following output appears in the report.

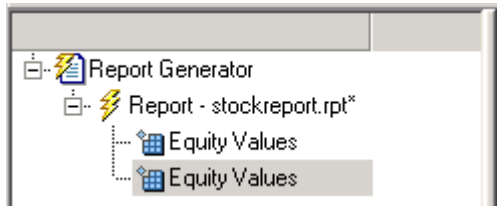
Table 1. Stock Market Pricing Data

Symbol	GOOG
Last	185.25
Date	15-Nov-2004
Time	15:20:00
Change	3.25
Open	180.45
High	188.32
Low	178.75
Volume	10651060

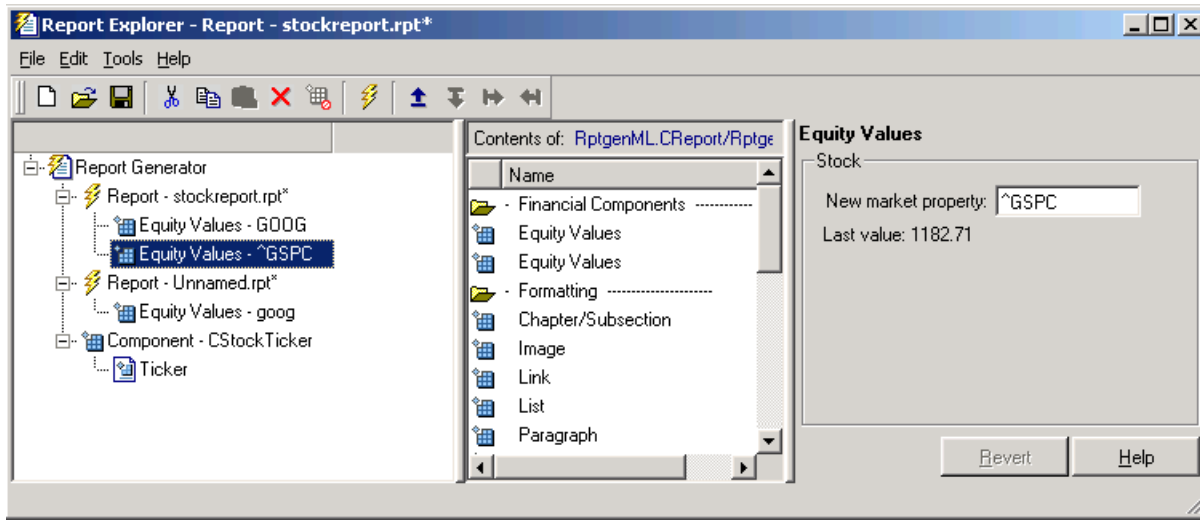
Displaying Securities Data in Two Tables

This example, which shows how to use multiple properties within a component, expands upon "Fetching Securities Data and Displaying It in a Table" on page 7-19.

1 Create a report setup file and save it as `stockreport.rpt`. Add two `Equity Values` components to the setup file.



2 Edit the entry in the **New marker property** field to change the `ticker` property of the second component to `'^GSPC'` (S&P 500 index).



3 Run the report.

The report displays two tables of data, one for Google® and another for the S&P 500 index.

Table 1. Stock Market Pricing Data

Symbol	GOOG
Last	185.25
Date	15-Nov-2004
Time	15:20:00
Change	3.25
Open	180.45
High	188.32
Low	178.75
Volume	10651060

Table 2. Stock Market Pricing Data

Symbol	^GSPC
Last	1183.13
Date	15-Nov-2004
Time	15:35:00
Change	-1.04
Open	1183.81
High	1184.48
Low	1179.85
Volume	1503245440

8

Create Custom Stylesheets

Stylesheets

In this section...

Built-In Versus Custom Stylesheets

Stylesheets specify formatting and display settings for reports. The report-generation process uses stylesheets to convert reports from DocBook XML format to a format that you specify. If you want to generate the given report in a different format than initially specified, you can convert the XML document using a different or modified stylesheet.

The following table lists report output formats and their default stylesheets.

Report Format	Default Stylesheet
HTML	Uses stylesheets for either single- or multiple-page documents
PDF	Formatting Object (FO) stylesheet
RTF, Word	Document Style Semantics and Specification Language (DSSSL) stylesheet

The following table shows a list of properties for the built-in stylesheets.

Properties of Stylesheets

Name	Description
Description	A description of the stylesheet.
Display name	The stylesheet name that appears in the Options pane.
Transform type	The process used to generate reports that use a specified stylesheet. Supported types are: • HTML • FO (Formatting Object) for PDF reports • DSSSL (Document Style Semantics and Specification Language) for RTF and Word reports

Name	Description
	Note: This field is not editable.

In most cases, the stylesheets provided with the MATLAB Report Generator software should be more than adequate for your needs. However, you may want to modify the built-in stylesheets to meet special requirements. For example, suppose one of the built-in stylesheets meets your requirements, but you want to change the page orientation. You can create a custom stylesheet by editing the built-in stylesheet to your specifications.

Customize Stylesheets Using Data Items

Each built-in stylesheet includes editable styles, also called *data items*, organized in categories. These data items specify styles that the file converter uses for a given report. You can edit these data items to customize stylesheets for your reports.

Data items can be of different types, some of which require different editing methods. For more information about editing data items, see “Edit Stylesheet Data Items” on page 8-9.

Tip See the **Help** area at the bottom of the Properties pane on the right for a description of a specific data item that you are editing.

Create a New Stylesheet

To create a stylesheet:

1. Open the Report Explorer.
2. From the menu bar, click **Tools > Edit Stylesheet**.
3. In the Properties pane on the right, choose the built-in stylesheet for the format with which you want to work. Options are:

   - **New HTML.** Creates a stylesheet for HTML reports.
   - **New multi-page HTML.** Creates a stylesheet for HTML reports with more than one page.
   - **New FO (PDF).** Creates a stylesheet for PDF reports.
   - **New DSSSL (RTF).** Creates a stylesheet for RTF reports.

   The new stylesheet appears in the Outline pane on the left.
4. In the Properties pane on the right, modify the properties for the stylesheet as needed. Add data items to the new stylesheet:

   a. Drag the data item you want to add from the Options pane in the middle to the stylesheet in the Outline pane on the left.

   b. In the Properties pane on the right, edit the data items for the selected style. For more information, see “Edit Stylesheet Data Items” on page 8-9
5. Save the stylesheet. For information about how to save a stylesheet, see “Save a Stylesheet” on page 8-7.

Edit, Save, or Delete a Stylesheet

In this section...

Edit a Stylesheet

To edit a stylesheet:

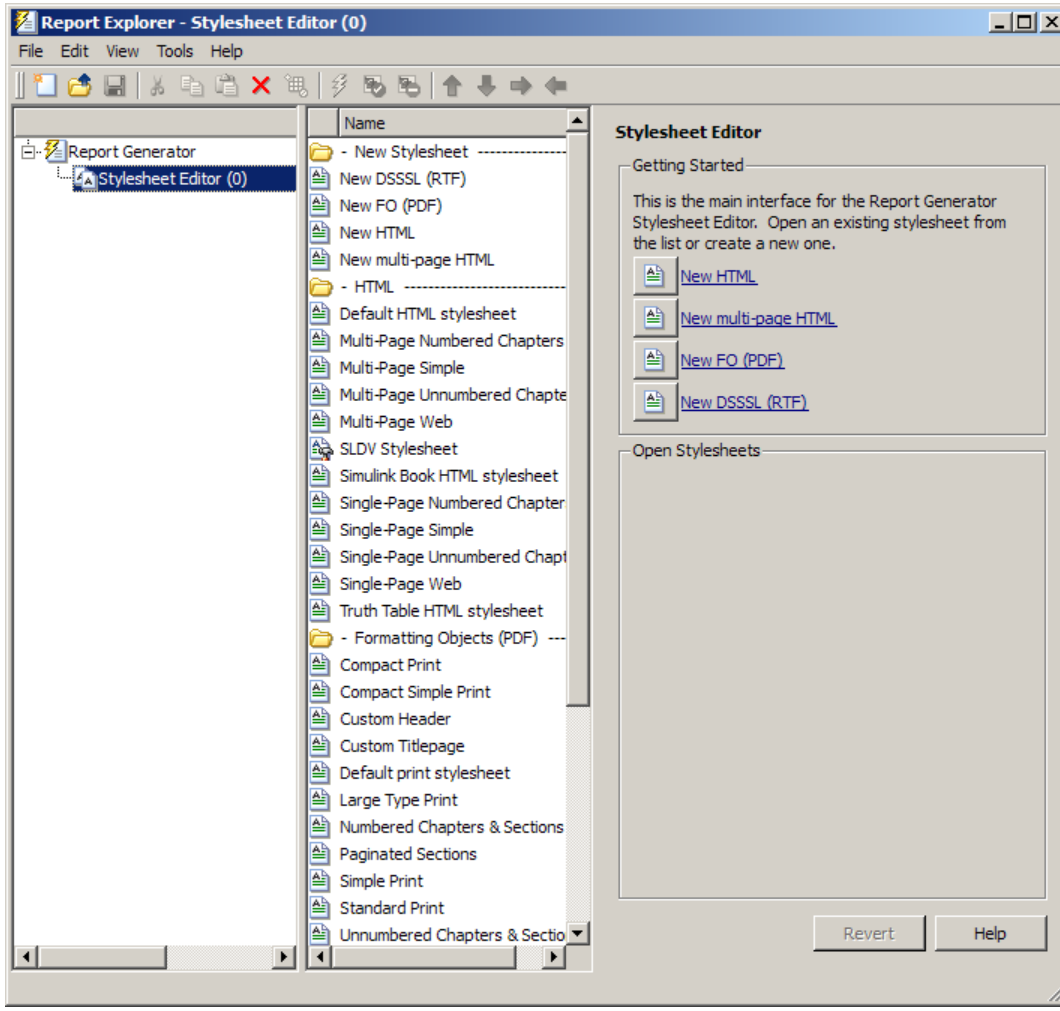
1. In Report Explorer, select a report setup file in the Outline pane on the left.
2. From the menu bar, click **Tools > Edit Stylesheet**.

The Report Explorer displays as follows.

- The Outline pane on the left displays the structure of stylesheets you create.
- The Options pane in the middle lists stylesheets available for customizing.

  Tip Double-click a category to collapse it. Double-click it again to expand it.

- The Properties pane on the right shows properties of stylesheets, such as name and description.



You can use the Report Explorer to work with stylesheets as follows.

Task	Pane to Use	Action
Create a stylesheet	Properties	Click the link that corresponds to the kind of stylesheet you want to create

Task	Pane to Use	Action
Open an existing stylesheet	Properties	Click the name of the stylesheet, which appear in the **Open Stylesheets** area
Select a stylesheet to use for converting an XML source file	Options	Select a stylesheet by clicking on it
View a list of customized styles in a stylesheet	Outline	Expand any open stylesheet
View a list of styles in a stylesheet	Outline or Options	Double-click the stylesheet
View a list of stylesheets available for editing in a given category	Options	Double-click the folder that corresponds to the kind of output you want (that is, HTML, PDF, RTF, or Word)
View open stylesheets	Outline	Expand the Stylesheet Editor item in Report Explorer
Change the name or description of the current stylesheet	Properties	Edit the text in the **Display Name** or **Description** field.
Convert an XML source file using the current stylesheet	Properties	Click **Send to Source File Converter** in the Properties pane.
Edit customized style data	Properties	Click the style data item, which appears in the **Stylesheet Customizations** area
Open a style data item for editing or viewing	Options	Double-click the data item that you want to edit.
View a list of customized style data	Outline	Expand the stylesheet

Save a Stylesheet

You must save a stylesheet before you can use it to convert a source file or associate it with a report. To use the Report Explorer to save a stylesheet:

1 Select the stylesheet that you want to save in the Outline pane on the left.

2 Select **File** > **Save As** from the menu bar and specify a new name for the stylesheet (to avoid overwriting built-in stylesheets). You must save the file in a folder in your MATLAB path for the stylesheet to appear in the Report Explorer. The file name must be unique in the MATLAB path.

   By convention, MATLAB Report Generator stylesheets have `.rgs` as their file name extension.

Delete a Stylesheet

To use the Report Explorer to delete a stylesheet that you created:

1 Select the stylesheet that you want to delete in the Outline pane on the left.

2 Click the stylesheet to delete from the Options pane in the middle.

3 Click **Delete stylesheet** in the stylesheet's Properties pane on the right.

You must restart the MATLAB software session for deleted stylesheets to disappear from the Options pane.

Note: You cannot delete built-in stylesheets.

Edit Stylesheet Data Items

In this section...

Data Item Categories in Built-In Stylesheets

You can edit data items in built-in stylesheets to customize them. Data items appear in *categories*, according to their function. The following tables list the categories and data items for each type of stylesheet provided with the MATLAB Report Generator software.

Categories of Styles in PDF (FO) Stylesheets

Category	Description of Data Items in Category
Automatic labeling	Options for enumeration of parts of the report, such as chapters and sections
Callouts	Options and specifications related to callouts, such as defaults, use of graphics, size, path, fonts, characters, and extensions
Cross References	Option to control whether page numbers appear in report
Font Families	Specification of defaults for body text, copyright, quotes, symbols, dingbats, monospace, sans serif, and titles
Graphics	Specification of default width and options related to scaling attributes
Lists	Specification of spacing related to lists and list items
Meta/*Info	Options related to year ranges
Miscellaneous	Options and specifications for placement of titles, comments, variable lists, block quotations, ulinks, hyphenations of URLs, verbatim environment display, use of SVG, table footnote numbers, superscript, and subscript

Category	Description of Data Items in Category
Pagination and General Styles	Specifications of page orientation, margins, double-sided, paper type, hyphenation, line height, columns, master font, draft mode, watermark, blank pages, rules for headers and footers, and content of headers and footers **Note:** You can specify parameters in this category, such as margin widths and header and footer height, in units of inches (`in`), millimeters (`mm`), or picas (`pi`), where 1 pica = 1/6 inch.
Property Sets	Specification and options related to figure titles, monospace properties, verbatim text, section titles, and levels of sections
Reference Pages	Option to control whether the class name is displayed
Stylesheet Extensions	Line numbering and table columns extensions
Table of Contents (TOC)/ List of Tables (LOT)/Index Generation	Specifications for layout of TOC, depth of sections, indentation, and margins
Tables	Specifications for size of tables and their borders
Title Page	Specifications for positioning and transformation of title page elements and properties of title page text elements

For information about DocBook XSL stylesheets, see http://docbook.sourceforge.net/release/xsl/current/doc/ .

You can set up font mappings for non-English PDF fonts. The PDF stylesheets override those mappings. For details, see

Categories of Styles in HTML and Multi-Page HTML Stylesheets

Category of Style	Description of Data Items in Category
Automatic labeling	Options for enumeration of parts of the report, such as chapters and sections
Callouts	Options and specifications related to callouts, such as defaults, use of graphics, size, path, fonts, characters, and extensions

Category of Style	Description of Data Items in Category
Chunking	Options related to using an explicit TOC for chunking, depth of section chunks, navigational graphics, and display of titles in headers and footers
Stylesheet Extensions	Line numbering, graphic size, and table columns extensions
Graphics	Specification of default width and depth, use of HTML embed for SVG, viewports, and options related to scaling attributes
HTML	Specifications related to dynamically served HTML, base and head elements, type of stylesheet, css, propagation of styles, longdesc, validation, cleanup, draft mode, watermark, and generation of abstract
Linking	Specification of Mailto URL and target for ulinks
Meta/*Info	Options related to year ranges
Miscellaneous	Options and specifications for comments, verbatim environment pixels, em space, use of SVG, and table footnote numbers
Reference Pages	Option control whether the class name is displayed
Table of Contents (TOC)/ List of Tables (LOT)/Index Generation	Specifications for layout of TOC, depth of sections, indentation, and margins
Tables	Specifications for size of tables, table cell spacing and padding, and borders
Title Page	Specifications for positioning and transformation of title page elements and properties of title page text elements
XSLT Processing	Options related to header and footer navigation and rules

For information about:

- DocBook — see http://www.oasis-open.org/docbook/documentation/reference/html/docbook.html
- DocBook XSL stylesheets — see http://docbook.sourceforge.net/release/xsl/current/doc/

- DocBook print parameters, see http://docbook.sourceforge.net/release/dsssl/current/doc/print/

Categories of Styles in RTF (DSSSL) Stylesheets

Category of Style	Description of Data Items in Category
Admonitions	Options and path for admonition graphics
Backends	Options for Tex, MIF, and RTF back-end usage
Bibliographies	Options related to checking citations; suppressing, enumerating, and using titles of entries
Fonts	Specifications for font family and size to use for some elements
Footnotes	Options for ulinks as footnotes and page location
Graphics	Specifications for file extensions, file names, and loading library database
Indents	Specifications for hanging indents, first paragraphs, and start of blocks
Labeling	Enumeration of sections and other elements
Miscellaneous	Options for floating formal objects, punctuation for run-in heads and honorifics, bold for first use of term, minimum leading between lines, and automatic hyphenation
OLinks	Using an extension for finding outline information
Object Rules	Specifications for placement and width of rules
Paper/Page Characteristics	Specifications for paper type, page numbers, width of pages, margins, and columns; heading-levels, sides; and writing mode (such as left-to-right)
Quadding	Specifications for justifying paragraphs
RefEntries and Functions	Options related to generation and display of reference entries and synopses for functions
Running heads	Options for generating and displaying running heads of chapters
Table of Contents (TOC)/List of Tables (LOT)	Options to produce or display TOC for sets, books, parts, references, articles. Options to display TOC on title page

Category of Style	Description of Data Items in Category
Tables	Specification of width in simple list
VariableLists	Options and specifications for term length and formatting
Verbatim Environments	Specifications for width, enumeration, size, indentation, line frequency, and callouts
Vertical Spacing	Specifications for space between lines and paragraphs

Edit Data Items in Simple or Advanced Edit Mode

- To edit a data item in *simple edit mode*, edit a simple string that corresponds to the data in the stylesheet. This string appears in the field to the right of the **Value** label. For some values, use a selection list to change the value instead of typing in text.
- To edit a data item in *advanced edit mode*, edit the XML code directly.

Note: This section gives instructions for simple edit mode, except where explicitly specified otherwise.

The user interface is in simple edit mode when the data item appears in a pane labeled **Value**. It is in advanced edit mode when the data item appears in a pane labeled **Value (XML)**. To switch from simple to advanced edit mode, click **Edit as XML**.

Edit values for most data items in PDF and HTML stylesheets in either simple edit mode or advanced edit mode. Edit values for RTF stylesheets in simple edit mode only. Data items in RTF stylesheets do not support advanced edit mode.

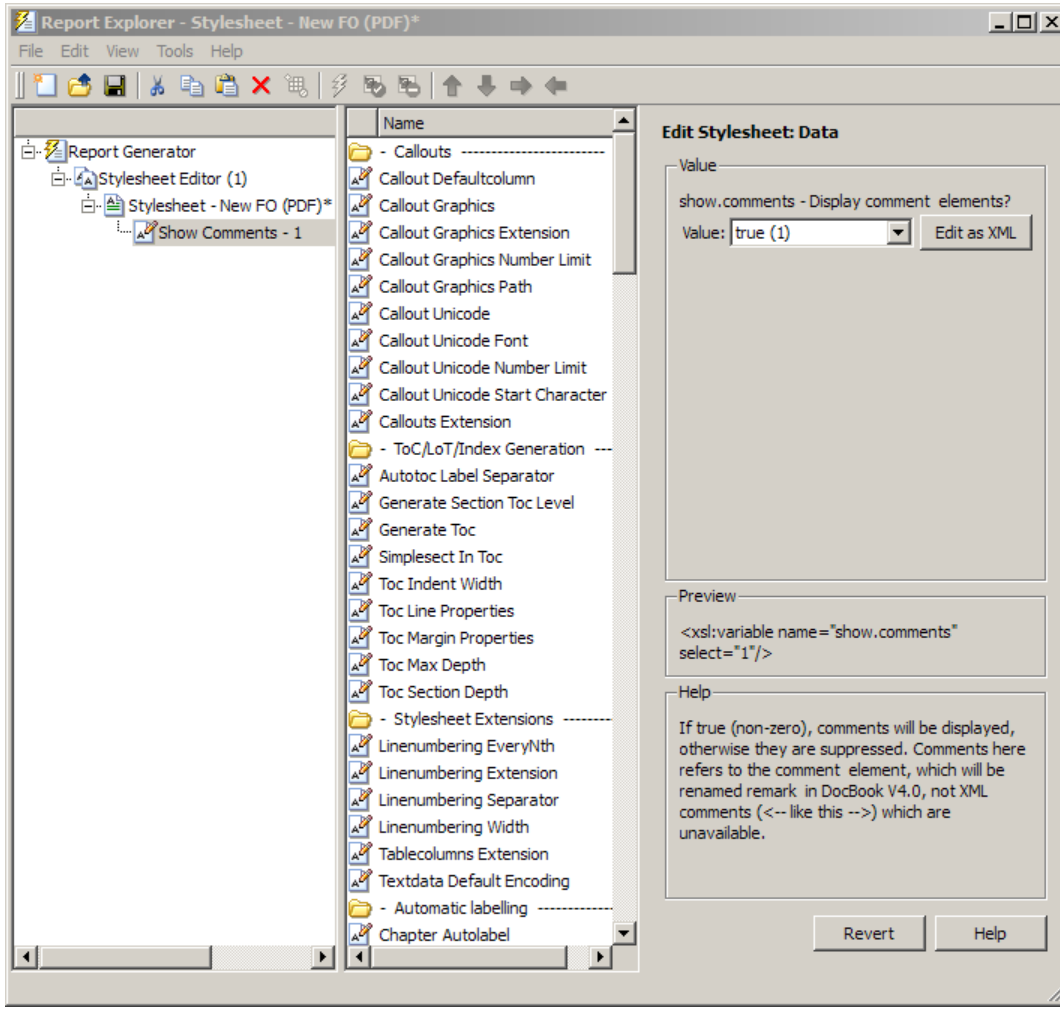
Note: To modify content for headers and footers you edit *stylesheet cells*, which do not appear in either simple or advanced mode. For more information, see "Stylesheet Cells for Headers and Footers" on page 8-23.

Data Items

Select a stylesheet from the Options pane in the middle of the Report Explorer. The Outline pane on the left shows the name of the current style data item inside its

stylesheet. The Options pane in the middle shows a list of available stylesheet data items. The Properties pane on the right displays **Stylesheet Editor: Data**. It also includes the following information:

- The value of the data item is in a pane labeled **Value** in simple edit mode or **Value (XML)** in advanced edit mode.
- To the right of the value is the **Edit as XML** toggle button.
- The **Preview** pane includes a partial view of the stylesheet that specifies the data item. The data in this pane is not editable.
- The **Help** pane contains information about the data item. This information is not editable.



Edit Boolean and Enumerated Values

In the previous figure, the`Show Comments` data item is of type `Boolean`. Its current value is `true(1)`. Change this value using the menu list for the value field. In this case, the only other possible value is `false(2)`.

Edit Strings

For the values of some data items, the Report Explorer displays text in the editable **Value** field. You can specify an XML expression, though you are not required to do so.

Edit XML Expressions

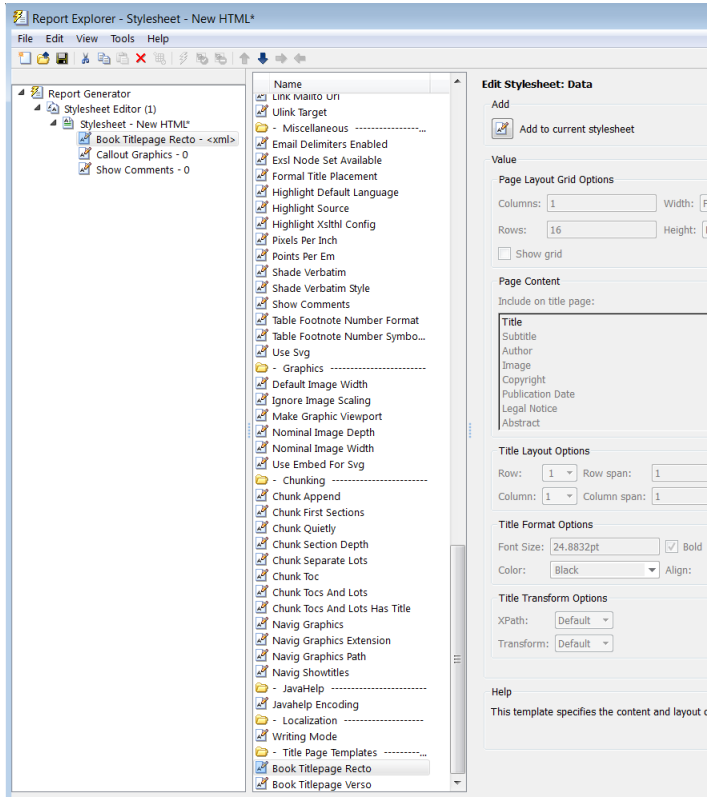
To make complex changes to a stylesheet, consider using Advanced edit mode. This enables you to edit XML expressions directly in the **Value (XML)** pane. If this pane does not appear, click **Edit as XML** to switch to advanced edit mode.

Make sure that you enter valid XML. Invalid XML values generate an error, which appears at the top of the Properties pane.

Modify Title Page Properties

For PDF or HTML stylesheets, you can modify the layout, contents, and format of a title page by using the Stylesheet Editor.

1. In the Outline pane, select the stylesheet you want to edit.
2. In the Options pane, in the **Title Page Templates** section, select:
   - `Book Titlepage Recto` to specify properties for the front side of the title page
   - `Book Titlepage Verso` to specify properties for the back side of the title page
3. In the Properties pane, select **Add to current stylesheet** and edit the properties.



To adjust the grid used to position the title page elements (such as the title and author) on the page, in the Properties pane specify:

- **Columns** — The number of columns in the page grid
- **Width** — The width of each column
- **Rows** — The number of rows in the page grid
- **Width** — The width of each row

To view the grid layout on the generated title page, select **Show grid**.

By default, all of the title page elements appear on the title page. To exclude display of a title page element:

1. In the Properties pane, in the **Include on title page** list, select an element to exclude.
2. Click the right arrow button. The element appears in the **Exclude from Title Page** list.

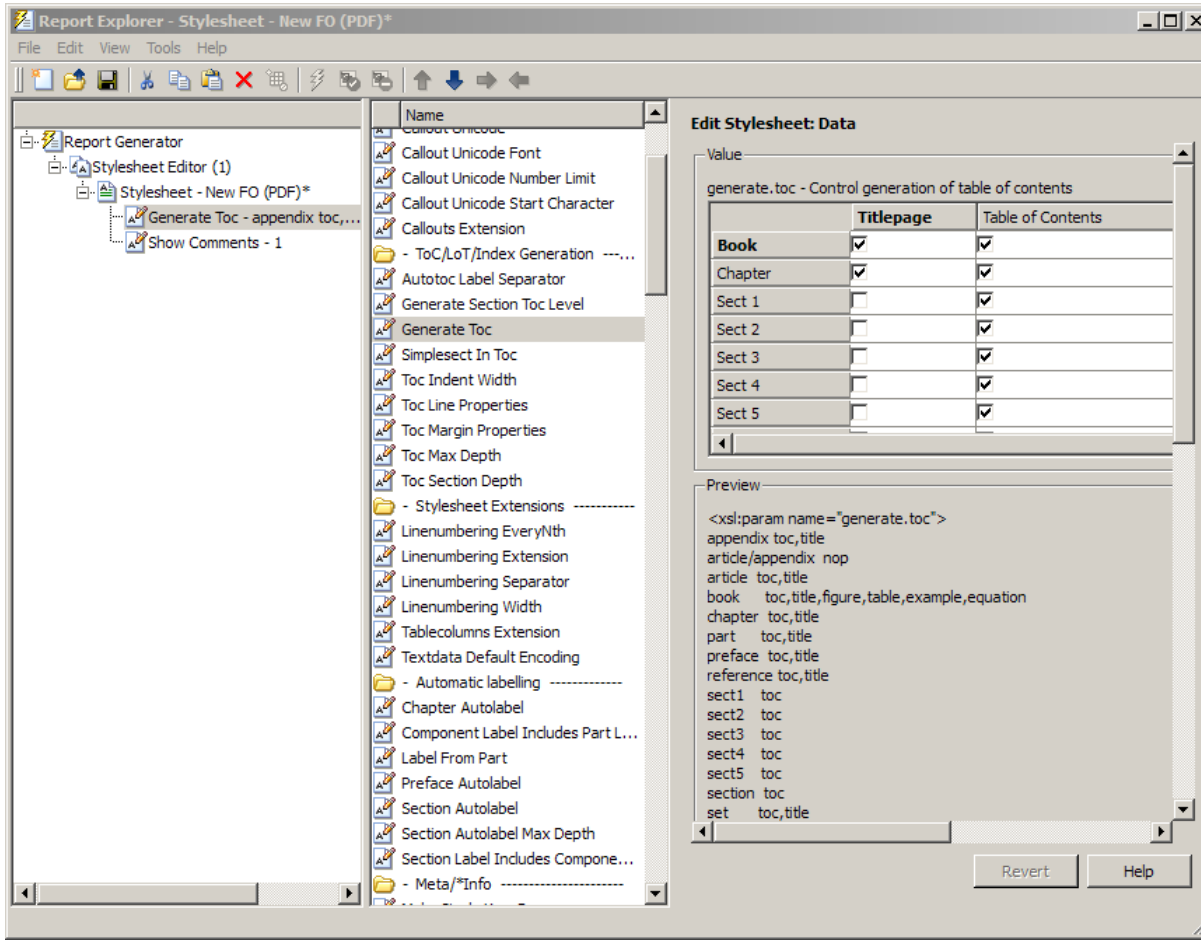
To specify properties for an individual title page element:

1. In Properties pane, in the **Include on title page** list, select the title page element.
2. Adjust the applicable properties:
   - Layout options — Specify which title page grid row and column in which you which you want the element to appear. To span multiple rows or columns, specify numbers for the **Span row** and **Span column** properties.
   - Format options — For text elements, specify the font size, whether to use bold or italics, text color, and text alignment.
   - Transform options — You can use these options to specify XSLT code to customize the contents and format of title page elements. Use the **XPath** property to specify the path to the XSLT object that you want to modify. Use the **Transform** property to specify the custom content and layout.

Modify TOC Properties

To change values for generation of the report's table of contents (TOC), select the appropriate values from a matrix of check boxes.

The following figure shows the values for the **Generate Toc** data item on the **PDF** stylesheet. Select the check boxes to control the values that appear in the report's title page and table of contents.



Modify Title Placement Properties

The **Title Placement** data items, which are in the **Miscellaneous** category, control the position of titles for figures and tables.

Selecting one of these data items for editing causes the Properties pane on the right to display possible values in a menu list. Specify whether you want the title to appear before or after a given figure or table.

Modify Attributes

An *attribute* is a data item that specifies information for an XML element. An attribute must be a child of an *attribute set*. For more information, see “Edit Attribute Sets” on page 8-20.

Note: The information in the **Help** area of the Properties pane of an attribute describes the set to which the attribute belongs.

Edit Attribute Sets

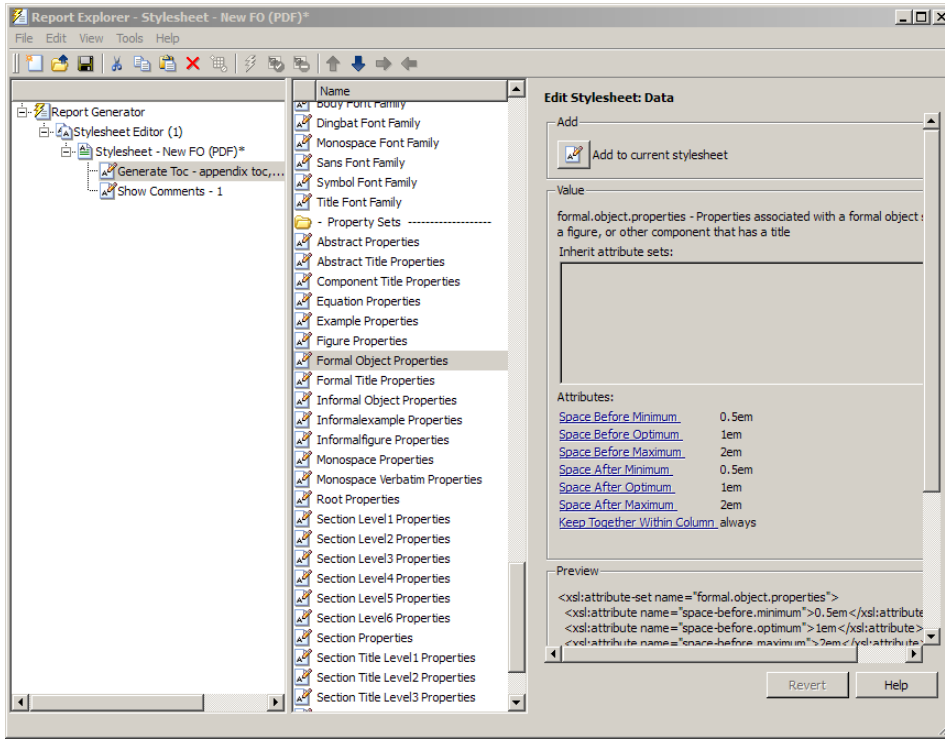
An *attribute set* consists of a group of attributes. Selecting an attribute set in the Outline pane on the left causes the Properties pane to list the attributes that belong to that set.

To edit a specific attribute, expand the attribute set in the Outline pane and select the attribute you want to edit.

To edit the attribute set, type `text` in the **Inherit attribute sets** area of the Properties pane.

An example of an attribute set is `Formal Object Properties`, a data item in the `Property Sets` category of the default print stylesheet for PDF documents.

Here is an example of the Report Explorer showing the `Formal Object Properties` attribute set in the Properties pane.



Edit Varpair Values

Data items in RTF stylesheets appear as `varpair` data items, which are name/value pairs of information. RTF stylesheets are the only type of stylesheet that includes `varpair` data items.

Edit `varpair` data items as strings or as Boolean values. Boolean values appear as `true (#t)` and `false (#f)`.

Note: You cannot edit RTF stylesheet data items as XML.

Note: Data of type `varpair` is sometimes represented in stylesheets as DSSSL rather than XML. As a result, the code that appears in the **Preview** pane of the Properties pane

on the right looks different from code associated with other kinds of MATLAB Report Generator stylesheets.

Delete Data Items

To delete a customized data item:

1. Right-click the data item in the Outline pane on the left.
2. Select **Delete**.

Stylesheet Cells for Headers and Footers

In this section...

About Stylesheet Cells and Cell Groups

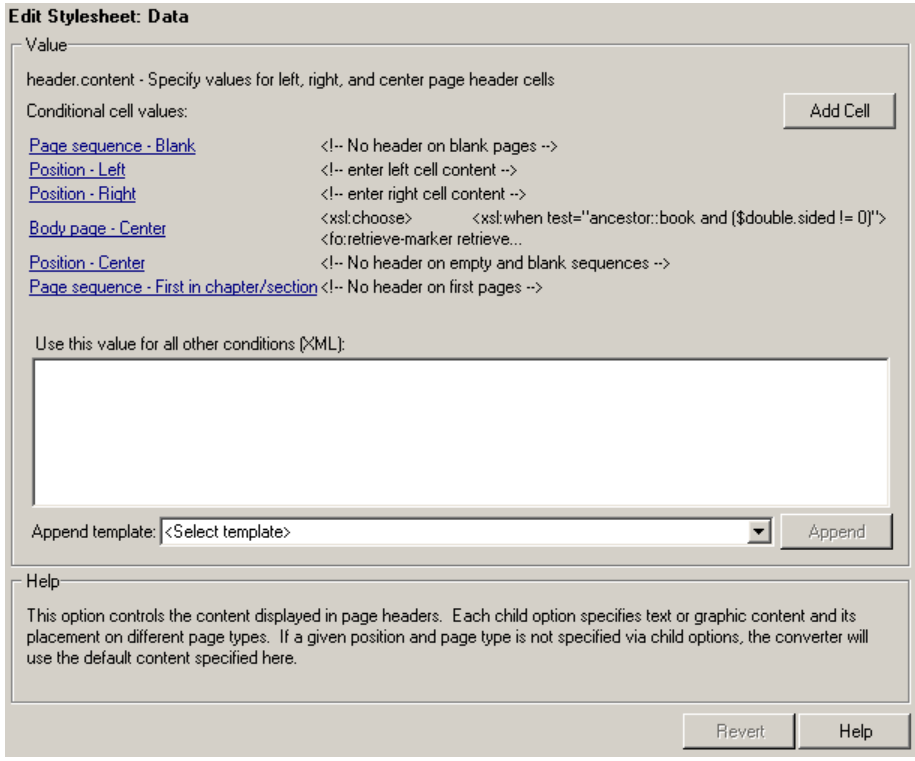
Use *stylesheet cells* to specify content of headers and footers in PDF reports.

The MATLAB Report Generator software defines a page as six *cells*. These cells correspond to the left, right, and center of the page's header and the left, right, and center of the page's footer.

A *cell group* consists of one or more stylesheet cells. Two cell groups are available for PDF reports: **Header Content** and **Footer Content**.

The Properties pane for each cell in a cell group lists the group's current stylesheet cell definitions. These definitions appear in a two-column list of **Conditional cell values**. The first column displays the name of a *condition*. The second column displays *content* that appears in the report if the specified condition is met.

For example, the stylesheet cell `Page sequence - Blank` specifies the content for a blank page; by default, the content is empty. Similarly, `Cell - Right Side` specifies the content for the right side of the header on every page.



You can use many combinations of conditions and values to customize content of headers and footers. The MATLAB Report Generator software provides several predefined conditions that are frequently used. These predefined cells appear in the Properties panes for the Header Content and for Footer Content cell groups.

Headers and Footers

Add Content That Satisfies Specified Conditions

You can use the Properties pane of a stylesheet cell to specify content that satisfies specified conditions. The Properties pane for a stylesheet cell includes the following.

Label	Definition	Description
Condition	Condition that must be met for content to appear in the report	This is a selection list of frequently used and predefined conditions. Select a condition and click **Edit** to view or change a condition's XML code
Value (XML)	Content to appear in the report if the condition is met	Modify or create XML code for header or footer content
Append Template	Name of the template that you use to add content	Templates containing XML code that you can use to add content. For more information, see "Add Content to Headers and Footers Using Templates" on page 8-26.

When the File Converter processes a page, it evaluates settings that are relevant to each of the six cells on the page and adds content accordingly. If there are no conditions in effect for a given cell, the File Converter uses the default values for the cell group.

Possible conditions and their values as coded in XML are shown in the following table.

Name of Condition	Possible Values for the Condition	Sample XML Code

`$position`	`right`
	`center`
	`left`
		`$position='right'`
		`$position='center'`
		`$position='left'`

`$sequence`	`odd`
	`even`
	`first`
	`blank`
		`$sequence=odd`
		`$sequence=even`
		`$sequence=first`
		`$sequence=blank`

`$double-sided`	`0` `1`	`$double-sided=0` `$double-sided=1`

`$pageclass`	`$titlepage`
	`$lot`
	`$body`
		`$pageclass=$titlepage`
		`$pageclass=$lot`
		`$pageclass=$body`

Use standard logical operators (such as `=` , `!=` , `and`, `or`) and nested expressions (characters between parentheses are an expression within an expression) to specify *complex conditions*. You can use complex conditions to set the position of headers and footers on pages. You can also use them to specify other settings, such as where in the report the content appears.

Add Content to Headers and Footers Using Templates

Templates are available for adding the following items to headers and footers:

- Text
- Author names
- Page numbers
- Titles for chapters and sections
- Chapter numbering
- Draft information
- Comments
- Graphics

Templates used by the File Converter are Extensible Style Language Transformations (XSLT), which is a language for transforming XML documents into other XML documents. For details about XSLT, see the Web site for the World Wide Web Consortium (W3C®) at `http://www.w3.org/TR/xslt`.

To use a template to specify content for a header or footer:

1. In the **Append template** list, select the type of content you want to add.
2. Click **Append**.

   The Properties pane on the right displays default content for the type you select. Edit the XML code to change the default content.

For example, to specify `text` as the content:

1. Select **Text** from the **Append template** list.
2. Click **Append**.
3. The default value for `xsl:text` is `Confidential`. Edit the value as needed.

Insert Graphics Files

To add a graphics file to headers or footers in a report, you must:

1. Specify the name of the file in the **Header Content** or **Footer Content** stylesheet cell.

2 Edit the values of the `Region Before Extent` and `Region After Extent` data items. These are located in the **Pagination and General Styles** folder of the **Options** pane for PDF formatting.

For an example of adding a graphic file to a header, see "Add Graphics to Headers in PDF Reports" on page 8-29.

Note: PDF reports only support bitmap (`.bmp`), jpeg (`.jpg`), and Scalable Vector Graphics (`.svg`) images in headers and footers.

Modify Fonts and Other Properties

You cannot use stylesheet cells to modify the font family or other such properties of headers and footers. To specify the style of the content in headers and footers, use the **Header Content Properties** and **Footer Content Properties** attribute sets.

Each of these attribute sets is a pagination style data item for PDF stylesheets. You can edit a particular attribute in the set by selecting it in the Outline pane on the left.

For an example of modifying font size and other properties of a PDF report, see "Change Font Size, Page Orientation, and Paper Type of a Generated Report" on page 8-34.

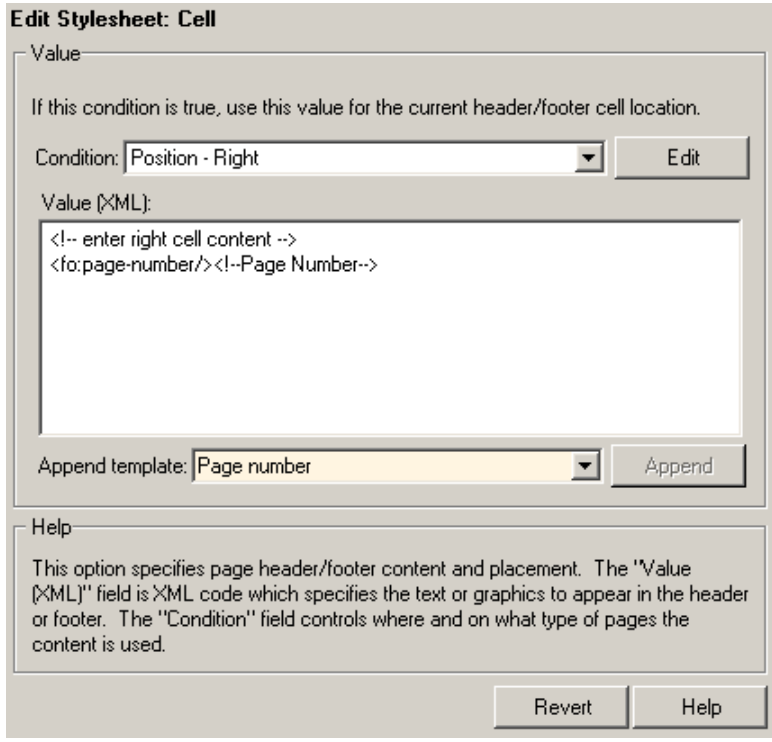
Customized Stylesheets

In this section...

Number Pages in a Report

This example shows how to edit a stylesheet cell to number the upper-right side of all pages in the generated report.

1. Define a basic stylesheet cell in the Header Content cell group with a condition of `right`.
   a. Open a PDF stylesheet in the Report Explorer.
   b. Double-click **Header Content** (under **Pagination and General Styles**) in the Options pane in the middle.
   c. Click **Position - Right** in the Properties pane on the right.
2. Set the header content to the current page number by selecting `Page number` from the **Append template** selection list.



3 Click **Append**.

Add Graphics to Headers in PDF Reports

This example shows how to include an image in the center of the header of each page in a PDF report, excluding the report's title page and the first page of each chapter. You do this by editing default header content for a PDF stylesheet. This example uses the report setup file `mfile-report.rpt`.

You can use any bitmap or jpeg file as image content. You must know the size of the image so that you can allow enough room for it in the header. This example uses the `sample_logo.bmp` image, which is shown here.

Note: PDF reports only support bitmap (`.bmp`), jpeg (`.jpg`), and Scalable Vector Graphics (`.svg`) images.

To include this image file in the center of each header in the body of a PDF report:

1. Open `mfile-report.rpt` by entering the following at the MATLAB command prompt:

   ```
   setedit mfile-report
   ```

2. Create a custom stylesheet.

   a. Select **Tools** > **Edit Stylesheet** in the menu bar of the Report Explorer.

   b. Click **New FO (PDF)** in the Properties pane on the right.

   c. As the **Display name**, enter `Logo stylesheet for PDF`.

   d. As **Description**, enter `Company logo in center of header`.

   e. Save the stylesheet as `logo_stylesheet.rgs` in a folder on your MATLAB path.

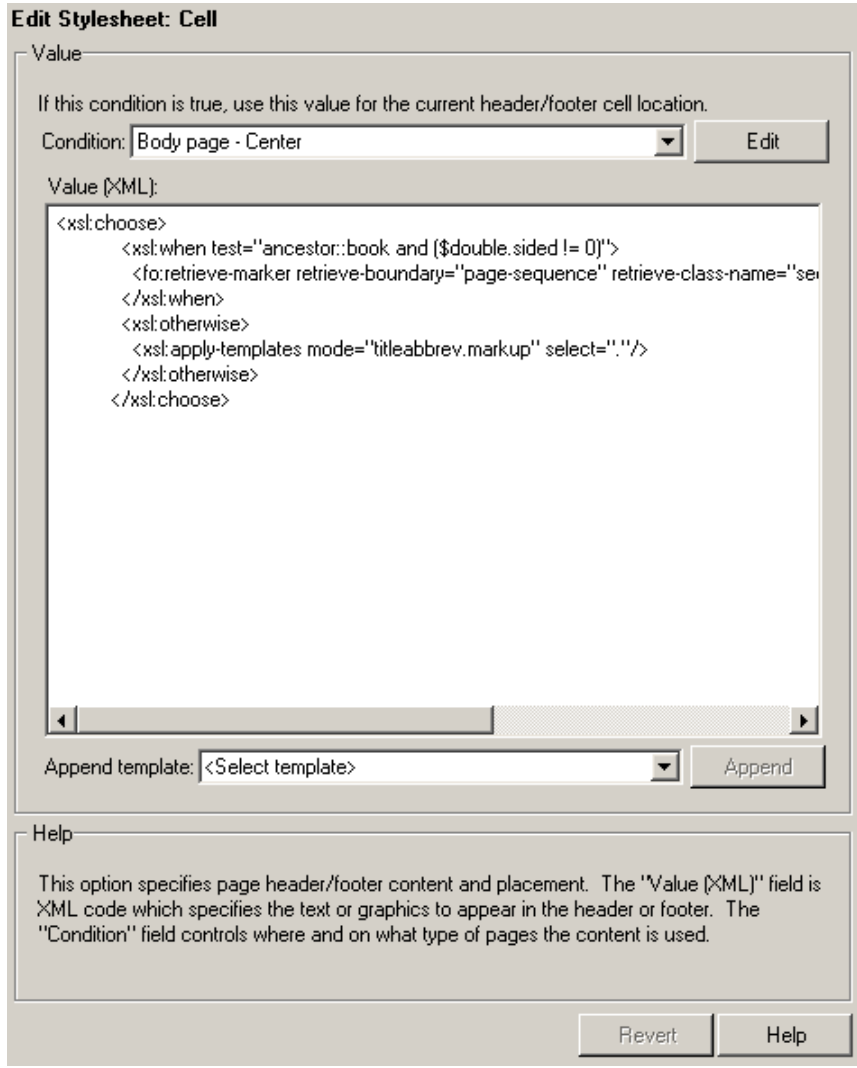
3. Open the cell group for editing.

   a. Scroll through the Options pane on the left to the **Pagination and General Styles** folder.

   b. Double-click **Header Content** in the Options pane.

   c. Click **Body page – Center** from the list of cells in the Properties pane on the right.

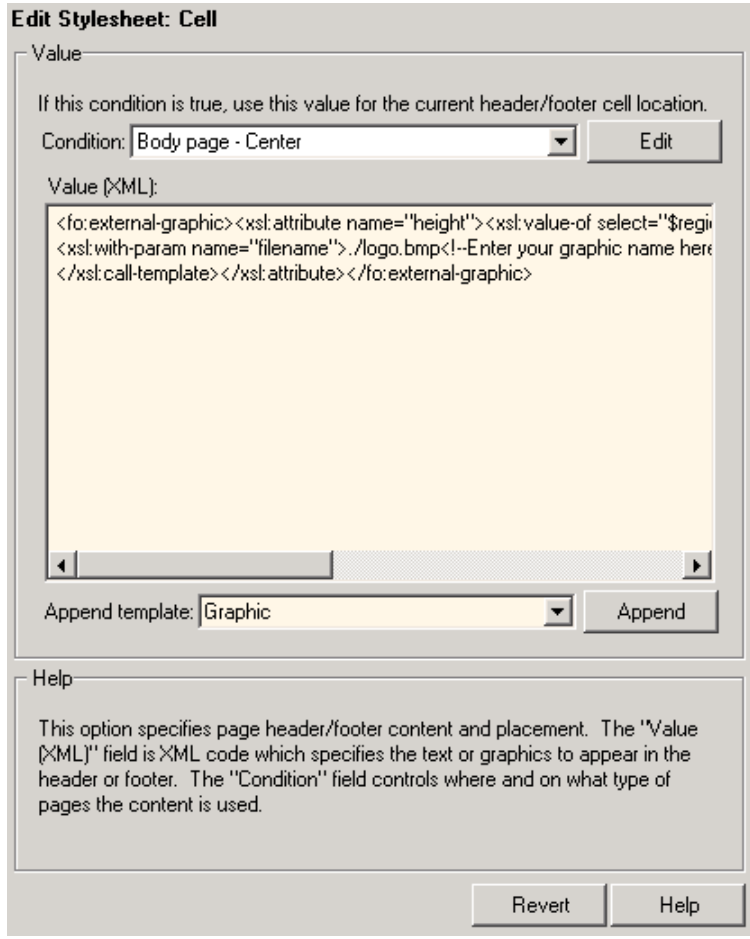
      The Properties pane appears as shown.



d Delete the text in the **Value (XML)** field.

e Select **Graphic** from the **Append template** selection list and click **Append**.

The Properties pane on the right shows the XML code that tells the File Converter to include the graphic.

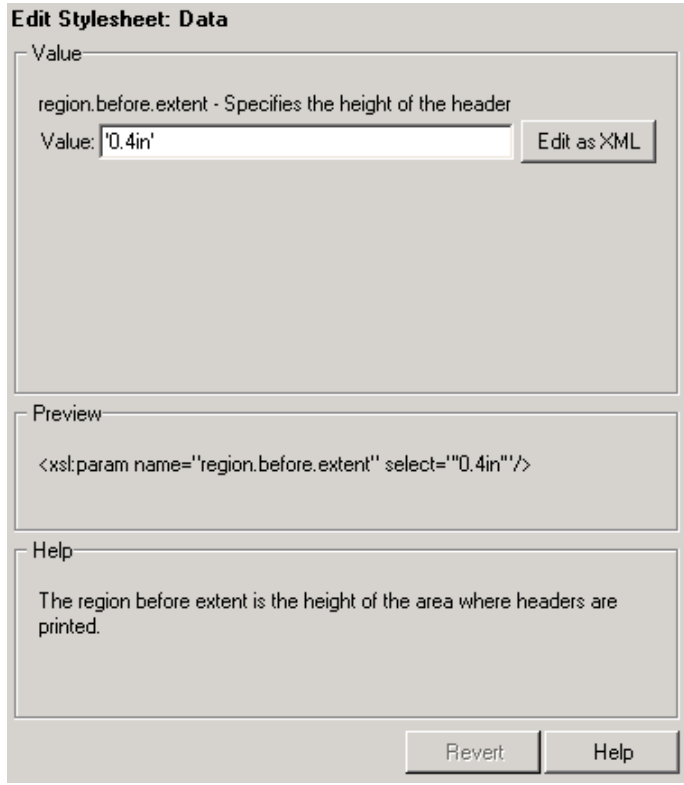


4 By default, the name of the graphic is `logo.bmp`. Change all instances of this name to `sample_logo.bmp` in the **Value (XML)** field.

5 Save the stylesheet.

6 Make sure that the amount of room available in the header is large enough to accommodate the image file.

   a In the Options pane in the middle, double-click **Region Before Extent**, which is in the **Pagination and General Styles** folder.



b By default the value for the height of the header is `0.4` inch. Replace this value with `1.0in`.

c Save the stylesheet.

7 Generate the report with the new styles.

a Select **mfile-report.rpt** in the Outline pane on the left.

b In the selection lists under the **Report Format and Stylesheet** area of the Properties pane on the right:

- Specify `Acrobat (PDF)` for **File format**
- Specify `Logo stylesheet for PDF`.

c Click **Report** on the toolbar to generate the report.

Change Font Size, Page Orientation, and Paper Type of a Generated Report

This example shows how to:

- Generate an XML source file without converting it to a supported report format
- Make section headers in a report larger
- Change the report page orientation to landscape
- Change the report paper type to A4

Create a custom stylesheet by editing an existing stylesheet to change the appearance of the `wsvar-report` report, which is provided with the MATLAB Report Generator software.

1. Generate a source file for the report.

   a. Open the report by entering the following command in the MATLAB Command Window:

   ```
   setedit wsvar-report
   ```

   b. In the **Report Format and Stylesheet** area of the Properties pane, change the format to **DocBook (no transform)**.

   c. Check the **If report already exists, increment to prevent overwriting** check box.

   d. Select **File** > **Report** to generate the report.

   The report-generation process creates an XML source file in the MATLAB Editor.

2. Convert the report to PDF format.

   a. Select **Tools** > **Convert Source File** from the Report Explorer menu bar to open the File Converter.

   b. From the **Source file** selection list, enter **wsvar-report0.xml**.

   c. From the **File format** selection list, select **Acrobat (PDF)**.

   d. From the **Stylesheet** selection list, select **Unnumbered Chapters and Sections**.

   e. Click **Convert File**.

The MATLAB Report Generator software converts the XML source file for `wsvar-report` to PDF format, and then opens the PDF document.

3 Make the report headers more prominent.

a In the File Converter, click **Edit**.

The Report Explorer displays the **Unnumbered Chapters and Sections** stylesheet.

b In the Properties pane on the right, enter `Custom Large Section Headers` as the stylesheet name.

c Enter the description `No chapter and section numbering, larger section titles`.

d In the Outline pane on the left, select the **Custom Large Section Headers** stylesheet.

e In the Options pane in the middle, select **Section Title Level 1 Properties**.

f In the Properties pane on the right, click **Add to current stylesheet**.

The **Section Title Level 1 Properties** data item appears in the Outline pane on the left as a child of the `Custom Large Section Headers` stylesheet.

g In the Properties pane on the right, select the **Font Size** attribute.

The Properties pane on the right displays an XML expression specifying font size as a multiple of the Body Font Size attribute.

h Click **Edit as string**.

The MATLAB Report Generator software converts the XML expression to a simple string, which appears in a pane labeled **Value**.

i Enter the value `18pt`.

The size of the font is now fixed at 18 points, rather than being a multiple of the body font size attribute.

j Select **File > Save** to save the stylesheet.

k Save the stylesheet as `customheader.rgs`, in a folder in your MATLAB path.

The `customheader.rgs` stylesheet appears as an available stylesheet in the Options pane in the middle of the Report Explorer. It also appears as an option in the File Converter.

4. Use the new stylesheet to convert the current XML source file.

   a. In the **Stylesheet Editor: Main** Properties pane on the right, click **Send to File Converter**

      The File Converter appears, with the `customheader.rgs` stylesheet selected.

   b. Click **Convert file**.

5. Change page orientation and paper type.

   a. On the File Converter Properties pane, click **Edit**.

   b. In the Options pane on the left, double-click the **Page Orientation** data item.

   c. In the Properties pane on the right, use the selection list to change the value of the data item to `Landscape`.

   d. In the Options pane in the middle, double-click **Paper Type** in the **Pagination and General Styles** folder.

   e. In the Properties pane on the right, select **A4** from the selection list.

   f. Save the stylesheet.

6. Generate the report `wsvar-report.xml` in PDF format using `customheader.rgs`..

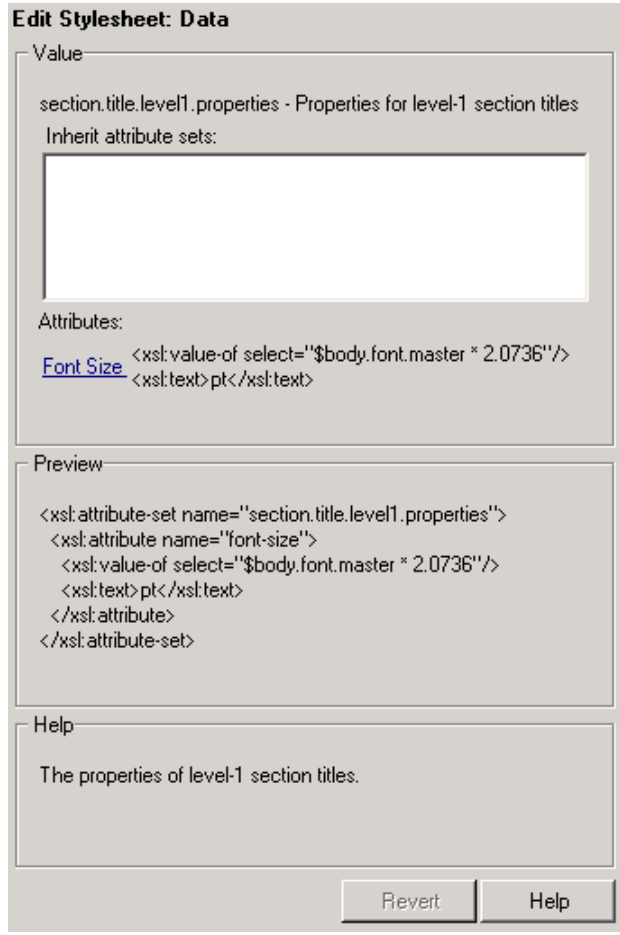
   The PDF report appears with horizontally oriented pages of slightly different dimensions.

Edit Font Size as a Derived Value in XML

This example shows how to change the font size in a report to a value derived from other values. You do this by editing the PDF report's XML source directly.

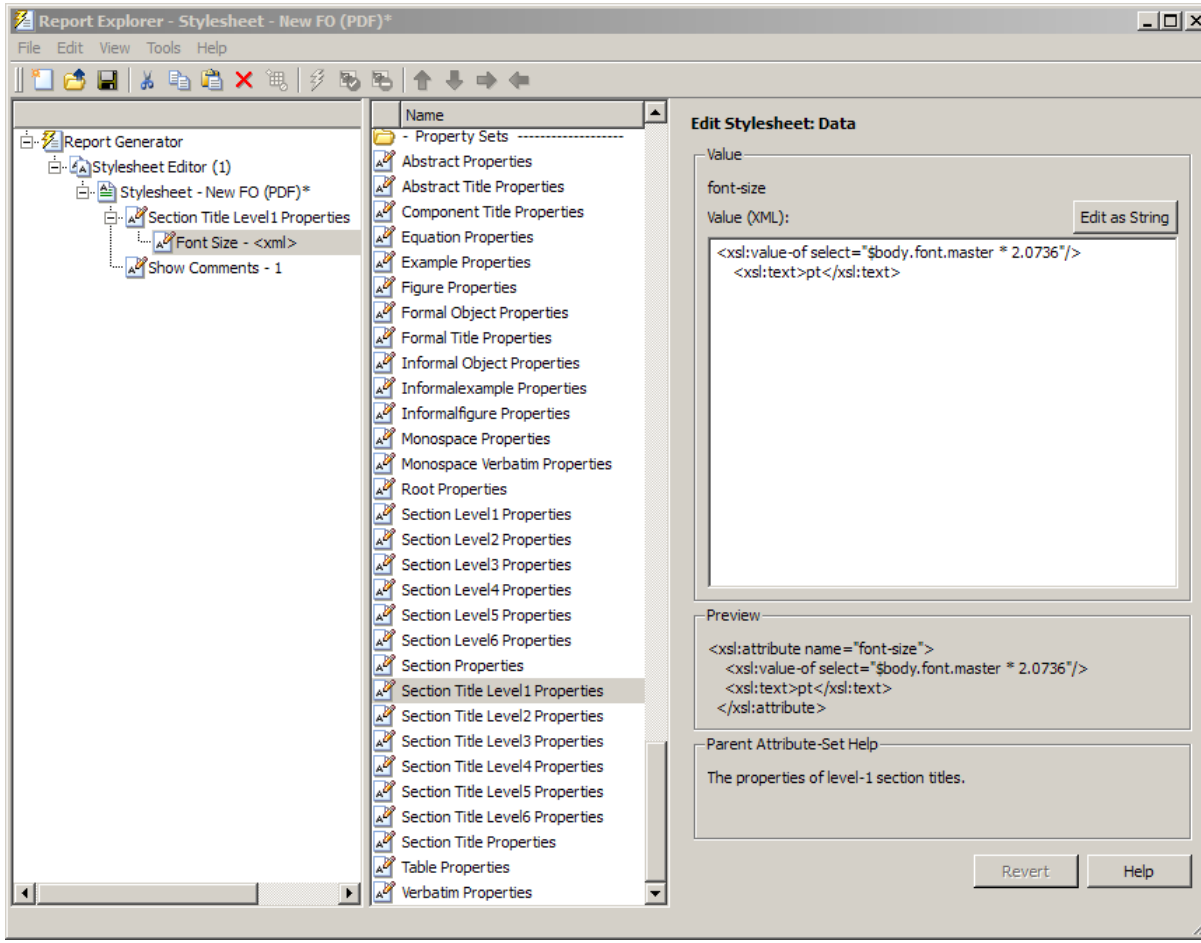
1. Open the default print stylesheet for PDF documents.
2. In the Options pane in the middle, select and expand the **Property Sets** folder.
3. In the Options pane, double-click the **Section Title Level1 Properties** data item.

   The Properties pane on the right appears as follows.



4 In the **Attributes** area of the Properties pane on the right, click **Font Size - <xml>**.

The Report Explorer looks as follows.



The `font size` value is a product of `$body.font.master` and `2.0736`. To change the font size to a larger size, change the multiplication factor to `3.0736`.

Tip You specify the value for the `$body.font.master` data item in the **Body Font Master** property. This property is in the **Pagination and General Styles** category in the Options pane in the middle. The default value of this data item is 10. Changing this value causes the derived values to change accordingly.

PDF Fonts for Non-English Platforms

In this section...

PDF Font Support for Languages

The MATLAB Report Generator supports a wide range of English language fonts for PDF reports.

The MATLAB Report Generator also provides basic PDF font support for some non-English languages, including:

- Japanese
- Korean
- Russian (Cyrillic)

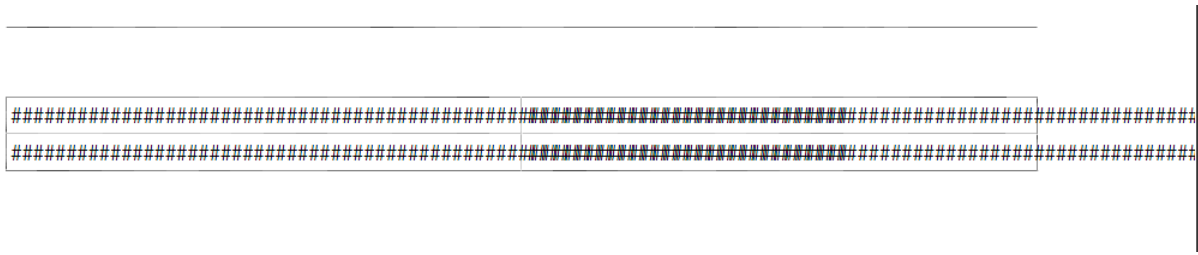
You can use the language font map to:

- Add or modify specifications for PDF font usage for supported non-English languages.
- Create PDF font support for a non-supported language.
- Change the default English fonts, if you do not specify a stylesheet.

The language font map specifications indicate what font to use on a specific platform (for example, Windows) for basic report elements such as body text.

Identifying When to Specify a Font

If a required non-English font is missing for a report, the generated text includes pound sign characters (#). For example:



Stylesheets Override PDF Font Mapping

PDF stylesheets for the MATLAB Report Generator specify fonts for body text, copyright, quotes, symbols, dingbats, monospace, sans serif, and titles.

The PDF stylesheet settings override the PDF font mapping entries.

If you do not specify a PDF stylesheet, then you can use PDF language font mapping entries to change the default fonts for English reports.

Non-English PDF Font Mapping Tasks

To add or modify non-English PDF font mapping specifications:

- “Locate Non-English Fonts” on page 8-42
- “Add or Modify Language Font Mappings” on page 8-44
- “Specify the Location of Font Files” on page 8-44

lang_font_map.xml File

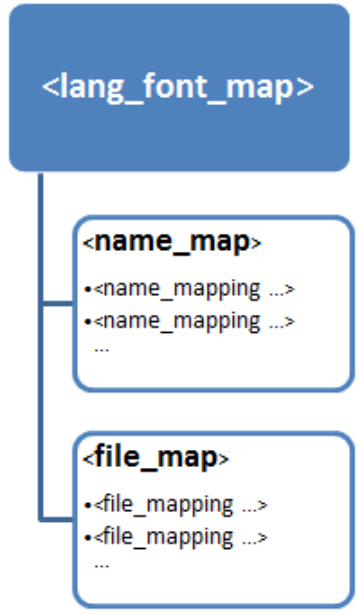
Use an XML editor with the `lang_font_map.xml` file to enter all the PDF font mappings for your reports.

Installing the MATLAB Report Generator software loads the `lang_font_map.xml` file in the following location:

```
<matlabroot>/toolbox/shared/rptgen/resources/fontmap
```

The `lang_font_map.xml` file includes two sections:

- `name_map` — Contains `name_mapping` elements that specify the name of the font, the language, and the font usage in the report (for example, body text).
- `file_map`— Contains entries for the location of the font files for the fonts specified in the `name_map`.



For example, the following `lang_font_map.xml` file includes `name_map` and `file_map` entries that provide basic PDF font support for Japanese (`ja`), Korean (`ko`), and Russian (`ru`).

lang_font_map.xml example

```
<?xml version="1.0" encoding="UTF-8" ?>
<lang_font_map>
  <name_map>
    <name_mapping lang="ja" platform="win" usage="body">MS Gothic</name_mapping>
    <name_mapping lang="ja" platform="win" usage="monospace">MS Gothic</name_mapping>
    <name_mapping lang="ja" platform="win" usage="sans">MS Gothic</name_mapping>
    <name_mapping lang="ja" platform="win" usage="title">MS Gothic</name_mapping>

    <name_mapping lang="ko" platform="win" usage="body">Gulim</name_mapping>
    <name_mapping lang="ko" platform="win" usage="monospace">Gulim</name_mapping>
```

```
    <name_mapping lang="ko" platform="win" usage="sans">Gulim</name_mapping>
    <name_mapping lang="ko" platform="win" usage="title">Gulim</name_mapping>

    <name_mapping lang="ru" platform="win" usage="body">Arial Unicode MS</name_mapping>
    <name_mapping lang="ru" platform="win" usage="monospace">Arial Unicode MS</name_mapping>
    <name_mapping lang="ru" platform="win" usage="sans">Arial Unicode MS</name_mapping>
    <name_mapping lang="ru" platform="win" usage="title">Arial Unicode MS</name_mapping>

    <name_mapping lang="en" platform="glnx" usage="body">FreeSerif, Regular</name_mapping>
    <name_mapping lang="en" platform="glnx" usage="monospace">FreeMono, Regular</name_mapping>
    <name_mapping lang="en" platform="glnx" usage="sans">FreeSans, Regular</name_mapping>
    <name_mapping lang="en" platform="glnx" usage="title">FreeSerif, Bold</name_mapping>

    <name_mapping lang="ru" platform="mac" usage="body">Arial Unicode MS</name_mapping>
    <name_mapping lang="ru" platform="mac" usage="monospace">Arial Unicode MS</name_mapping>
    <name_mapping lang="ru" platform="mac" usage="sans">Arial Unicode MS</name_mapping>
    <name_mapping lang="ru" platform="mac" usage="title">Arial Unicode MS</name_mapping>
  </name_map>

  <file_map>
    <file_mapping lang="ja" platform="win" name="MS Gothic">msgothic.ttc</file_mapping>
    <file_mapping lang="ja" platform="win" name="MS PGothic">msgothic.ttc</file_mapping>

    <file_mapping lang="ko" platform="win" name="Gulim">gulim.ttc</file_mapping>

    <file_mapping lang="en" platform="glnx" name="FreeSerif, Regular">FreeSerif.ttf</file_mapping>
    <file_mapping lang="en" platform="glnx" name="FreeMono, Regular">FreeMono.ttf</file_mapping>
    <file_mapping lang="en" platform="glnx" name="FreeSans, Regular">FreeSans.ttf</file_mapping>
    <file_mapping lang="en" platform="glnx" name="FreeSerif, Bold">FreeSerifBold.ttf</file_mapping>

    <file_mapping lang="ru" platform="mac" name="Arial Unicode MS">Arial Unicode.ttf</file_mapping>
  </file_map>
</lang_font_map>
```

Locate Non-English Fonts

The system from which you generate a report using the language font map must have access to the appropriate non-English fonts.

Use one of these font formats for non-English font support:

- Type 1 (PostScript®)
- TrueType
- OpenType®

Fonts in other formats, such as bitmap fonts for the X Window System (X11), produce poor MATLAB Report Generator report output.

Some TrueType fonts are grouped into packages called TrueType Collections. To specify a collection in the language font map file, specify the individual font within the `TrueType Collection`.

In addition to the font name, the weight (e.g., bold) and slant (e.g., italic, oblique) may distinguish one font from another in the same family.

The approach you use to identify font names depends on your computer platform.

Font names on Windows

To identify a TrueType font name on Windows systems:

1. Navigate to the font folder (usually `C:\Windows\Fonts`).
2. If the font is a simple TrueType (not a collection), in the window, right-click the font and choose **Properties** to see the name of the file containing that font.
3. If the font is a TrueType Collection, right-click to open the collection, optionally in a new window. Each constituent font appears, with its name. Use the name of the constituent font, not the name of the whole collection.

    a. Right-click any of constituent font and select **Properties**. The properties box displays the name of the file containing that font.

Font names on Mac OS X

Mac OS X provides an application called `Font Book` (in the `/Applications` folder) that provides information about available fonts on the system. The application shows all the fonts on your system. Hover over a specific font to see a datatip with the font name and the path to the font.

Font names on Linux

Linux distributions use a variety of conventions for the location of fonts, or how those font folders can be found. By default, MATLAB Report Generator searches these folders, in this order:

1. `/.fonts/`
2. `/usr/local/share/fonts/`
3. `/usr/X11R6/lib/fonts/`
4. `/usr/share/fonts/`

You can specify alternative folders in the `fonts.conf` file (in the `/etc/fonts/` folder).

Add or Modify Language Font Mappings

In the `name_map` section of the `lang_font_map.xml` file, add a separate `name_mapping` entry for each combination of language, font, and usage that you want in PDF reports.

Each `name_mapping` element has three attributes:

- `lang` specifies the two letter ISO 639-1 code corresponding to the language of the report.
- `platform` specifies the operating system platform:
  - `win` — Windows
  - `mac` — Mac OS X
  - `glnx`— Linux
- `usage` specifies the kind of report element or font:
  - `body`
  - `title`
  - `monospaced`
  - `sans` (sanserif)

The text of the `name_mapping` element is a font name, as specified in an XSL-FO stylesheet.

Here is an example `name_mapping` entry:

```
<name_mapping_lang="ja" platform="win" usage="body">MS Gothic</name_mapping>
```

Specify the Location of Font Files

In the `file_map` section, add a `file_mapping` entry that identifies the location of the font file for each font that you include in the `name_map` section.

Each of the platforms (Windows, Mac, and Linux) has a different default search path for fonts. If the `lang_font_map.xml file` does not contain a full file path for a font, the MATLAB Report Generator uses a platform-specific approach to search for the font.

Windows Font File Locations

On Windows platforms, the MATLAB Report Generator searches for fonts in `<windir>/Fonts`, where *`winder`* is an operating system environment variable. The typical location is `C:\Windows` or `C:\Winnt`.

Mac Font File Locations

On Mac OS X platforms, fonts are generally in one of these folders:

- `~/Library/Fonts`
- `/Library/Fonts`
- `Network/Library/Fonts`
- `System/Library/Fonts`
- `System/Folder/Fonts`

Linux Font File Locations

On Linux platforms, the convention for locating fonts can differ, depending on the Linux distribution. The MATLAB Report Generator follows the Debian® convention of finding the list of font folders in the `/etc/fonts/fonts.conf` file.

If the MATLAB Report Generator does not find the `fonts.conf` file in `/etc/fonts/` folder, it searches the following folders, in the following order:

1. `/.fonts`
2. `/usr/local/share/fonts`
3. `/usr/X11R6/lib/fonts`
4. `/usr/share/fonts`

Because of the variety of conventions used in different Linux distributions, consider using full file paths in `file_mapping` elements.

9

Comparing XML Files

Compare XML Files

You can use MATLAB Report Generator software to compare a pair of XML text files.

The XML comparison tool processes the results into a report that you can use to explore the file differences.

You can access the XML comparison tool from:

- The MATLAB Current Folder browser context menu
- The MATLAB command line.

The XML comparison tool compares the files using the "Chawathe" algorithm, as described in this paper:
Change Detection in Hierarchically Structured Information, Sudarshan Chawathe, Anand Rajaraman, and Jennifer Widom; SIGMOD Conference, Montreal, Canada, June 1996, pp. 493-504.

This conference paper is based upon work published in 1995: see `http://dbpubs.stanford.edu:8090/pub/1995-45`.

XML comparison reports display in the Comparison Tool. For more information about the Comparison Tool, see "Comparing Files and Folders" in the MATLAB documentation.

The XML comparison report shows a hierarchical view of the portions of the two XML files that differ. The report does not show sections of the files that are identical.

If the files are identical you see a message reporting there are no differences.

Note: It might not be possible for the analysis to detect matches between previously corresponding sections of files that have diverged too much.

Change detection in the Chawathe analysis is based on a scoring algorithm. Items match if their Chawathe score is above a threshold. The MATLAB Report Generator implementation of Chawathe's algorithm uses a comparison pattern that defines the thresholds. For more information, see "How the Matching Algorithm Works" on page 9-10.

For information about creating and using XML comparison reports, see:

How to Compare XML Files

In this section...

Select Files to Compare

From the Current Folder Browser

To compare two files from the Current Folder browser:

- For two files in the same folder, select the files, right-click and select **Compare Selected Files/Folders**.
- To compare files in different folders:

  1. Select a file, right-click and select **Compare Against**
  2. Select the second file to compare in the Select Files or Folders for Comparison dialog box.
  3. Leave the default **Comparison type**, `XML text comparison`.
  4. Click **Compare**.

If the selected files are XML files, the XML comparison tool performs a Chawathe analysis on the files and displays a report in the Comparison Tool.

The file you right-click to launch the XML comparison tool displays on the right side of the report.

For more information about comparisons of other file types with the Comparison Tool, such as text, MAT or binary, see “Comparing Files and Folders” in the MATLAB documentation.

From the Comparison Tool

To compare files using the Comparison Tool, from the MATLAB Toolstrip, in the **File** section, select the **Compare** button. In the dialog box select files to compare.

If the files you select to compare are XML files and you select an `XML comparison`, the XML comparison tool performs a Chawathe analysis of the XML files, and generates an report.

From the Command Line

To compare XML files from the command line, enter

```
visdiff(filename1, filename2)
```

where `filename1` and `filename1` are XML files. This XML comparison functionality is an extension to the MATLAB `visdiff` function.

Change Comparison Type

If you specify two XML files to compare using either the Current Folder Browser or the `visdiff` function, then the Comparison Tool automatically performs the default comparison type, `XML text comparison`.

To change comparison type, either create a new comparison from the Comparison Tool, or use the **Compare Against** option from the Current Folder browser. You can change comparison type in the Select Files or Folders for Comparison dialog box. If you want the MATLAB text differences report for XML files, change the comparison type to `Text comparison` in the dialog before clicking **Compare**.

XML Comparison Examples

For an example with instructions, see `mlxml_testplan`.

See Also

For an overview, see “Compare XML Files” on page 9-2.

For explanations on how to use and understand the report and the XML comparison functionality, see “Explore the XML Comparison Report” on page 9-6

Explore the XML Comparison Report

In this section...

Navigate the XML Comparison Report

The XML comparison report shows changes only. The report is a hierarchical view of the differences between two XML text files, and is not a hierarchical view of the original XML data.

To *step through differences*, use the **Comparison** tab on the toolstrip. To move to the next or previous group of differences, on the **Comparison** tab, in the **Navigate** section, click the arrow buttons to go to the previous or next difference.

You can also click to select items in the hierarchical trees.

- Selected items appear highlighted in a box.
- If the selected item is part of a matched pair it is highlighted in a box in both left and right trees.

Report item highlighting indicates the nature of each difference as follows:

Type of report item	Highlighting	Notes
Modified	Pink	Modified items are matched pairs that differ between the two files. When you select a modified item it is highlighted in a box in both trees. Changed parameters for the selected pair are displayed in a separate **Parameters** panel for review. If strings are too long to display in the **Parameters** table, right-click and select **Compare as Text** to open a new comparison of the parameters.
Unmatched	Green	When you select an unmatched item it is highlighted in a box in one tree only.

Type of report item	Highlighting	Notes
Container	None	Rows with no highlighting indicate a container item that contains other modified or unmatched items.

Use the toolbar buttons or the **Comparison** menu for the following functions:

- **Refresh** — Run Chawathe analysis again to refresh the comparison report.
- **Swap Sides** — Swap sides and rerun comparison. Runs the Chawathe analysis again.
- **Save As > Save as HTML** — Opens the Save dialog box, where you can choose to save a printable version of the XML comparison report. The report is a noninteractive HTML document of the differences detected by the Chawathe algorithm for printing or archiving a record of the comparison.
- **Save As > Save to Workspace** — Export XML comparison results to workspace.
- In the **Navigate** section, click the arrow buttons (or press Up or Down keys) to go to the previous difference or go to the next difference.
- **Compare Selected Parameter** — Open a new report for the currently selected pair of parameters. Use this when the report cannot display all the details in the Parameters pane, e.g., long strings or a script.

Use the **View** tab controls on the toolstrip for the following functions:

- **Expand All** — Expands every item in the tree.

  Tip Right-click to expand or collapse the hierarchy within the selected tree node.

- **Collapse All** — Collapses all items in the tree to the most compact view possible.

See also "XML Comparison Examples" on page 9-5.

Unexpected Results

If you see unexpected results within an XML comparison report, try reading the documentation section on "How the Matching Algorithm Works" on page 9-10.

Note: It may not be possible for the analysis to detect matches between previously corresponding sections of files that have diverged too much.

Save Comparison Log Files in a Zip File

Temporary XML comparison files accumulate in *tempdir*`/MatlabComparisons/XMLComparisons/TempDirs/`. These temporary files are deleted when you close the related comparison report.

You can zip the temporary files (such as log files) created during XML comparisons, for sharing or archiving. While the comparison report is open, enter:

```
xmlcomp.zipTempFiles('c:\work\myexportfolder')
```

The destination folder must exist. The output reports the zip file name:

```
Created the zipfile "c:\work\myexportfolder\20080915T065514w.zip"
```

To view the log file for the last comparison in the MATLAB Editor, enter:

```
xmlcomp.showLogFile
```

Export Results to the Workspace

To export the XML comparison results to the MATLAB base workspace,

1. On the **Comparison** tab, in the **Comparison** section, select **Save As** > **Save to Workspace**.

   The Input Variable Name dialog box appears.
2. Specify a name for the export object in the dialog and click **OK**. This action exports the results of the XML comparison to an `xmlcomp.Edits` object in the workspace.

The `xmlcomp.Edits` object contains information about the XML comparison including file names, filters applied, and hierarchical nodes that differ between the two XML files.

To create an `xmlcomp.Edits` object at the command line without opening the Comparison Tool, enter:

```
Edits = xmlcomp.compare(a.xml,b.xml)
```

Property of `xmlcomp.Edits`	Description
`Filters`	Array of filter structure arrays. Each structure has two fields, Name and Value.

Property of `xmlcomp.Edits`	Description
`LeftFileName`	File name of left file exported to XML.
`LeftRoot`	`xmlcomp.Node` object that references the root of the left tree.
`RightFileName`	File name of right file exported to XML.
`RightRoot`	`xmlcomp.Node` object that references the root of the right tree.
`TimeSaved`	Time when results exported to the workspace.
`Version`	MathWorks® release-specific version number of `xmlcomp.Edits` object.

Property of `xmlcomp.Node`	Description
`Children`	Array of `xmlcomp.Node` references to child nodes, if any.
`Edited`	Boolean — If `Edited = true` then the node is either inserted (green) or part of a modified matched pair (pink).
`Name`	Name of node.
`Parameters`	Array of parameter structure arrays. Each structure has two fields, Name and Value.
`Parent`	`xmlcomp.Node` reference to parent node, if any.
`Partner`	If matched, `Partner` is an `xmlcomp.Node` reference to the matched partner node in the other tree. Otherwise empty `[]`.

How the Matching Algorithm Works

In this section...

Why Do I See Unexpected Results?

The core of the XML file comparison engine is Chawathe's matching algorithm. This matching algorithm is a heuristic method based on a scoring system. This means that comparison results could be unexpected when many elements in each document are very similar.

See the following sections for some examples.

How the Chawathe Algorithm Works

XML text documents are hierarchical data structures. Users can insert, delete, or reorder elements, modify their contents, or move elements across different parts of the hierarchy. The Chawathe algorithm can detect these different types of changes within the hierarchy of the document. As with conventional text differencing utilities, the Chawathe algorithm detects local text that is added, deleted, or changed, and additionally can prepare an edit script that can be used to create a report of the hierarchical location of detected differences.

The Chawathe algorithm attempts to match elements that are of the same category. The Chawathe paper refers to these categories as *labels*. In the following XML example documents (with labels `A`, `B`, and `C`):

- The three `C` elements on the left are compared with the three `C` elements on the right
- The single `B` element on the left is compared with the two `B` elements on the right

<A> <C> First </C> <C> Second </C> </A> <B Name="first"> Some text </B> <A> <C> Third </C> </A>	<A> <C> First </C> <C> Third </C> <B Name="second"> More text </B> </A> <B Name="first"> Modified text </B> <A> <C> Fourth </C> </A>

The Chawathe algorithm matches a particular label by extracting a flat sequence of elements from the hierarchical document and attempting to match the elements in the sequences. In the example above, elements of the sequence

```
(<C> First </C>, <C> Second </C>, <C> Third </C>)
```

are matched against elements of the sequence

```
(<C> First </C>, <C> Third </C>, <C> Fourth </C>)
```

Sequences are matched using a Longest Common Subsequence (LCS) algorithm. For example, if `C` elements are matched on their text content, the LCS of the above sequences is given by:

```
(<C> First </C>, <C> Third </C>)
```

You can define a *score* for matching elements of a particular label in different ways. For instance, in the above example, `C` elements can be matched on text content, `B` can be matched on text content and on `Name`, and `A` on the number of `B` and `C` elements they have in common. To determine whether elements match or not, the Chawathe algorithm compares the score to a threshold.

The implementation can specify scoring methods, thresholds, the definition of labels, and the order in which labels are processed. These can be defined separately for each problem domain or type of XML file. The XML comparison tool provides suitable definitions for a set of common XML file types, and uses a default definition for any type of XML document it does not recognize.

Why Use a Heuristic Algorithm?

Chawathe's algorithm is a heuristic. That is, it cannot guarantee to return the optimal matching between two sequences. It is the use of a threshold mechanism in combination with an LCS algorithm that makes the algorithm a heuristic. A heuristic algorithm is preferable to an optimal matching because the heuristic is much faster.

An algorithm can only guarantee a mathematically optimal matching by exhaustively computing the score between all pairs of elements in the two sequences and choosing those pairs that maximize an overall matching score between the two sequences. This exhaustive approach is computationally very expensive because its running time increases exponentially with the length of the sequences to be matched.

Also a user's expectations can depend on context information that is not available to the matching algorithm (e.g., prior knowledge of the precise sequence of changes applied). This means even a mathematically optimal algorithm might match elements unexpectedly from a user's perspective.

In contrast with the mathematically optimal approach, Chawathe's algorithm guarantees linear running time for sequences that are the same or very similar. The worst-case scenario is quadratic running time for sequences that are entirely different.

The XML comparison tool performs best when the files to be compared are mostly similar. It becomes slower for files that contain more differences.

Examples of Unexpected Results

Elements Matched in Previous Comparisons Fail to Match

Elements could fail to match even if they were matched in comparisons of previous versions of the documents. A seemingly small change in one of the properties used for matching can cause this to happen if it tips the score under the threshold.

Consider the following example where

- `B` elements are scored on the value of `x`

- A elements are scored on the ratio of matching B elements
- For both A and B the score is compared with a threshold of 0.5.

<A> <B x="1"/> <B x="2"/> <B x="3"/> </A>	<A> <B x="1"/> <B x="7"/> <B x="3"/> </A>	<A> <B x="1"/> <B x="7"/> <B x="6"/> </A>

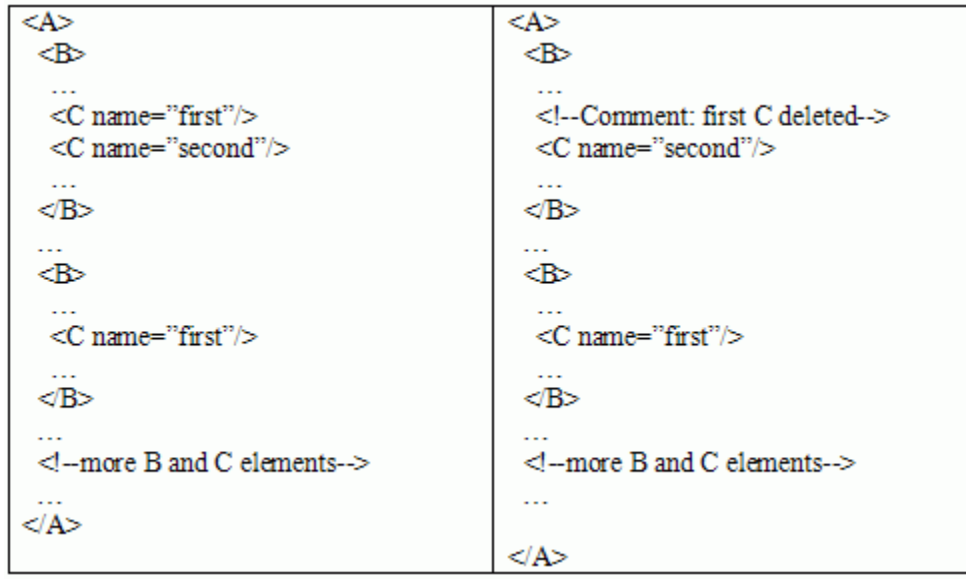
The left A and the middle A have two out of three B elements in common, resulting in a matching score of 2/3=0.66. The XML comparison tool marks the A elements as matched and the report shows that their contents have been *modified*.

When a user makes a further change to the middle document (resulting in the right document), and this new document is compared again to the left document, the matching score for A drops to 1/3=0.33. The algorithm considers the A elements unmatched this time. In this case, the difference between the two documents is marked as a *deletion* of A from the left document and an *insertion* of a new A into the right document.

This problem is likely to occur when there is little information available inside a single element to score a match. A seemingly small change in one of the properties used for matching could tip the score under the threshold, and therefore result in a large change in the outcome of the comparison.

Elements Matched Across Different Parts of the Hierarchy

Sometimes unexpected matches of similar items occur across different parts of the hierarchy. In the following example, C elements are matched on `name`:



In this case, the user might expect to see the very *first* C element on the left marked as deleted, with the second and third C elements matched to the corresponding C element on the right. However, this might not happen, if the first C on the left is matched to the second C on the right, even though these two C elements exist in very different parts of the document hierarchy. This mismatch would result in the third C element on the left being marked as deleted, which the user might find unexpected.

This case is likely to occur when there are several potential matching candidates for a particular element. In other words, when elements of a particular label tend to be very similar. Whether such a spurious cross-matching occurs or not depends on all of the other C elements within the two documents. The LCS algorithm used for matching the two sequences favors *local* matches over *distant* ones. In other words, sub-sequences of elements that are close together in the first sequence tend to be matched to sub-sequences of elements that are close together in the second sequence. However, this locality is not always guaranteed, and the outcome depends on how other elements in the sequence are matched.

Two Sequences of Elements Are Cross-Matched

It is difficult to distinguish many similar potential matches and this could produce unexpected results. In the following example, B elements are scored on name, p1, and p2, and the score is compared to a threshold of 0.5.

<A> <B name="1" p1="false" p2="on"/> <B name="2" p1="false" p2="on"/> <B name="3" p1="false" p2="on"/> <B name="4" p1="false" p2="off"/> </A> … <!--more A and B elements--> …	<A> <B name="1" p1="false" p2="on"/> <B name="2" p1="false" p2="on"/> <B name="new" p1="false" p2="on"/> <B name="3" p1="false" p2="on"/> <B name="4" p1="false" p2="on"/> </A> … <!--more A and B elements--> …

The right document contains one B element more than the left document, and therefore one of the B elements on the right must remain unmatched and the tool will mark one as inserted. However, since most B elements on the left potentially match most B elements on the right, it is impossible to predict exactly how the sequences will be matched. For instance, the comparison could generate the following result:

```
“B name=”1” …” > “B name=”2” …”
“B name=”2” …” > “B name=”new” …”
“B name=”3” …” > “B name=”3” …”
“B name=”4” …” > “B name=”4” …”
```

In this case, “B name= “1” on the right remains unmatched. As in the previous example, this depends on how all of the other B elements in the two documents are matched. This situation is likely to occur when elements have several potential matching candidates.

Components — Alphabetical List

Array-Based Table

Convert rectangular array into table and insert it into report

Description

This component converts a rectangular cell array into a table and inserts the table into the report.

Table Content

- **Workspace variable name**: Specifies the workspace variable name with which to construct the table.
- **Collapse large cells to a single description**: Consolidates large cells into one description.

Formatting Options

- **Table title**: Specifies the title of your table.
- **Cell alignment**:
  - `left`
  - `center`
  - `right`
  - `double justified`
- **Column widths**: Inputs a vector with *m* elements, where *m* equals the number of columns in the table. Column sizing is relative and normalized to page width. For example, say that you have a 2-by-3 cell array and input the following into the **Column widths** field:

  ```
  [1 2 3]
  ```

  The report output format for the cell array is such that the second column is twice the width of the first column, and the third column is three times the width of the first column. If the vector is greater than the number of columns in the table, the vector

is truncated so that the number of elements equals the number of columns. If *m* is less than the number of columns in the table, the vector is padded with 1s so that the number of elements equals the number of columns.

If you use this field, it is recommended that you specify a width for each column. Any width not specified defaults to 1. MATLAB displays a warning when defaulting any unspecified column width to 1.

- **Table grid lines**: Displays grid lines, which create borders between fields, in the table.
- **Table spans page width (HTML only)**: Sets the table width to the width of the page on which it appears.

Header/Footer Options

Designating a row as a header or footer row causes the contents of the row to appear in boldface.

- **Number of header rows**: Specifies the number of header rows.
- **Footer list**:
  - `No footer`: Specifies no footers for the report.
  - `Last N rows are footer`: Enables you to select a footer that is different from your header.

Example

Consider the following cell array in the MATLAB workspace:

```
{'foo','bar';[3],[5]}
```

Its cell table in the report appears as follows.

foo	bar
3	5

Note that the table has no headers or footers and no title.

Insert Anything into Report?

Yes. Table.

Class

`rptgen.cfr_table`

See Also

`Table`, `Table Body`, `Table Column Specification`, `Table Entry`, `Table Footer`, `Table Header`, `Table Row`, `Chapter/Subsection`, `Empty Component`, `Image`, `Link`, `List`, `Paragraph`, `Text`, `Title Page`

Axes Loop

Run child components for all axes objects in MATLAB workspace

Description

The Axes Loop component runs its child components for all axes objects in the MATLAB workspace. For information about working with looping components, see “Logical and Looping Components”.

Object Selection

- **Loop type**:
  - `All axes`: Loops on all axes objects.
  - `Current axes`: Loops on the currently selected axes object.
- **Exclude objects which subclass axes**: Excludes objects, such as legends and color bars, from the loop.
- **Loop Menu**:
  - `Loop on axes with handle visibility "on"`: Loops only on visible axes objects.
  - `Loop on all axes`: Loops on all axes objects.
- **Search terms**: Specifies search terms for the loop. For example, to search for `Tag` and `My Data`, enter `"Tag", "My Data"`.

Section Options

- **Create section for each object in loop**: Inserts a section in the generated report for each object found in the loop.
- **Display the object type in the section title**: Automatically inserts the object type into the section title in the generated report.
- **Create link anchor for each object in loop**: Creates a hyperlink to the object in the generated report.

Insert Anything into Report?

Yes, inserts a section if you select the **Create section for each object in loop** option.

Class

`rptgen_hg.chg_ax_loop`

See Also

`Axes Snapshot`, `Figure Loop`, `Figure Snapshot`, `Graphics Object Loop`, `Handle Graphics Linking Anchor`, `Handle Graphics Name`, `Handle Graphics Parameter`, `Handle Graphics Property Table`, `Handle Graphics Summary Table`

Axes Snapshot

Insert image of selected MATLAB axes objects into the generated report

Description

Inserts an image of selected MATLAB axes objects into the generated report.

Format

- **Image file format**: Specifies the image file format. Select `Automatic HG Format` to automatically choose the format best suited for the specified report output format. Otherwise, choose an image format that your output viewer can read. `Automatic HG Format` is the default option. Options include:
  - `Automatic HG Format` (uses the Handle Graphics file format selected in the Preferences dialog box)
  - `Bitmap (16m-color)`
  - `Bitmap (256-color)`
  - `Black and white encapsulated PostScript`
  - `Black and white encapsulated PostScript (TIFF)`
  - `Black and white encapsulated PostScript2`
  - `Black and white encapsulated PostScript2 (TIFF)`
  - `Black and white PostScript`
  - `Black and white PostScript2`
  - `Color encapsulated PostScript`
  - `Color encapsulated PostScript (TIFF)`
  - `Color encapsulated PostScript2`
  - `Color encapsulated PostScript2 (TIFF)`
  - `Color PostScript`
  - `Color PostScript2`
  - `JPEG high quality image`

  - `JPEG medium quality image`
  - `JPEG low quality image`
  - `PNG 24-bit image`
  - `TIFF - compressed`
  - `TIFF - uncompressed`
  - `Windows metafile`
- **Capture figure from screen**: Captures the figure for the generated report directly from the screen. Options include:
  - `Client area only`: Captures part of the figure.
  - `Entire figure window`: Captures the entire figure window.

Print Options

- **Paper orientation**:
  - `Landscape`
  - `Portrait`
  - `Rotated`
  - `Use figure orientation`: Uses the orientation for the figure, which you set with the `orient` command.
  - `Full page image (PDF only)`: In PDF reports, scales images to fit the full page, minimizes page margins, and maximizes the size of the image by using either a portrait or landscape orientation.

  For more information about paper orientation, see the `orient` command in the MATLAB documentation.
- **Image size**:
  - `Use figure PaperPositionMode setting`: Sets the image size in the report to the `PaperPositionMode` property of the figure. For more information about paper position mode, see `orient` in the MATLAB documentation.
  - `Automatic (same size as onscreen)`: Sets the image in the report to the same size as it appears on the screen.

  - `Custom`: Specifies a custom image size. Specify the image size in the **Size** field and **Units** list.
- **Size**: Specifies the size of the figure snapshot in the format `[w h]` (width, height). This field is active only if you choose `Custom` in the **Image size** selection list.
- **Units**: Specifies the units for the size of the figure snapshot. This field is active only if you choose `Set image size` in the **Custom** selection list.
- **Invert hardcopy**: Sets the `InvertHardcopy` property of Handle Graphics figures. This property inverts colors for printing; that is, it changes dark colors to light colors and vice versa. Options include:
  - `Automatic`: Automatically changes dark axes colors to light axes colors. If the axes color is a light color, it is not inverted.
  - `Invert`: Changes dark axes colors to light axes colors and vice versa.
  - `Don't invert`: Does not change the colors in the image displayed on the screen for printing.
  - `Use figure's InvertHardcopy setting`: Uses the `InvertHardcopy` property set in the Handle Graphics image.
  - `Make figure background transparent`: Makes the image background transparent.

Display Options

- **Scaling**: Controls size of the image, as displayed in a browser. Making an image larger using this option does not affect the storage size of the image, but the quality of the displayed image may decrease as you increase or decrease the size of the displayed image.

  Generally, to achieve the best and most predictable display results, use the default setting of `Use image size`.

  - `Use image size`: Causes the image to appear the same size in the report as on screen (default).
  - `Fixed size`: Specifies the number and type of units.
  - `Zoom`: Specifies the percentage, maximum size, and units of measure.
- **Size**: Specifies the size of the snapshot in the format `w h` (width, height). This field is active only if you choose `Fixed size` in the **Scaling** list.

- **Max size**: Specifies the maximum size of the snapshot in the format `w h` (width, height). This field is active only if you choose `Zoom` from the **Scaling** list.
- **Units**: Specifies the units for the size of the snapshot. This field is active only if you choose `Zoom` or `Fixed size` in the **Image size** selection list.
- **Alignment**: Only reports in `PDF` or `RTF` format support this property. Options are:
  - `Auto`
  - `Right`
  - `Left`
  - `Center`
- **Title**: Specifies text to appear above the snapshot.
- **Caption**: Specifies text to appear under the snapshot.

Insert Anything into Report?

Yes. Image.

Class

`rptgen_hg.chg_ax_snap`

See Also

`Axes Loop`, `Figure Loop`, `Figure Snapshot`, `Graphics Object Loop`, `Handle Graphics Linking Anchor`, `Handle Graphics Name`, `Handle Graphics Parameter`, `Handle Graphics Property Table`, `Handle Graphics Summary Table`

Chapter/Subsection

Group portions of report into sections with titles

Description

This component groups portions of the report into sections. Each section has a title and content.

The following rules apply to this component:

- Child components appear inside the section created by this component.
- Selecting the **Get title from first child component** check box prevents this component from accepting paragraph-level children. In this case, this component's first child must be a `Text` component.
- This component can have Chapter/Subsection components as its children.
- Sections can be nested. There are seven levels of nesting possible. The seventh nested section in the report is untitled, although the child components of this section include information into the report.

Chapter Numbering

By default, chapters are numbered and sections are not numbered. Specify chapter and section numbering using a stylesheet. For more information about chapter and section numbering options in Web and print stylesheets, see “Report Output Format”.

Section Title

- **Title**: Specifies a title to display in the generated report:
  - `Automatic`: Automatically generates a title.
  - `Custom`: Specifies a custom title.
- **Style Name**: Specifies the style to use with the chapter or section title. To specify a style, perform these steps.

  1 In the Report Options dialog box, set **File format** to one of these values:

- `Word (from template)`
- `HTML (from template)`
- `PDF (from template)`

2. In the Chapter/Section properties dialog box, set **Title** to `Custom`.
3. Set **Style Name** to `Custom`.
4. In the **Style Name** text box, type a style name.

   To take effect, the style you specify must be defined in the template that you use to generate the report. For example, if you use a Word template that defines a `Heading 2` style, you can enter `Heading 2` as the style name. For more information about template styles, see "Create Custom Microsoft Word Report Templates" and " Create Custom HTML Report Templates".

- **Numbering**: Specifies a numbering style for the report:
  - `Automatic`: Numbers by context.
  - `Custom`: Allows you to create your own numbering style.
- **Section Type**: Shows you in which level a selected section resides.

Insert Anything into Report?

Yes. Chapter or section.

Class

`rptgen.cfr_section`

See Also

`Empty Component`, `Image`, `Link`, `List`, `Paragraph`, `Table`, `Text`, `Title Page`

Comment

Insert comment into XML source file created by report generation process

Description

This component inserts a comment into the XML source file created by the report-generation process. This comment is not visible in the generated report.

This component can have children. Child components insert their output into the XML source file, but this does not appear in the generated report.

To make comment text appear in the report:

1. Edit the XML source file (which has the same name as your report file, but has a `.xml` extension).
2. Find the `comment` area in the XML source file by locating the comment tags `<--` and `-->`.
3. Remove the comment tags.
4. Convert the XML source file using the `rptconvert` command.

Properties

- **Comment text**: Specifies comments to include in the report.
- **Show comment in Generation Status window**: Displays comments in the **Generation Status** tab while the report generates.
- **Status message priority level**: Specifies the priority level of the status messages that appear during report generation. Priority options range from `1) Error messages only` to `6) All messages`. The default is `3) Important messages`. This option is only available if you select the **Show comment in Generation Status window** option.

Insert Anything into Report?

No. This component inserts comments, which can appear in the report, into the report's XML source file.

Class

`rptgen.crg_comment`

See Also

"Convert XML Documents to Different File Formats", `Import File`, `Nest Setup File`, `Stop Report Generation`, `Time/Date Stamp`

Empty Component

Group components to move, activate, or deactivate them, or create blank space in list

Description

This component does not insert anything into the generated report. It can have any component as a child. You can use it to group components together so that you can easily move, activate, or deactivate them, or create a blank space in a list.

If the MATLAB Report Generator software does not recognize a given component when loading a report setup file, it replaces the unrecognized component with this component.

Insert Anything into Report?

No.

Class

`rptgen.crg_empty`

See Also

`Chapter/Subsection`, `Image`, `Link`, `List`, `Paragraph`, `Table`, `Text`, `Title Page`

Evaluate MATLAB Expression

Evaluate specified MATLAB expression

Description

This component evaluates a specified MATLAB expression. You can include code and/or command-line output in the report.

Properties

- **Insert MATLAB expression in report**: Causes the MATLAB expression that this component evaluates to appear in the report.
- **Display command window output in report**: Includes the command window output that results from the evaluation of the specified MATLAB expression.
- **Expression to evaluate in the base workspace**: Specifies the expression to evaluate in the MATLAB workspace. .

  If you are using Simulink Report Generator, then you can use functions such as `Rptgen.getReportedBlock` to filter the modeling elements on which to report and to perform special reporting on specific elements. For more information, in the Simulink Report Generator documentation, see “Loop Context Functions”.
- **Evaluate this expression if there is an error**: Evaluates another MATLAB expression if the specified expression produces an error. You must enter in this field the expression to evaluate in case of an error.

  If you do not change the default error handling code, then when you generate the report, and there is an error in the MATLAB code that you added:

  - If you clear **Evaluate this expression if there is an error** check box, then the complete report is generated, without displaying an error message at the MATLAB command line.
  - If you select **Evaluate this expression if there is an error** check box, then the complete report is generated and an error message appears at the MATLAB command line.

To stop report generation when an error occurs in the MATLAB code that you added, change the second and third lines of the following default error handling code, as described below:

```
warningMessageLevel = 2;
displayWarningMessage = true;
failGenerationWithException = false;
failGenerationWithoutException = false;
```

To stop report generation and display an exception, change the default code to:

```
displayWarningMessage = false;
failGenerationWithException = true;
```

To stop report generation without displaying an exception, change the default code to:

```
displayWarningMessage = false;
failGenerationWithoutException = true;
```

If you want to completely replace the default error handling code, use the `evalException.message` variable in your code to return information for the exception.

Insert Anything into Report?

Inserts text only if you select one of the following options:

- `Insert MATLAB expression string in report`
- `Display command window output in report`

Class

`rptgen.cml_eval`

See Also

`Insert Variable`, `MATLAB Property Table`, `MATLAB/Toolbox Version Number`, `Variable Table`

Figure Loop

Apply child components to specified graphics figures

Description

This component applies each child component to specified figures in the report. For more information about working with this component, see “Logical and Looping Components”.

Figure Selection

- **Include figures**
  - `Current figure only`: Includes only the current figure in the report.
  - `Visible figures`: Loops on all visible figures. The `Data figures only` option is checked by default and excludes figures with `HandleVisibility = 'off'` from the loop.
  - `All figures with tags`: Loops on figures with specified tags, select When you select a given tag, all figures with that tag appear in the loop, regardless of whether each figure is visible or whether its `HandleVisibility` attribute is `'on'` or `'off'`.

    The tag field (located under `All figures with tags`) shows selected tags. To add tags to this field, type in the tag names, separating them with new lines.
- **Loop Figure List**: Shows all figures that are included in the loop. If the report setup file generates new figures or changes existing figures, figures in the **Loop Figure List** are not the figures that are reported on.

Section Options

- **Create section for each object in loop**: Inserts a section in the generated report for each object found in the loop.
- **Display the object type in the section title**: Inserts the object type automatically into the section title in the generated report.

- **Create link anchor for each object in loop**: Creates a hyperlink to the object in the generated report.

Insert Anything into Report?

Yes, inserts a section if you select the **Create section for each object in loop** option.

Class

`rptgen_hg.chg_fig_loop`

See Also

`Axes Loop`, `Axes Snapshot`, `Figure Snapshot`, `Graphics Object Loop`, `Handle Graphics Linking Anchor`, `Handle Graphics Name`, `Handle Graphics Parameter`, `Handle Graphics Property Table`, `Handle Graphics Summary Table`

Figure Snapshot

Insert snapshot of Handle Graphics figure into report

Description

This component inserts a snapshot of a Handle Graphics figure into the report.

Format

- **Image file format**: Specifies the image file format. Select `Automatic HG Format` to automatically choose the format best suited for the specified report output format. Otherwise, choose an image format that your output viewer can read. `Automatic HG Format` is the default option. Other options include:
  - `Automatic HG Format` (uses the Handle Graphics file format selected in the Preferences dialog box)
  - `Bitmap (16m-color)`
  - `Bitmap (256-color)`
  - `Black and white encapsulated PostScript`
  - `Black and white encapsulated PostScript (TIFF)`
  - `Black and white encapsulated PostScript2`
  - `Black and white encapsulated PostScript2 (TIFF)`
  - `Black and white PostScript`
  - `Black and white PostScript2`
  - `Color encapsulated PostScript`
  - `Color encapsulated PostScript (TIFF)`
  - `Color encapsulated PostScript2`
  - `Color encapsulated PostScript2 (TIFF)`
  - `Color PostScript`
  - `Color PostScript2`
  - `JPEG high quality image`

  - `JPEG medium quality image`
  - `JPEG low quality image`
  - `PNG 24-bit image`
  - `TIFF - compressed`
  - `TIFF - uncompressed`
  - `Windows metafile`
- **Capture picture from screen**:
  - `Client area only`: Captures a portion of the figure window.
  - `Entire figure window`: Captures the entire figure window.

Print Options

- **Paper orientation**:
  - `Landscape`
  - `Portrait`
  - `Rotated`
  - `Use figure orientation`: Uses the orientation for the figure, which you set with the `orient` command.
  - `Full page image (PDF only)`: In PDF reports, scales images to fit the full page, minimizes page margins, and maximizes the size of the image by using either a portrait or landscape orientation.

  For more information about paper orientation, see the `orient` command in the MATLAB documentation.
- **Image size**:
  - `Use figure PaperPositionMode setting`: Uses the figure's `PaperPositionMode` property as the image size in the report. For more information about paper position mode, see the `orient` command in the MATLAB documentation.
  - `Automatic (same size as on screen)`: Sets the image in the report to the same size as it appears on the screen.

    - `Custom`: Specifies a custom image size. Set the image size in the **Size** field and **Units** list.
- **Size**: Specifies the size of the figure snapshot in the form `w h` (width times height). This field is active only if you choose `Custom` from the **Image size** selection list.
- **Units**: Specifies units for the size of the figure snapshot. This field is active only if you choose `Custom` in the **Image size** selection list.
- **Invert hardcopy**: Sets print colors using the figure's `InvertHardcopy` property, which inverts colors for printing. Options include:
    - `Automatic`: Automatically changes dark axes colors to light axes colors. If the axes color is a light color, it is not inverted.
    - `Invert`: Changes dark axes colors to light axes colors and vice versa.
    - `Don't invert`: Does not change the colors in the image.
    - `Use figure's InvertHardcopy setting`: Uses the value of the `InvertHardcopy` property set in the Handle Graphics image.
    - `Make figure background transparent`: Makes the image background transparent.

Display Options

- **Scaling**:
    - `Fixed size`: Specifies the number and type of units.
    - `Zoom`: Specifies the percentage, maximum size, and units of measure.
    - `Use image size`: Causes the size of the image in the report to appear the same size as on screen.
- **Size**: Specifies the size of the snapshot in the format `w h` (width, height). This field is active only if you choose `Fixed size` in the **Scaling** list.
- **Max size**: Specifies the maximum size of the snapshot in the format `w h` (width, height). This field is active only if you choose `Zoom` from the **Scaling** list.
- **Units**: Specifies units for the size of the snapshot. This field is active only if you choose `Zoom` or `Fixed size` in the **Image size** selection list.
- **Alignment** Only reports in `PDF` or `RTF` format support this property. Options include:
    - `Auto`

  - `Right`
  - `Left`,
  - `Center`
- **Title**: Specifies a title for the figure:
  - `Custom`: Specifies a custom title.
  - `Name`: Specifies the figure name as the title.
- **Caption**: Specifies text to appear under the snapshot.

Insert Anything into Report?

Yes. Image.

Class

`rptgen_hg.chg_fig_snap`

See Also

`Axes Loop`, `Axes Snapshot`, `Figure Loop`, `Graphics Object Loop`, `Handle Graphics Linking Anchor`, `Handle Graphics Name`, `Handle Graphics Parameter`, `Handle Graphics Property Table`, `Handle Graphics Summary Table`

For Loop

Iteratively execute child components

Description

This component functions like the MATLAB `for` loop, except that instead of executing a statement, it executes its child components. It must have at least one child component to execute.

Loop Type

The loop type can have incremented indices or a vector of indices. For more information on for loops and indices, see `for` in the MATLAB documentation.

- **Incremented indices**: Executes a `for` loop of the form:

  ```
  for varname=x:y:z
  ```

  - **Start**: Corresponds to `x` in the previous expression.
  - **Increment**: Corresponds to `y` in the previous expression.
  - **End**: Corresponds to `z` in the previous expression.
- **Vector of Indices**: Executes a `for` loop of the form:

  ```
  for varname=[a b c ...]
  ```
  Specify appropriate values in the **Vector** field in the form `a b c ...`.

Workspace Variable

- **Show index value in base workspace**: Displays the loop index in the MATLAB workspace while other components execute.
- **Variable name**: Allows you to specify the variable name. The default is `RPTGEN_LOOP`.
- **Remove variable from workspace when done**: Removes the loop index from the MATLAB workspace. This option is only available if you select the **Show index value in base workspace** option.

Insert Anything into Report?

No.

Class

`rptgen_lo.clo_for`

See Also

`Logical Else`, `Logical Elseif`, `Logical If`, `Logical Then`, `While Loop`

Graphics Object Loop

Run child components for each Handle Graphics object open in MATLAB workspace

Description

This component runs its child components for each Handle Graphics object that is currently open in the MATLAB workspace. The component inserts a table into the generated report.

Select Objects

- **Exclude GUI objects (uicontrol, uimenu, ...)**: Excludes graphical interface objects, such as `uicontrol` and `uimenu`, from the loop.
- **Loop list**: Specifies the loop level for Handle Graphics objects:
  - `Loop on objects with handle visibility "on"`
  - `Loop on all objects`
  - **Search for**: Allows you to enter space-delimited search terms.

Section Options

- **Create section for each object in loop**: Inserts a section in the generated report for each object found in the loop.
- **Display the object type in the section title**: Inserts the object type automatically into the section title in the generated report.
- **Create link anchor for each object in loop**: Creates a hyperlink to the object in the generated report.

Insert Anything into Report?

Yes, inserts a section if you select the **Create section for each object in loop** option.

Class

`rptgen_hg.chg_obj_loop`

See Also

`Axes Loop`, `Axes Snapshot`, `Figure Loop`, `Figure Snapshot`, `Handle Graphics Linking Anchor`, `Handle Graphics Name`, `Handle Graphics Parameter`, `Handle Graphics Property Table`, `Handle Graphics Summary Table`

Handle Graphics Linking Anchor

Designate location to which links point

Description

This component designates a location to which links point. It should have a looping component as its parent.

Properties

- **Insert text**: Specifies text to appear after the linking anchor.
- **Link from current**: Sets the current model, system, block, or signal as the linking anchor:
  - `Automatic`: Automatically selects the appropriate figure, axes, or object as a linking anchor. If the `Figure Loop` component is this component's parent, the linking anchor points to the current figure. Similarly, if the `Graphics Object Loop` is this component's parent, the linking anchor points to the current object.
  - `Figure`: Sets the linking anchor to the current figure.
  - `Axes`: Sets the linking anchor to the current axes.
  - `Object`: Sets the linking anchor to the current object.

Insert Anything into Report?

Yes. Anchor.

Class

`rptgen_hg.chg_obj_anchor`

See Also

Axes Loop, Axes Snapshot, Figure Loop, Figure Snapshot, Graphics Object Loop, Handle Graphics Name, Handle Graphics Parameter, Handle Graphics Property Table, Handle Graphics Summary Table

Handle Graphics Name

Insert name of Handle Graphics object into the report

Description

This component inserts the name of a Handle Graphics object as text into the report. You can use this component to create a section title based on the current figure by making it the first child component of a `Chapter/Subsection` component, and then selecting the `Chapter/Subsection` component's **Get title from first child component** option.

Properties

- **Display name as**:
  - `Type Name`
  - `Type —Name`
  - `Type: Name`
- **Show name of current**:
  - `Figure`: Shows the name of the current figure. The first nonempty figure parameter determines the name.
  - `Axes`: Shows the name of the current axes. The first nonempty axes parameter determines the name.
  - `Other Object`: Sets the name of the current object to the figure's `CurrentObject` parameter and its first nonempty parameter.

Insert Anything into Report?

Yes. Text.

Class

```
rptgen_hg.chg_obj_name
```

See Also

Axes Loop, Axes Snapshot, Figure Loop, Figure Snapshot, Graphics Object Loop, Handle Graphics Linking Anchor, Handle Graphics Parameter, Handle Graphics Property Table, Handle Graphics Summary Table

Handle Graphics Parameter

Insert property name/property value pair from Handle Graphics figure, axes, or other object

Description

This component inserts a property name/property value pair from a Handle Graphics figure, axes, or other object.

Property Selection

- **Get property from current**: Reports on a specified Handle Graphics object:
  - `Figure`: Inserts a figure's property name/property value pair.
  - `Axes`: Inserts an axes' property name/property value pair.
  - `Object`: Inserts an object's property name/property value pair.
- **Figure property**: Specifies the type of property to include. The `All` option shows every parameter for the current object.

Display Options

- **Title**: Specifies a title for the generated report:
  - `None` (default): No title.
  - `Automatic`: Automatically generates the title from the parameter.
  - `Custom` Specifies a custom title.
- **Size limit**: Limits the width of the display in the generated report. Units are in pixels. The size limit of a given table is the hypotenuse of the table width and height [`sqrt(w^2+h^2)`]. The size limit of a text string equals its number of characters squared. If you exceed the size limit, the variable appears in condensed form, such as `[64x64 double]`. Setting a size limit of `0` displays the variable in full, no matter how large it is.
- **Display as**: Choose a display style:

  - `Auto table/paragraph`: Displays as a table or paragraph.
  - `Inline text`: Displays in line with the surrounding text.
  - `Paragraph`: Displays as a paragraph.
  - `Table`: Displays as a table.
- **Ignore if value is empty**: Excludes empty parameters from the generated report.

Insert Anything into Report?

Yes. Text.

Class

`rptgen_hg.chg_property`

See Also

`Axes Loop`, `Axes Snapshot`, `Figure Loop`, `Figure Snapshot`, `Graphics Object Loop`, `Handle Graphics Linking Anchor`, `Handle Graphics Name`, `Handle Graphics Property Table`, `Handle Graphics Summary Table`

Handle Graphics Property Table

Insert table that reports on property name/property value pairs

Description

This component inserts a table that reports on property name/property value pairs.

For more information on using this component, see “Property Table Components”.

Select Graphics Object

- **Object type**: Specifies an object type for the generated report:
  - `Figure`
  - `Axes`
  - `Object`
- **Filter by class**: Specifies a class or classes for the table.

Table

You can select a preset table, which is already formatted and set up, from the list in the upper-left corner of the attributes page.

To create a custom table, edit a preset table, such as `Blank 4x4`. Add and delete rows and add properties. To open the Edit Table dialog box, click **Edit**.

For details about creating custom property tables, see “Property Table Components”.

- **Preset table**: Specifies the type of table to display the object property table.
  - `Defaults`
  - `Callbacks`
  - `Graphics`
  - `Printing`
  - `Blank 4x4`

To apply a preset table, select the table and click **Apply**.

- **Split property/value cells**: Splits property name/property value pairs into separate cells. For the property name and property value to appear in adjacent horizontal cells in the table, select the **Split property/value cells** check box. In this case, the table is in split mode and there can be only one property name/property value pair in a cell. If there is more than one name/property pair in a cell, only the first pair appears in the report. All subsequent pairs are ignored.

  For the property name and property value to appear together in one cell, clear the **Split property/value cells** check box. In this case, the table is in nonsplit mode, which supports more than one property name/property value pair per cell. It also supports text.

  Before switching from nonsplit mode to split mode, make sure that you have only one property name/property value pair per table cell. If you have more than one property name/property value pair or any text, only the first property name/property value pair appears in the report; subsequent pairs and text are omitted.
- **Display outer border**: Displays the outer border of the table in the generated report.

Table Cells

Select table properties to modify. The selection in this pane affects the availability of fields in the **Title Properties** pane.

If you select `Figure Properties`, only the **Contents** and **Show** options appear. If you select any other object in the **Table Cells** pane, the **Lower border** and **Right border** options appear.

Title Properties

- **Contents**: Enables you to modify the contents of the table cell selected in the **Table Cells** pane. Options include:
  - `Left`
  - `Center`
  - `Right`

    - `Double justified`
- **Show as**: Enables you to choose the format for the contents of the table cell. Options include:
    - `Value`
    - `Property Value`
    - `PROPERTY Value`
    - `Property: Value`
    - `PROPERTY: Value`
    - `Property - Value`
    - `PROPERTY - Value`
- **Alignment**: Aligns text in the table cells. Options are:
    - `Left`
    - `Center`
    - `Right`
    - `Double-justified`
- **Lower border**: Displays the lower border of the table in the generated report.
- **Right border**: Displays the right border of the table in the generated report.

Insert Anything into Report?

Yes. Table.

Class

`rptgen_hg.chg_prop_table`

See Also

`Axes Loop`, `Axes Snapshot`, `Figure Loop`, `Figure Snapshot`, `Graphics Object Loop`, `Handle Graphics Linking Anchor`, `Handle Graphics Name`, `Handle Graphics Parameter`, `Handle Graphics Summary Table`

Handle Graphics Summary Table

Insert table that summarizes Handle Graphics object properties

Description

This component inserts a table that summarizes Handle Graphics object properties. Each row in the table represents an object. Each column in the table represents a property. You can specify object properties to include in the report.

Properties

- **Object type**: Specifies the object type to display in the generated report. Options include:
  - `figure`
  - `axes`
  - `object`

  The available options in the **Select Objects** pane depend on your selection in the **Object type** menu.
- **Table title**: Specifies a title for the table in the generated report. Options include:
  - `Automatic`: Generates a title automatically.
  - `Custom`: Specifies a custom title.

Property Columns

- **Property columns**: Specifies object properties to include in the table in the generated report.
  - To add a property:
    1. Select the appropriate property level in the menu.
    2. In the list under the menu, select the property to add and click **Add**.
  - To delete a property, select its name and click **Delete**.

Some entries in the list of available properties (such as `Depth`) are "virtual" properties which you cannot access using the `get_param` command. The properties used for property/value filtering in the block and system loop components must be retrievable by the `get_param`. Therefore, you cannot configure your summary table to report on all blocks of `Depth` == 2.

- **Remove empty columns**: Removes empty columns from the table in the generated report.
- **Transpose table**: Changes the summary table rows into columns in the generated report, putting the property names in the first column and the values in the other columns.

Object Rows

Insert anchor for each row: Inserts an anchor for each row in the summary table.

Figure Selection

The options displayed in the **Figure Selection** pane depend on the object type selected in the **Object type** list:

- If **Object type** is `figure`, the following options appear:
  - **Include figures**
    - `Current figure only`: Includes only the current figure in the report.
    - `Visible figures`: Executes child components for figures that are currently open and visible. The `Data figures only` option is checked by default. This option excludes figures with `HandleVisibility = 'off'` from the loop.
    - `All figures with tags`: Includes all figures with a specified tag regardless of whether they are visible or their `HandleVisibility` parameter is `'on'` or `'off'`. The tag selection list, located under this option, shows available tags. You can add tag names to this list.
  - **Data figure only (Exclude applications)**: Shows only data figures.
  - **Loop Figure List**: Shows figures within the current set of figures to display.
- If **Object type** is `axes`, the following options appear:

- **Loop type**:
  - `All axes`: Loops on all axes objects.
  - `Current axes`: Loops on the selected axes object.
- **Exclude objects which subclass axes**: Excludes objects such as legends and color bars.
- **Loop Menu**:
  - `Loop on axes with handle visibility "on"`: Loops on visible axes objects.
  - `Loop on all axes`: Loops on all axes objects.
- **Search terms**: Specifies search terms for the loop. For example, to search for `Tag` and `My Data`, enter `"Tag", "My Data"`.

- If **Object type** is `object`, the following options appear:
  - **Exclude GUI objects (uicontrol, uimenu, ...)**: Excludes graphical interface objects, such as `uicontrol` and `uimenu`, from the loop.
  - **Loop menu**: Specifies the loop level:
    - `Loop on objects with handle visibility "on"`
    - `Loop on all objects`
  - **Search for**: Specifies space-delimited search terms.

Insert Anything into Report?

Yes. Table.

Class

`rptgen_hg.chg_summ_table`

See Also

Axes Loop, Axes Snapshot, Figure Loop, Figure Snapshot, Graphics Object Loop, Handle Graphics Linking Anchor, Handle Graphics Name, Handle Graphics Parameter, Handle Graphics Property Table

Image

Insert image from external file into report

Description

This component inserts an image from an external file into the report. It can have the `Chapter/Subsection` or `Paragraph` component as its parent. If the `Paragraph` component is its parent, you must select the **Insert as inline image** check box.

Class

- **File name**: Specifies the image file name. You can enter this name manually, or use the **Browse** button **(...)** to find the image file.

  The image must be in a format that your viewer can read. An error like the following appears if you specify the name of an image file that does not exist:

  ```
  No file name.  Could not create graphic.
  ```

  This field supports `%<VariableName>` notation. For more information about this notation, see "%<VariableName> Notation" on page 10-99 on the `Text` component reference page.
- **Copy to local report files directory**: Saves a copy of the image to a local report files folder.

Display Options

- **Scaling**: Controls size of the image, as displayed in a browser. Making an image larger using this option does not affect the storage size of the image, but the quality of the displayed image may decrease as you increase or decrease the size of the displayed image.

  Generally, to achieve the best and most predictable display results, use the default setting of `Use image size`.

  - `Use image size`: Causes the image to appear the same size in the report as on screen (default).
  - `Fixed size`: Specifies the number and type of units.
  - `Zoom`: Specifies the percentage, maximum size, and units of measure.
- **Size**: Specifies the size of the snapshot in the format `w h` (width, height). This field is active only if you choose `Fixed size` from the **Scaling** list.
- **Max size**: Specifies the maximum size of the snapshot in the format `w h` (width, height). This field is active only if you choose `Zoom` from the **Scaling** list;
- **Units**: Specifies units for the size of the snapshot. This field is active only if you choose `Zoom` or `Fixed size` in the **Image size** selection list.
- **Alignment**: Only reports in `PDF` or `RTF` formats support this format property. Options are:
  - `Auto`
  - `Right`
  - `Left`
  - `Center`
- **Title**: Specifies text to appear above the snapshot.
- **Caption**: Specifies text to appear under the snapshot.
- **Full page image (PDF only)**: In PDF reports, scales images to fit the full page, minimizes page margins, and maximizes the size of the image by using either a portrait or landscape orientation.

Preview

The image that you specify in the **Image file name** field appears in this pane. You cannot preview Adobe PostScript images, or images with formats that the `imread` function does not support, such as `.gif`.

Clicking an image causes it to display in full size.

Insert Anything into Report?

Yes. Image.

Class

rptgen.cfr_image

See Also

Chapter/Subsection, Empty Component, List, Paragraph, Table, Text, Title Page

Import File

Import `ASCII` text file into report

Description

This component imports an `ASCII` text file into the report.

Properties

- **File name**: Specifies the name of the file to import into the text field. You can enter a name, or use the **Browse** button **(...)** to find the file.
- **Import file as**: Specifies formatting for the imported file. Options include:
  - `Plain text (ignore line breaks)`: Imports the file as plain text without any line breaks (no paragraphs). If you select this option, the `Import File` component acts like the `Text` component, so it should have the `Paragraph` component as its parent.

    The examples in this section use the following text as the input file:

    ```
    This is the first row of text from the imported file.
      The second row follows a line break in the first row.

    There is a blank line above the third row.
    ```

    `Plain text (ignore line breaks)` produces the following formatting for the example file:

    ```
    This is the first row of text from the imported file.
    The second row follows a line break in the first row.

    There is a blank line above the third row.
    ```
  - `Paragraphs defined by line breaks`: Imports the file as text, in paragraphs with line breaks (hard returns or carriage returns). This option produces the following formatting for the example file:

    ```
    This is the first row of text from the imported file.
    The second row follows a line break in the first row.
    ```

```
There is a blank line above the third row.
```

- `Paragraphs defined by empty rows`: Imports the file as text, in paragraphs with empty rows (rows that include no text). This option produces the following formatting for the example file:

  ```
  This is the first row of text from the imported file.
  The second row follows a line break in the first row.

  There is a blank line above the third row.
  ```

- `Text (retain line breaks)` (default): Imports the file as plain text with line breaks. This option produces the following formatting for the example file:

  ```
  This is the first row of text from the imported file.
  The second row follows a line break in the first row.

  There is a blank line above the third row.
  ```

- `Fixed-width text (retain line breaks)`: Imports the file as fixed-width text (all letters have the same width or size), including line breaks. This option is useful for importing MATLAB files. This option produces the following formatting for the example file:

  ```
  This is the first row of text from the imported file.
  The second row follows a line break in the first row.

  There is a blank line above the third row.
  ```

- `DocBook XML`: Inserts an XML source file, and makes no changes to its format.
- `Formatted Text (RTF/HTML)`: Inserts an `RTF` or `HTML` source file, and makes no changes to its format.
- `Syntax highlighted MATLAB code`: Inserts a MATLAB file.

The **File Contents** field displays the first few lines of the file to be imported.

Insert Anything into Report?

Yes.

- Inserts text if you select one of the following options:
  - `Plain text (ignore line breaks)`

  - `Text (retain line breaks)`
  - `Fixed-width text (retain line breaks)`
- Inserts paragraphs if you select one of the following options:
  - `Paragraphs defined by line breaks`
  - `Paragraphs defined by empty rows`
- Inserts the contents of an XML file if you select the `DocBook XML` option.
- Inserts the contents of the `RTF` or `HTML` file if you select the `Formatted text (RTF/HTML)` option.
- Inserts a link to a file if you import the file into an HTML report.

Class

`rptgen.crg_import_file`

See Also

`Comment`, `Nest Setup File`, `Stop Report Generation`, `Time/Date Stamp`

Insert Variable

Insert variable values into report

Description

This component inserts the value (and, optionally, the name) of each the following variables into the report:

- A variable from the MATLAB workspace
- A variable from a MAT-file
- A global variable
- A variable that you specify directly

Source

- **Variable name**: Specifies the name of the variable:
  - `%<VariableName>`: Inserts the value of a variable from the MATLAB workspace into the report.
- **Variable location**:
  - `Base Workspace`: Gets a variable from the MATLAB workspace.
  - `MAT File`: Gets a variable from a binary file with a `.mat` extension.
  - `Global variable`: Gets a global variable.
  - `Direct`: Gets a variable that you specify directly.

Display Options

- **Title**: Specify a title for the report:
  - `Automatic`: Generates a title automatically.
  - `Custom`: Specifies a custom title.
  - `None`: Specifies no title.

- **Array size limit**: Limits the width of the display in the generated report. Units are in pixels. The size limit for a given table is the hypotenuse of the table width and height [`sqrt(w^2+h^2)`]. The size limit of a given text string is the number of characters squared. If you exceed the size limit, the variable appears in condensed form, such as `[64x64 double]`. Setting a size limit of `0` displays the variable in full, regardless of its size.
- **Object depth limit**: Specifies the maximum number of nesting levels to report on for a variable value
- **Object count limit**: Specifies the maximum number of nested objects to report on for a variable value
- **Display as**: Choose a display style from the menu:
  - `Table`: Displays as a table.
  - `Paragraph`: Displays as a paragraph.
  - `Inline text`: Displays inline with the surrounding text.
  - `Table or paragraph depending on data type`: Displays as a table or paragraph.
- **Show variable type in headings**: Show data type of this variable in the title of its report.
- **Show variable table grids**: Show grid lines for the table used to report the value of this variable.
- **Make variable table page wide**: Make the variable table as wide as the page on which the table appears.
- **Omit if value is empty**: Exclude empty parameters from the generated report.
- **Omit if property default value**: Exclude object property from the report if that property uses the default value.

Insert Anything into Report?

Yes. Text.

Class

`rptgen.cml_variable`

See Also

Evaluate MATLAB Expression, MATLAB Property Table, MATLAB/Toolbox Version Number, Variable Table

Link

Insert linking anchors or pointers into report

Description

This component inserts linking anchors or pointers into the report.

For a PDF report, if you open the report from MATLAB (for example, if you open the report right after generating it), the link does not work. However, if you open a PDF report outside of MATLAB (for example, from Adobe Acrobat), the link works properly.

Properties

- **Link type**: Select the type of link to insert into the report. Options include:
  - `Linking anchor`: Specifies a link to an anchor.
  - `Internal document link`: Specifies a location in the report (as specified by an anchor).
  - `URL (external) link`: Specifies a link to a Web site or to a MATLAB command to execute from generated report.
- **Link identifier**: Indicates the location to which the link points. It can contain only `ASCII` characters, and it is not visible in the generated report.

  For a Web link, the link identifier options are context sensitive; their formats differ depending on the link type you select. For example, to link to an external file `foo.txt`, specify the link identifier as follows:

  - On UNIX systems:

    ```
    file:///home/janedoe/foo.txt
    ```

  - On Microsoft Windows systems:

    ```
    H:\foo.txt
    ```

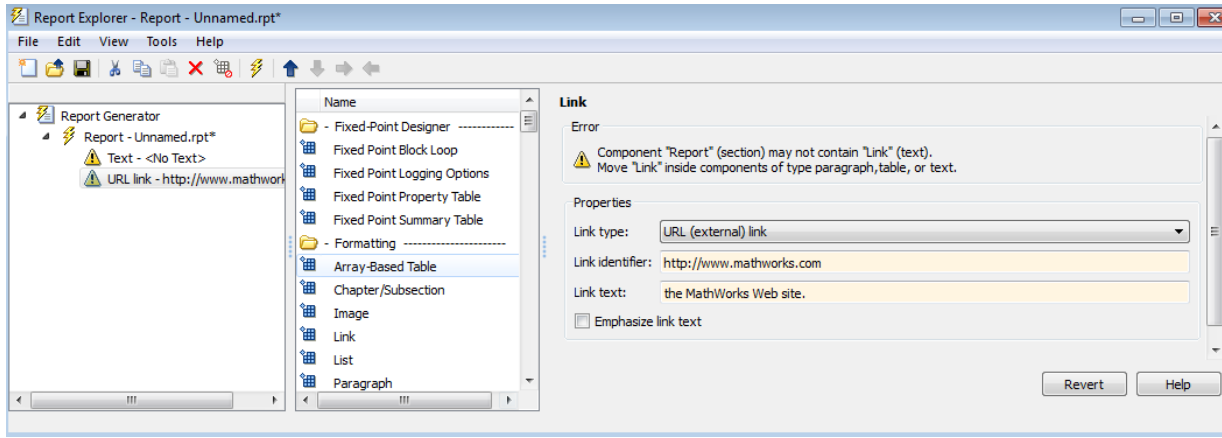
  For a link to a MATLAB command, enter `matlab:` followed by a space and the MATLAB command that you want the link to execute.
- **Link text**: Specifies text to use in the link.

- **Emphasize link text**: Italicizes the link text.

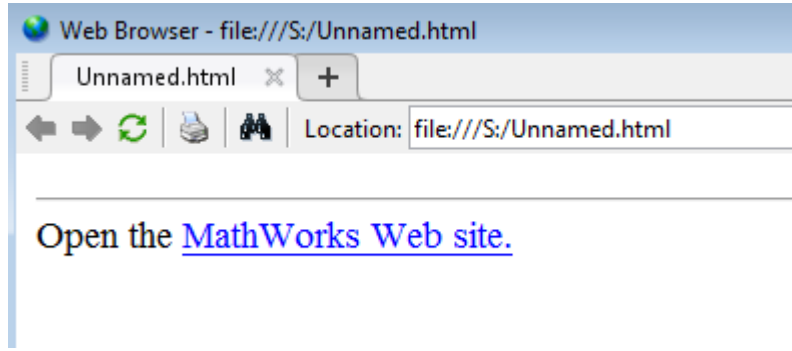
Examples

Link to an External Web Site

1. Open Report Explorer with the `setedit` command.
2. In the Properties pane on the right, click **Create and edit a new report file**.
3. In the Library pane in the middle, under the Formatting category, select the Text component and click the **Add component** icon.
4. In the Properties pane, enter `Open the ` (add a blank space at the end of the string).
5. In the Library pane, under the Formatting category, select the Link component and click the **Add component** icon.
6. In the Properties pane:
   - Set **Link type** to `URL (external) link`.
   - In **Link Identifier**, enter `http://www.mathworks.com`.
   - In **Link text**, enter `MathWorks Web site.` (with a period).



7. Generate the report.



8 Click the link to open the MathWorks Web site.

Link to Another Place in a Report

1 At the MATLAB command line, enter `setedit magic-square.rpt`.

2 In the Outline pane on the left, select the Title Page component.

3 In the Library pane in the middle, under the Formatting category, select the Link component and click the **Add component** icon.

4 In the Properties pane:

- Set **Link type** to `Linking anchor`.
- In **Link identifier**, enter `explanation`.

In the Contents pane, the Link component appears as `Anchor - explanation`.

5 In the Outline pane, under the second Chapter component, select the Eval component.

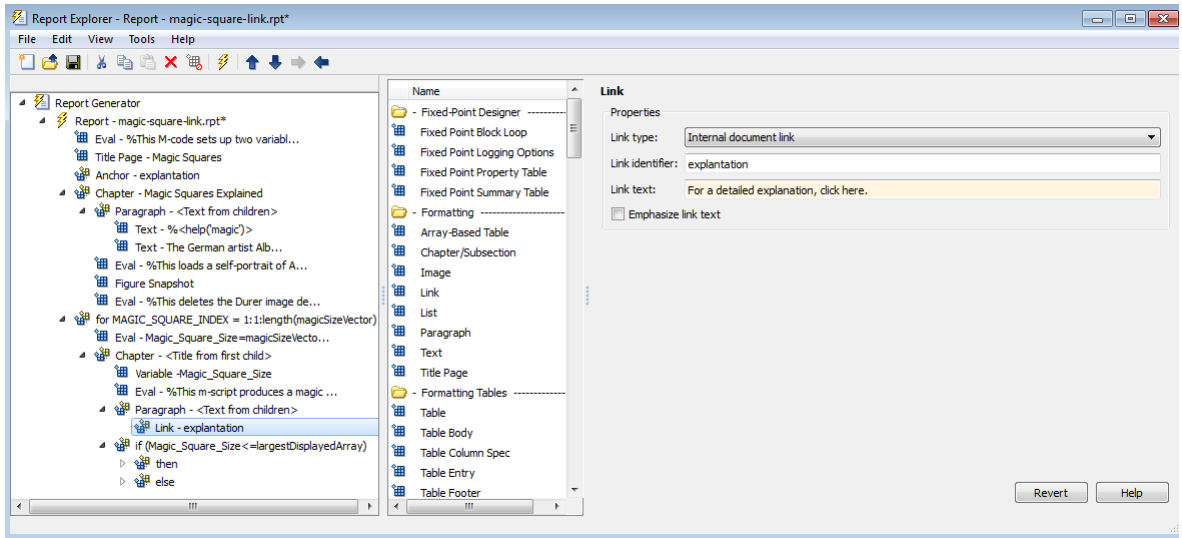
6 In the Library pane, under the Formatting category, select the Paragraph component and click the **Add component** icon.

7 In the Library pane, under the Formatting category, select the Link component and click the **Add component** icon.

8 In the Properties pane:

- Set **Link type** to `Internal document link`.
- In **Link identifier**, enter `explanation`.

- In **Link text**, enter `For a detailed explanation, click here.` (with the period).



9 Generate the report.

Chapter 2. *Magic_Square_Size* 4

For a detailed explanation, click here.

16	2	3	13
5	11	10	8
9	7	6	12
4	14	15	1

Chapter 3. *Magic_Square_Size* 8

For a detailed explanation, click here.

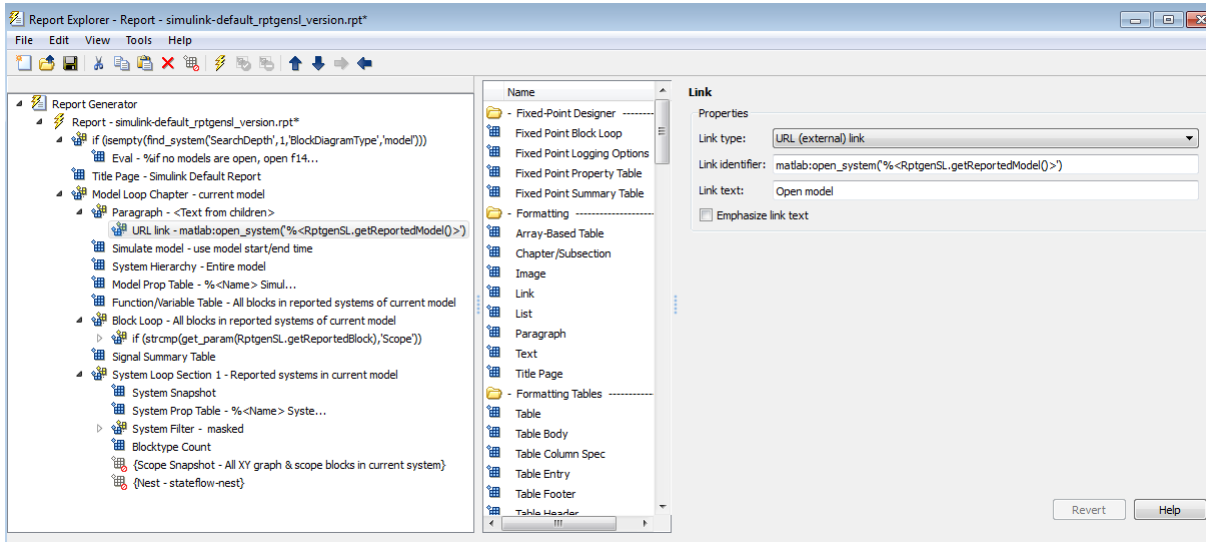
64	2	3	61	60	6	7	57
9	55	54	12	13	51	50	16
17	47	46	20	21	43	42	24
40	26	27	37	36	30	31	33
32	34	35	29	28	38	39	25
41	23	22	44	45	19	18	48
49	15	14	52	53	11	10	56
8	58	59	5	4	62	63	1

10 Click the link to move to near the top of the report, to “Chapter 1. Magic Squares Explained.”.

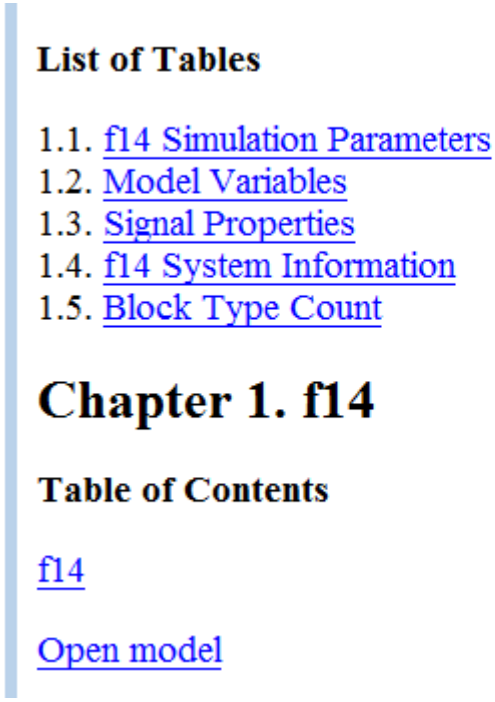
Link to a Model

This example shows how to add a link to a Simulink model. To view the model, you must have the Simulink software installed.

1. Open Report Explorer with the `setedit` command.
2. In the middle pane, click `simulink-default_rptgensl_version.rpt`.
3. In the Library pane in the middle, under the Formatting category, select the Paragraph component and click the **Add component** icon.
4. In the Library pane in the middle, under the Formatting category, select the Link component and click the **Add component** icon.
5. In the Properties pane:
   - Set **Link type** to `URL (external) link`.
   - In **Link Identifier**, enter `matlab:open_system('%<RptgenSL.getReportedModel()>')`.
   - In **Link text**, enter `Open model`.



6. Generate the report.


List of Tables

1.1. f14 Simulation Parameters
1.2. Model Variables
1.3. Signal Properties
1.4. f14 System Information
1.5. Block Type Count

Chapter 1. f14

Table of Contents

f14

Open model

7 Click the “Open model” link to open the model.

Insert Anything into Report?

Yes. Text or anchor.

Class

`rptgen.cfr_link`

See Also

`Chapter/Subsection`, `Empty Component`, `List`, `Paragraph`, `Table`, `Text`, `Title Page`

List

Create bulleted or numbered list from cell array or child components

Description

This component creates a bulleted or numbered list from a cell array or child components.

List Content

- **Create list from workspace cell array**: Creates the list from of the 1-by-n or n-by-1 cell array. This option is not available when this component has child components — in this case, the list automatically generates from the child components.
- **List title**: Specifies the title of the list.
- **List title style name**: Specifies the style to use with the list title. To specify a style, perform these steps.

  1. In the Report Options dialog box, set **File format** to one of these values:
     - `Word (from template)`
     - `HTML (from template)`
     - `PDF (from template)`
  2. In the List properties dialog box, set **List title style name** to `Specify`.
  3. In the **List title style name** text box, type a style name.

     To take effect, the style you specify must be a list style defined in the template that you use to generate the report. For more information about template styles, see “Create Custom Microsoft Word Report Templates” and “ Create Custom HTML Report Templates”.

List Formatting

- **List style**:

- `Bulleted list`
- `Numbered list`.

- **Numbering style**: Specifies a numbering style for numbered lists. This setting is supported only in the RTF/DOC report format. Options include:
  - `1,2,3,4,...`
  - `a,b,c,d,...`
  - `A,B,C,D,...`
  - `i,ii,iii,iv,...`
  - `I,II,III,IV,...`
- **List style name**: Specifies the style to use with the list. To specify a style, perform these steps.

  1. In the Report Options dialog box, set **File format** to one of these values:
     - `Word (from template)`
     - `HTML (from template)`
     - `PDF (from template)`
  2. Set **List style name** to `Specify`.
  3. In the **List style name** text box, type a style name.

     To take effect, the style you specify must be defined in the template that you use to generate the report.
- **Show parent number in nested list (1.1.a)**: Displays all level numbers in a nested list. You can create a nested list by putting one cell array inside another or by nesting one `List` component inside another. Following is an example of how a list appears when you select this option:

```
1. Example
2. Example
 2.1. Example
 2.2. Example
  2.2.a. Example
  2.2.b. Example
3. Example
```

This option is not available if you select `Show only current list value (a)`.

- **Show only current list value (a)**: Displays only the current list value. Following is an example of how a list appears when you select this option:

```
1. Example
2. Example
 1. Example
 2. Example
  1. Example
  2. Example
3. Example
```

This option is not available if you select `Show parent number in nested list (1.1.a)`.

Example 1: Creating a Nested List

Consider the following report setup file, which includes a nested list created by putting a `List` component inside another `List` component:

```
[-] Report - Unnamed.rpt
   [-] Bulleted list from child components
      [ ] Text - sky
      [ ] Table - varname
      [ ] Image - test.jpg
      [ ] Text - grass
      [-] Bulleted list from child components
         [ ] Text - clouds
         [ ] Text - sun
      [-] Paragraph - information
```

This report setup file generates a report that includes the following bulleted lists:

- `sky`
- `varname`, the table from the variable
- `test.jpg`, a snapshot of the image
- `grass`
  - `clouds`
  - `sun`
- `information`

Example 2: Creating a List Using Child Components

To generate a report that includes the following bulleted list:

- `red`
- `green`
- `blue`

Use the following report setup file:

```
[-] Report - Unnamed.rpt
   [-] Bulleted list from child components
      [ ] Text - red
      [ ] Text - green
      [ ] Text - blue
```

Creating a List Using a Cell Array

To generate the same bulleted list as in the previous example, configure a report setup file to call a cell array, `colors`:

```
[-] Report - Unnamed.rpt
   [-] Bulleted list from cell array called colors
```

Where`colors` is:

```
colors={'red','green','blue'}
```

Insert Anything into Report?

Yes. List.

Class

`rptgen.cfr_list`

See Also

Chapter/Subsection, Empty Component, Link, Paragraph, Table, Text, Title Page

Logical Else

Specify an `else` condition for a `Logical If` component

Description

This component acts as an `else` when it is the child of the `Logical If` component. You can specify this component in one of the following ways:

- ```
  if
   then
   else
  ```
- ```
  if
   then
   elseif
   elseif
      .
      .
      .
   else
  ```

Properties

If component has no children, insert text: Inserts specified text into your report when the `Logical Else` component has no child components. In this case, this component acts like the `Text` component.

Insert Anything into Report?

Yes, when `if` or `elseif` statement is false.

Class

`rptgen_lo.clo_else`

See Also

For Loop, Logical Elseif, Logical If, Logical Then, While Loop

Logical Elseif

Specify an `elseif` condition for a `Logical If` component

Description

This component acts as an `elseif` when it is the child of the `Logical If` component. You must specify this component as follows:

```
if
 then
 elseif
 elseif
    .
    .
    .
 else
```

Properties

- **Test expression**: Specifies a MATLAB expression to evaluate.
- **If component has no children, insert text**: Inserts the specified text into the report when the `Logical Elseif` component has no child components. In this case, this component acts like the `Text` component.

Insert Anything into Report?

Yes, when parent `if` statement is false.

Class

`rptgen_lo.clo_else_if`

See Also

`For Loop`, `Logical Else`, `Logical If`, `Logical Then`, `While Loop`

Logical If

Specify `logical if` condition

Description

This component acts as a logical `if`; it can have the `Logical Then`, `Logical Elseif`, or `Logical Else` components as children components. This component executes its child components when the specified workspace expression is true. It displays a specified string when it has no child components. You can specify this component as follows:

- ```
  if
   then
  ```
- ```
  if
   then
   else
  ```
- ```
  if
   then
   elseif
   elseif
      .
      .
      .
   else
  ```

Properties

- **Test expression**: Specifies a MATLAB expression to evaluate.
- **If component has no children, insert text**: Inserts specified text into the report when the `Logical If` component has no children.

Insert Anything into Report?

Depends on specified attribute values.
  ```

Class

`rptgen_lo.clo_if`

See Also

`For Loop`, `Logical Else`, `Logical Elseif`, `Logical Then`, `While Loop`

Logical Then

Specify a `then` condition for a `Logical If` component

Description

This component acts as a `then` when it is the child of the `Logical If` component. You can specify this component as follows:

- `if`
  `then`
- `if`
  `then`
  `else`
- `if`
  `then`
  `elseif`
  `elseif`
  `.`
  `.`
  `.`
  `else`

Attributes

If component has no children, insert text: Inserts specified text into the report when the `Logical Then` component has no children. In this case, this component acts like the `Text` component.

Insert Anything into Report?

Yes, when parent `if` statement is true.

Class

`rptgen_lo.clo_then`

See Also

`For Loop`, `Logical Else`, `Logical Elseif`, `Logical If`, `While Loop`

MATLAB Property Table

Insert table that includes MATLAB object property name/property value pairs

Description

This component inserts a table that includes MATLAB object property name/property value pairs.

Table

Select a preset table, which is already formatted and set up, in the preset table list in the upper-left corner of the attributes page.

- **Preset table**: Choose a type of table:
  - `Default`
  - `Blank 4x4`

  To apply the preset table, select the table and click **Apply**.
- **Split property/value cells**: Splits property name/property value pairs into separate cells. Select the **Split property/value cells** check box for the property name and property value to appear in adjacent cells. In this case, the table is in split mode; only one property name/property value pair per cell is allowed. If more than one name/property pair exists in a cell, only the first pair appears in the report; subsequent pairs are ignored.

  Clear the **Split property/value cells** check box for a given property name and property value to appear together in one cell. In this case, the table is in nonsplit mode, which supports more than one property name/property value pair. It also supports text.

  Before switching from nonsplit mode to split mode, make sure that you have only one property name/property value pair per table cell.
- **Display outer border**: Displays the outer border of the table in the generated report.

- **Table Cells**: Modifies table properties. The selection in this pane affects the available fields in the **Cell Properties** pane.

Cell Properties

Available options in the **Cell Properties** pane depend what you select for **Table Cells**. If you select `Workspace Properties`, only the **Contents** and **Show** options appear. If you select any other option, the **Lower border** and **Right border** options appear.

- **Contents**: Modifies the contents of the table cell selected in the **Table Cells** pane.
- **Show as**: Specifies the format for the contents of the table cell. Options include:
  - `Value`
  - `Property Value`
  - `PROPERTY Value`
  - `Property: Value`
  - `PROPERTY: Value`
  - `Property - Value`
  - `PROPERTY - Value`
- **Alignment**: Specifies how to align the contents of the selected table cell in the **Table Cells** field. Options include:
  - `Left`
  - `Center`
  - `Right`
  - `Double justified`
- **Lower border**: Displays the lower border of the table in the generated report.
- **Right border**: Displays the right border of the table in the generated report.

Creating Custom Tables

To create a custom table, edit a preset table, such as `Blank 4x4`. You can add and delete rows and add properties. To open the Edit Table dialog box, click **Edit**.

For details about using this dialog box to create custom property tables, see “Property Table Components”.

Insert Anything into Report?

Yes. Table.

Class

`rptgen.cml_prop_table`

See Also

`Evaluate MATLAB Expression`, `Insert Variable`, `MATLAB/Toolbox Version Number`, `Variable Table`

MATLAB/Toolbox Version Number

Insert table that shows version and release numbers and release date of MathWorks products

Description

Using the Table Filter, specify whether this component reports version information for all installed MathWorks products or just those products required for a model.

For the specified set of products, this component inserts a table showing any of these columns that you specify:

- Version number
- Release number
- Release date
- Is required for model

You can list all your MathWorks products by typing `ver` at the MATLAB command line.

Table Title

Table title: Specifies the table title. The default is `version number`.

Table Filter

Show only toolboxes required for model: When you select this option, the report shows version information for only those products required for a model or chart. By default, the report shows version information for all installed MathWorks products.

Note: This option uses the Simulink Manifest Tools analysis to determine what products appear in the version information table. See “Analysis Limitations” for Manifest Tools analysis limitations.

Table Columns

- **Version number**: Includes the product version number (for example, 3.4) for all installed MathWorks products or for only those products required for a model or chart.

  or
- **Release number**: Includes the MathWorks release number (for example, R2009b) for all installed MathWorks products or for only those products required for a model or chart.
- **Release date**: Includes the release date of for all installed MathWorks products or for only those products required for a model.
- **Is required for model**: Indicates "Yes" for each MathWorks product required for a model or chart.

Insert Anything into Report?

Yes. Table.

Class

`rptgen.cml_ver`

See Also

`Evaluate MATLAB Expression`, `Insert Variable`, `MATLAB Property Table`, `Variable Table`

Nest Setup File

Allow one report setup file (`.rpt` file) to run inside another

Description

This component runs another report setup file at the point where the `Nest Setup File` component is located in the current report setup file.

The components of the inserted report setup file are stored in the current report setup file at the same level as the `Nest Setup File` component. Thus, inserted components have the same parent component as the `Nest Setup File` component.

Properties

- **Report filename**: Specifies the name of the report setup file to import and run. You can enter a path to the file or use the **browse** button **(...)** to find the file. You can enter an absolute path or a relative path, relative to the report into which you nest the report.
- **Nest all reports with specified file name**: Nests all reports with the same name as specified in the **Report filename** option.
- **Inline nested report in this report**: Inserts the nested report in the original report setup file where this component is located.
- **Recursion limit**: Allows you to nest a report setup file inside itself by setting a recursion limit in this field. The recursion limit sets a limit on the number of times the report setup file can run itself.
- **Insert link to external report**: Creates two separate reports, one using the original report setup file and one using the nested report setup file. The report that includes the nested report includes an absolute path link to the nested report.
- **Link to external report is relative**: If you select **Insert link to external report**, then you can use the **Link to external report is relative** option to ensure the link to the nested report is a relative link. This feature facilitates including the report on a Web site.
- **Increment file name to avoid overwriting**: Appends a number to the file name of report that includes the nested report, to preserve earlier versions of current report file.

The Nest Setup File dialog box displays the report description of the nested report, if the nested report has a report description.

Example

In the following example, the report setup file `R2.rpt` is nested in `R1.rpt`:

```
[-] Report - R1.rpt                [-] Report - R2.rpt
 [ ] Chapter                              [ ] 1
      [-] B                               [ ] 2
         [ ] Nest Setfile - R2.rpt       [-] Chapter
         [ ] C                              [ ] 4
      [ ] D                                 [ ] 5
```

The generated report is identical to the one generated by the following report setup file:

```
    [-] Report - R1.rpt
      [ ] Chapter
      [-] B
         [ ] 1
         [ ] 2
         [-] Section 1
           [ ] 4
           [ ] 5
         [ ] C
      [ ] D
```

Components that determine their behavior from their parents, such as `Chapter/Subsection`, are affected by components in the parent report setup file.

Insert Anything into Report?

Yes, if the nested report setup file produces a report.

Class

`rptgen.crg_nest_set`

See Also

`Comment`, `Import File`, `Stop Report Generation`, `Time/Date Stamp`

Paragraph

Insert paragraph text into report

Description

This component inserts a paragraph into the report. The paragraph text is taken from a child text component, or from text that you enter in the **Paragraph Text** field.

Title Options

- `No paragraph title` (default): Specifies no title for the paragraph.
- `Get title from first child`: Gets the title of the paragraph from its first child component, which should be a `Text` component.
- `Custom title`: Specifies a custom title for the paragraph.

Style Name

Specifies the style to use with the paragraph title. To specify a style, perform these steps.

1. In the Report Options dialog box, set **File format** to one of these values:
   - `Word (from template)`
   - `HTML (from template)`
   - `PDF (from template)`
2. In the Paragraph properties dialog box, set **Title Options** to one of these values:
   - `Get title from first child`
   - `Custom title`
3. Set **Style Name** to `Specify`.
4. In the **Style Name** text box, type a style name.

   To take effect, the style you specify must be a paragraph style (or a linked paragraph/character style for Word reports) defined in the template that you use to

generate the report. For more information about template styles, see “Create Custom Microsoft Word Report Templates” and “ Create Custom HTML Report Templates”.

Paragraph Text

Enter paragraph text into this field. If the `Paragraph` component has child components, the paragraph content is taken from the paragraph text and the child components; otherwise, the `Paragraph` component inserts text from this field. If the `Paragraph` component does not have any child components and you do not enter any text into this field, nothing appears in the report.

Use the `%<VariableName>` notation in this field if you want to insert the value of a variable from the MATLAB workspace. For more details about this notation, see “%<VariableName> Notation” on page 10-99 on the `Text` component reference page.

Style Name

Specifies the style to use with the paragraph text. To specify a style, perform these steps.

1. In the Report Options dialog box, set **File format** to one of these values:
   - `Word (from template)`
   - `HTML (from template)`
   - `PDF (from template)`
2. Set **Style Name** to `Specify`.
3. In the **Style Name** text box, type a style name.

   To take effect, the style you specify must be a paragraph style (or a linked paragraph/character style for Word reports) defined in the template that you use to generate the report. For example, if you use a Word template that defines a `Normal` style, you can enter `Normal` as the style name. For more information about template styles, see “Create Custom Microsoft Word Report Templates” and “ Create Custom HTML Report Templates”.

Style

Note: If you use the **Style Name** field to specify a style for the paragraph text, the style formats below override the corresponding formats specified in the style. For example, selecting **Bold** makes the text bold, even if the specified style specifies regular weight text.

- **Bold**: Makes the text bold.
- **Italic**: Makes the text italic.
- **Underline**: Underlines the text.
- **Strikethrough**: Strikes through the text.
- **Retain spaces and carriage returns**: Formats text in the report in the same way as it is entered.
- **Show text as syntax-highlighted MATLAB code**: Displays the text as syntax-highlighted MATLAB code.
- **Color**: Specifies the color of the text.
  - Select a color from a list of colors.
  - Enter `%<expr>`.
  - Enter an RGB (truecolor) value as #RRGGBB. For example, `#0000ff` is a shade of blue.

Insert Anything into Report?

Yes, depending on child components.

Class

`rptgen.cfr_paragraph`

See Also

`Chapter/Subsection`, `Empty Component`, `Image`, `Link`, `List`, `Table`, `Text`, `Title Page`

Stop Report Generation

Halt report generation

Description

This component acts like **Stop** during report generation. You can use this component inside an `if/then` statement by using Logical and Flow Control components to halt the report-generation process when the specified condition is `true`. When report generation halts, an XML source file is created, but not converted.

Confirmation Properties

- **Confirm before stopping generation**: Generates a confirmation dialog box before stopping report generation.
- **Confirmation question**: Specifies a confirmation question for the prompt. The default is "`Stop generating the report?`"
- **Halt button name**: Specifies a name for the button that stops report generation. The default is **"Halt Generation"**.
- **Continue button name**: Specifies a name for the button that continues report generation. The default is **"Continue Generation"**.

Example

This example creates a simple report that takes a snapshot of the current figure. If there is no current figure, the report generation automatically halts:

```
[-] Report - figure-report.rpt
 [-] if (isempty(get(0,'CurrentFigure')))
  [ ] Stop Generation
 [-] Figure Loop - current
  [-] Chapter - <Title from SubComponent1>
   [ ] Figure Name
   [ ] Graphics Figure Snapshot
   [ ] Figure Prop Table - Figure Properties
```

Insert Anything into Report?

No.

Class

`rptgen.crg_halt_gen`

See Also

`Comment`, `Import File`, `Nest Setup File`, `Time/Date Stamp`

Table

Insert parent of table

Description

This component is a parent of a component hierarchy that you specify to insert a table into a report. Adding this component creates a hierarchy that defines a 2x2 table that you modify to define your specific table.

Properties

- **Title**: Specifies a title for the table. Enter text or `%<expr>`. If you specify a table title, text in the form `Table #:` precedes the table title.
- **Title style name**: Specifies the style to use with the table title. To specify a style, perform these steps.

  1. In the Report Options dialog box, set **File format** to one of these values:
     - `Word (from template)`
     - `HTML (from template)`
     - `PDF (from template)`
  2. In the Table properties dialog box, set **Title style name** to `Specify`.
  3. In the **Title style name** text box, type a style name.

     To take effect, the style you specify must be defined in a table style in the template that you use to generate the report. For more information about template styles, see “Create Custom Microsoft Word Report Templates” and “ Create Custom HTML Report Templates”.
- **Number of columns**: Specifies the number of columns in the table. Enter a number or `%<expr>`. A table must have at least one column.
- **Table style name**: Specifies the style to use with the table. To specify a style, perform these steps.

  1. In the Report Options dialog box, set **File format** to one of these values:

- `Word (from template)`
- `HTML (from template)`
- `PDF (from template)`

2. Set **Table style name** to `Specify`.
3. In the **Table style name** text box, type a style name.

   To take effect, the style you specify must be a table style in the template that you use to generate the report. For more information about template styles, see "Create Custom Microsoft Word Report Templates" and " Create Custom HTML Report Templates".

- **Table width options**: Determines the width of the table.
  - `Auto`: Automatically sets the table width based on the table contents.
  - `Specify`: Enter the table width as either a percentage of the page width (for example, 75%), or provide an absolute width for the table. You can specify a table width in inches (`in`), picas (`pi`), or points (`pt`).
- **Table spans page width**: Spreads the table across the width of the page. If you clear this property, the table uses the **Table width options** setting.
- **Border**: Specifies whether to draw border lines around the outside edges of the table. For example, to draw a border line only at the top of the table, select `Top`.
- **Between columns**: Draw a vertical line on the right side of each column (except for the last column) in the table.

  To override this setting for a specific column or table entry, use the **Column separator** property of the Table Column Specification or Table Entry components, respectively.
- **Between rows**: Draw a horizontal line at the bottom of each row (except for the last row) in the table.

  To override this setting for a specific table column, row, or entry, use the **Row separator** property of the appropriate component: Table Column Specification, Table Row, or Table Entry.
- **Horizontal entry alignment**: Aligns the position of Table Entry component content relative to the left and right sides of a table column.
  - `Left`: Aligns content with the left side of the column

  - `Center`: Aligns content in the middle of the column
  - `Right`: Aligns content with the right side of the column
  - `Double justified`: Justifies the left and right sides of the entry content, to avoid ragged left and right alignment

  To override this setting:

  - For a specific table column, use the Table Column Specification **Entry horizontal alignment** property.
  - For a specific table entry, use the Table Entry **Horizontal alignment** property.
- **Indent**: Specifies the amount by which to indent the table from the left edge of an HTML page or from the left margin of a Word page. The specified indent must be positive and may include an optional unit specifier. For example, you can specify `0.67in`. If you do not specify a unit, pixels is the assumed unit. Here are the unit abbreviations.

  - `in`
  - `cm`
  - `mm`
  - `pt`

  Note: To use this option, in the Report Options dialog box, set the **File format** field to `HTML (from template)`, `Word (from template)`, or `PDf(from template)`.
- **Rotate table 90 degrees**: For PDF and HTML output file formats, rotates the table 90 degrees counterclockwise to the direction of the text flow on the page.

Insert Anything into Report?

Yes. Table.

Class

`rptgen.cfr_ext_table`

See Also

Table Body, Table Column Specification, Table Entry, Table Footer, Table Header, Table Row, Array-Based Table, Chapter/Subsection, Empty Component, Image, Link, List, Paragraph, Text, Title Page

Table Body

Insert parent of table body

Description

This component is a parent of the rows that define the body of a table.

This component must be a child of a Table component. Add Table Row components as children to define the content of the table body.

Properties

- **Style Name**: Specifies the style to use with the table body. To specify a style, perform these steps.

  1. In the Report Options dialog box, set **File format** to one of these values:

     - `Word (from template)`
     - `HTML (from template)`
     - `PDF (from template)`

  2. Set **Style Name** to `Specify`.
  3. In the **Style Name** text box, type a style name.

     To take effect, the style you specify must be a table style defined in the template that you use to generate the report. For more information about template styles, see “Create Custom Microsoft Word Report Templates” and “ Create Custom HTML Report Templates”.

- **Entry vertical alignment**: Positions table entry content relative to the top and bottom of the row in which the table entry appears.

  To override this setting for a table header or footer, or for a table row within one of those table elements, use the **Entry vertical alignment** property for the Table Header, Table Footer, or Table Row component.

  To override this setting for a specific table entry, use the Table Entry **Vertical alignment** property.

Insert Anything into Report?

Yes. Table.

Class

`rptgen.cfr_ext_table_body`

See Also

`Table`, `Table Column Specification`, `Table Entry`, `Table Footer`, `Table Header`, `Table Row`, `Array-Based Table`, `Chapter/Subsection`, `Empty Component`, `Image`, `Link`, `List`, `Paragraph`, `Text`, `Title Page`

Table Column Specification

Specify table column properties

Description

Specifies the format of a table column. Add a Table Column Specification component for only those columns that you do not want the default settings for the table.

Properties

- **Column number**: Specifies a column number for the column to which this column specification applies. Enter a number or `%<expr>`. Avoid using the same column number for two column specifications in the same table.
- **Column name**: Specifies the name of this column. The name appears in the Outline pane of the Report Explorer. Enter text or a `%<expr>`.

  A Table Entry component can use this name to specify that it starts or ends on this column.
- **Column width**: Specifies the width of the column.

  To specify an absolute column width, specify a number or `%<expr>`. Use one of these units of measure: inches (`in`), picas (`pi`), or points (`pt`).

  You can use relative widths for columns. If you use relative widths for one column in a table, you must use relative widths for the other columns in the table. Specify `1*` for one column, as a baseline. For other columns, specify the width as a factor of the baseline column. The width of each column reflects its relative size. For example, suppose a two column table is 6 inches wide. The width of the first column is set to 1*, and the width of the second column is set to 2*. The width of the first column is 2 inches, and the width of the second column is 4 inches.
- **Entry horizontal alignment**: Justifies the position of table entries in the column, relative to the left and right sides of the column.

  Use the **Horizontal entry alignment** setting of the Table component, or explicitly set this property:

- `Left`: Aligns content with the left side of the column.
- `Center`: Aligns content in the middle of the column.
- `Right`: Aligns content with the right side of the column.
- `Double justified`: Justifies the left and right sides the entry content, to avoid ragged left and ragged right alignment.

To override this setting for a specific table entry, use the Table Entry **Horizontal alignment property** for that table entry.

- **Column separator**: Use the **Between columns** setting of the Table component, or explicitly set the **Column separator** property.
  - `True`: Draws a vertical line at the right edge of the column (except for the last column).
  - `False`: Draws no vertical line at the right edge of the column.
- **Row separator**: Use the **Between rows** setting of the Table component, or explicitly set the **Row separator** property.
  - `True`: Draws a horizontal line at the bottom of each row in the column (except for the bottom row).
  - `False`: Does not draw a horizontal line at the bottom of each row in the column.

Insert Anything into Report?

Yes. Table.

Class

`rptgen.cfr_ext_table_colspec`

See Also

`Table`, `Table Body`, `Table Entry`, `Table Footer`, `Table Header`, `Table Row`, `Array-Based Table`, `Chapter/Subsection`, `Empty Component`, `Image`, `Link`, `List`, `Paragraph`, `Text`, `Title Page`

Table Entry

Insert table entry

Description

Specifies the format of a table entry.

This component must be a child of a descendant of a Table Row component. Add Paragraph, Image, List, and other components to define the content of the table entry.

Note: Spanning columns and rows is not supported when the **File format** for generating the report is set to `Word Document(RTF)`

Properties

- **Horizontal alignment**: Use the **Entry horizontal alignment** setting of the Table Column Specification component for the column in which the table entry appears, or explicitly set the **Horizontal alignment** property.
  - `Left`: Aligns content with the left side of the column.
  - `Center`: Aligns content in the middle of the column.
  - `Right`: Aligns content with the right side of the column.
  - `Double justified`: Justifies the left and right sides the entry content, to avoid ragged left and right alignment.
- **Vertical alignment**: Positions the table entry content relative to the top and bottom of the row in which the table entry appears.

  Use this property to override the **Entry vertical alignment** setting of the Table Row component in which this table entry appears.
- **Column separator**: Use this property to override the **Column separator** setting of the Table Column Specification component for the column in which the table entry appears.
  - `True`: Draws a vertical line at the right edge of the column for this table entry.
  - `False`: Draws no vertical line at the right edge of the column for this table entry.

- **Row separator**: Use this property to override the **Row separator** setting of the Table Row component for the row in which the table entry appears.
  - `True`: Draws a horizontal line at the bottom of the row, below the table entry.
  - `False`: Does not draw a horizontal line at the bottom of the row, below the table entry.
- **Background color**: Specifies the background color of the table entry. You can:
  - Use `Auto` to apply the **Background Color** setting of the Table Row component in which the table entry appears.
  - Select a color from a list of colors.
  - Enter `%<expr>`.
  - Enter an RGB (truecolor) value as #RRGGBB. For example, `#0000ff` is a shade of blue.
- **Span start column name**: Specifies the name of the column (as defined by the Table Column Specification component) to use as the first (left side) of a set of spanned columns for displaying the table entry content.
- **Span end column name**: Specifies the name of the column (as defined by the Table Column Specification component) to use as the last (right side) of a set of spanned columns for displaying the table entry.
- **Rows spanned**: Specifies the number of rows to span for the table entry. The spanning starts with the table row in which you define the table entry and extends below that row for the number of rows that you specify.
- **Text orientation**: Rotates table entry text in 90 degree increments, relative to the page text flow.

  To use the text orientation of the table row in which this table entry appears, select `Auto`.

  To override the **Text orientation** setting for the Table Row component in which this table entry appears, select a rotation value.
- **Rotated text width**: Specifies the width of table entry text that you rotate (with the **Text orientation** property).

  Specify the text width in inches (`in`), picas (`pi`), or points (`pt`).

  To avoid truncating the rotated text, set the **Rotated text width** to a value that allows the display of the longest string in the table row.

Insert Anything into Report?

Yes. Table.

Class

`rptgen.cfr_ext_table_entry`

See Also

`Table`, `Table Body`, `Table Column Specification`, `Table Footer`, `Table Header`, `Table Row`, `Array-Based Table`, `Chapter/Subsection`, `Empty Component`, `Image`, `Link`, `List`, `Paragraph`, `Text`, `Title Page`

Table Footer

Insert parent of table footer

Description

This component is a parent of the Table Row components that define a table footer.

Properties

- **Style Name**: Specifies the style to use with the table footer. To specify a style, perform these steps.

  1. In the Report Options dialog box, set **File format** to one of these values:

     - `Word (from template)`
     - `HTML (from template)`
     - `PDF (from template)`

  2. Set **Style Name** to `Specify`.
  3. In the **Style Name** text box, type a style name.

     To take effect, the style you specify must be a table style defined in the template that you use to generate the report. For more information about template styles, see “Create Custom Microsoft Word Report Templates” and “ Create Custom HTML Report Templates”.

- **Entry vertical alignment**: Positions the table entry content relative to the top and bottom of the table footer rows in which the table entries appear.

  To override this setting for a specific row in the table footer, use the **Entry vertical alignment** property of the Table Row component for that row.

Insert Anything into Report?

Yes. Table.

Class

`rptgen.cfr_ext_table_foot`

See Also

`Table`, `Table Body`, `Table Column Specification`, `Table Entry`, `Table Header`, `Table Row`, `Array-Based Table`, `Chapter/Subsection`, `Empty Component`, `Image`, `Link`, `List`, `Paragraph`, `Text`, `Title Page`

Table Header

Insert parent of table header

Description

This component is a parent of the Table Row components that define a table header.

Properties

- **Style Name**: Specifies the style to use with the table header. To specify a style, perform these steps.

  1. In the Report Options dialog box, set **File format** to one of these values:

     - `Word (from template)`
     - `HTML (from template)`
     - `PDF (from template)`

  2. Set **Style Name** to `Specify`.
  3. In the **Style Name** text box, type a style name.

     To take effect, the style you specify must be a table style defined in the template that you use to generate the report. For more information about template styles, see “Create Custom Microsoft Word Report Templates” and “ Create Custom HTML Report Templates”.

- **Entry vertical alignment**: Positions the table entry content relative to the top and bottom of the table header rows in which the table entries appear.

  To override this setting for a specific row in the table header, use the **Entry vertical alignment** property of the Table Row component for that row.

Insert Anything into Report?

Yes. Table.

Class

`rptgen.cfr_ext_table_head`

See Also

`Table`, `Table Body`, `Table Column Specification`, `Table Entry`, `Table Footer`, `Table Row`, `Array-Based Table`, `Chapter/Subsection`, `Empty Component`, `Image`, `Link`, `List`, `Paragraph`, `Text`, `Title Page`

Table Row

Insert parent of table row entries

Description

This component is a parent of Table Entry components that define a table row.

Properties

- **Entry vertical alignment**: Positions the table entry content relative to the top and bottom of the table row in which the table entries appear.

  Use this property to override the **Entry vertical alignment** setting of the Table Header, Table Footer, or Table Body component in which the table row appears.
- **Row separator**: Use this property to override the **Row separator** setting of the Table component.
  - `True`: Draws a horizontal line at the bottom of the row (except for the last row).
  - `False`: Does not draw a horizontal line at the bottom of the row.
- **Background color**: Specifies the background color of the table row. You can:
  - Use `Auto` for the background color that the report stylesheet specifies, which for stylesheets provided with MATLAB Report Generator is white by default.
  - Select a color from a list of colors.
  - Enter `%<expr>`.
  - Enter an RGB (truecolor) value as #RRGGBB. For example, `#0000ff` is a shade of blue.
- **Row height**: Specifies the height of the table row.

  To let the table contents automatically set the row height, use `Auto`.

  To specify an absolute height for this table row, select `Specify` and enter the height in inches (`in`), picas (`pi`), or points (`pt`).
- **Text orientation**: Rotates text in the table entries in this table row, relative to the page text flow.

To override the text rotation for a specific table entry, use the Table Entry **Text orientation** property for that table entry.

- **Rotated text width**: Specifies the width of table entry text that you rotate with the **Text orientation** property.

  Specify the text width in inches (`in`), picas (`pi`), or points (`pt`).

  To avoid truncating the rotated text, set the **Rotated text width** to a value that allows the display of the longest string in the table row.

  To override the rotated text width for a specific table entry in the table row, use the Table Entry **Rotated text width** property.

Insert Anything into Report?

Yes. Table.

Class

`rptgen.cfr_ext_table_row`

See Also

`Table`, `Table Body`, `Table Column Specification`, `Table Entry`, `Table Footer`, `Table Header`, `Array-Based Table`, `Chapter/Subsection`, `Empty Component`, `Image`, `Link`, `List`, `Paragraph`, `Text`, `Title Page`

Text

Format and insert text into report

Description

This component formats and inserts text into the report. It must have the `Paragraph` component as its parent.

Properties

- **Text to include in report**: Specifies text to include in the report.
- **Style Name**: Specifies the style to use with the text. To specify a style, perform these steps.

  1. In the Report Options dialog box, set **File format** to one of these values:
     - `Word (from template)`
     - `HTML (from template)`
     - `PDF (from template)`
  2. Set **Style Name** to `Specify`.
  3. In the **Style Name** text box, type a style name.

     To take effect, the style you specify must be a paragraph (or a linked paragraph/character style for Word reports) defined in the template that you use to generate the report. For more information about template styles, see "Create Custom Microsoft Word Report Templates" and " Create Custom HTML Report Templates".

%<VariableName> Notation

You can enter `%<VariableName>` in this field (and in any field where the text appears blue) to include the value of a variable from the base MATLAB workspace. You cannot enter more than one variable in `%<>`. If you enter an invalid variable name, the report includes the text `%<VariableName>` instead of the value of the variable.

Example

1. Enter the following text:

```
I have a %<ObjName> and it has %<NumLeaves> leaves.
The word '%<ObjName>' has %<size(ObjName)> letters.
```

2. Set `ObjName` = `"plant"` and `NumLeaves` = 3.
3. Generate the report. It looks as follows:

```
I have a plant and it has 3 leaves.
The word 'plant' has 5 letters.
```

Style

Note: If you use the **Style Name** field to specify a style for this text component, the style formats below override the corresponding formats specified in the style. For example, selecting **Bold** makes the text bold, even if the specified style specifies regular weight text.

- **Bold**: Makes the text bold.
- **Italic**: Makes the text italic.
- **Underline**: Underlines the text.
- **Strikethrough**: Strikes through the text.
- **Subscript**: Formats text as a subscript, in a smaller font than the other text, set slightly below the other text.
- **Superscript**: Formats text as a superscript, in a smaller font than the other text, set slightly above the other text.
- **Retain spaces and carriage returns**: Formats the text in the report as you entered it.
- **Show text as syntax-highlighted MATLAB code**: Shows the text as syntax-highlighted MATLAB code.
- **Color**: Specifies the color of the text.
  - Select a color from a list of colors.
  - Enter `%<expr>`.

- Enter an RGB (truecolor) value as #RRGGBB. For example, `#0000ff` is a shade of blue.

Insert Anything into Report?

Yes. Text.

Class

`rptgen.cfr_text`

See Also

`Chapter/Subsection`, `Empty Component`, `Image`, `Link`, `List`, `Paragraph`, `Table`, `Title Page`

Time/Date Stamp

Insert time and date of report generation into report

Description

This component inserts the time and date of the report generation into your report as text. It must have the `Paragraph` or `Chapter/Subsection` component as its parent.

Prefix

Include text before stamp : Includes text before the time/date stamp. Specify the text in the corresponding field.

Time Stamp Properties

- **Include current time in stamp**: Inserts the current time into the time/date stamp.
- **Time display**: Specifies the appearance of the time display. Options include:
  - `12-hour`
  - `24-hour`
- **Time Separator**: Specifies a separation marker between hours, minutes, and seconds. Options include:
  - `Blank space ( )`: Formats time as `Hour Minute Second`
  - `Colon (:)`: Formats time as `Hour:Minute:Second`
  - `Period (.)`: Formats time as `Hour.Minute.Second`
  - `None ()` : Formats time as `HourMinuteSecond`
- **Include seconds in time stamp**: Displays seconds in the time/date stamp.

Date Stamp Properties

- **Include current date in stamp**: Inserts the current date in the time/date stamp.

- **Date order**: Specifies the order in which the day, month, and year appear. Options include:
  - `Day Month Year`
  - `Month Day Year`
  - `Year Month Day`
- **Date separator**: Specifies a separation marker between day, month, and year. Options include:
  - `Blank space ( )`: Displays date as `Day Month Year`
  - `Colon (:)`: Displays date as `Day:Month:Year`
  - `Slash (/)`: Displays date as `Day/Month/Year`
  - `Period (.)`: Displays date as `Day.Month.Year`
  - `None ()`: Displays date as `DayMonthYear`
- **Month display**: Specifies how the month displays. Options include:
  - `Long (December)`
  - `Short (Dec)`
  - `Numeric (12)`
- **Year display**: Specifies how the month displays. Options include:
  - `Long (2007)`
  - `Short (07)`

Preview

This pane displays the time/date stamp to appear in the report.

Insert Anything into Report?

Yes. Text.

Class

`rptgen.crg_tds`

See Also

`Comment`, `Import File`, `Nest Setup File`, `Stop Report Generation`

Title Page

Insert title page at beginning of report

Description

This component inserts a title page at the beginning of the report. You can use it in a report setup file as a child of a `Chapter/Subsection` component or by itself.

To use the Title Page component, you need to have a Chapter component in your report.

For PDF and HTML reports, you can use the Stylesheet Editor to position title page elements (for example, title, copyright, and images) anywhere on the front or reverse side of the title page in any order. You can specify the size, color, weight, and slant of text elements. For details, see “Modify Title Page Properties”.

Properties

The text fields on this property pane support the `%<VariableName>` notation. For more details, see “%<VariableName> Notation” on page 10-99 on the `Text` component reference page.

Main Tab

Title

- **Title**: Specifies the title of the report. The title is in a large font.
- **Subtitle**: Specifies the subtitle of the report. The subtitle is in a smaller font under the title.

Options

- **Author**:
  - `Custom`(default): Specifies the author of the report.

  - `No author`: Does not specify an author name.
  - `Automatic author`: Automatically includes your user name as the author name.

  The author name appears under the subtitle, in a smaller font than the subtitle.
- **Include report creation date**: Includes the date that the report is created. Choose the date format in the corresponding list.
- **Include copyright holder and year**: Includes copyright holder and year information.
- **Display legal notice on title page**: Includes the legal notice, report creation date, and copyright information on the title page of PDF and Microsoft Word reports.

Image Tab

File

- **File name**: Specifies the file name of an image to appear under the subtitle, on the title page.
- **Copy to local report files directory**: Copies the image file into the folder in which the report file is located.

Display Options

- **Scaling**: Controls size of the image, as displayed in a browser. Making an image larger using this option does not affect the storage size of the image, but the quality of the displayed image may decrease as you increase or decrease the size of the displayed image.

  Generally, to achieve the best and most predictable display results, use the default setting of `Use image size`.

  - `Use image size`: Causes the image to appear the same size in the report as on screen (default).
  - `Fixed size`: Specifies the number and type of units.
  - `Zoom`: Specifies the percentage, maximum size, and units of measure.
- **Size**: Specifies the size of the snapshot in the form `w h` (width, height). This field is active only if you choose `Fixed size` in the **Scaling** list

- **Alignment**: Only reports in `PDF` or `RTF` format support this property. Options include:
  - `Auto`
  - `Right`
  - `Left`
  - `Center`

Abstract Tab

- **Abstract Text**: Specifies an optional abstract for the report.
- **Style Name**: Specifies the style to use with the abstract text. To specify a style, perform these steps.

  1. In the Report Options dialog box, set **File format** to one of these values:
     - `Word (from template)`
     - `HTML (from template)`
     - `PDF (from template)`
  2. Set **Style Name** to `Specify`.
  3. In the **Style Name** text box, type a style name.

     To take effect, the style you specify must be a paragraph (or a linked paragraph/character style for Word reports) defined in the template that you use to generate the report. For example, if you use a Word template that defines a `Normal` style, you can enter `Normal` as the style name. For more information about template styles, see "Create Custom Microsoft Word Report Templates" and " Create Custom HTML Report Templates".

Style

Note: If you use the **Style Name** field to specify a style for this text, the style formats below override the corresponding formats specified in the style. For example, selecting **Bold** makes the text bold, even if the specified style specifies regular weight text.

- **Bold**: Makes the text bold.
- **Italic**: Makes the text italic.
- **Underline**: Underlines the text.
- **Strikethrough**: Strikes through the text.
- **Retain spaces and carriage returns**: Formats the text in the generated report as you entered it.
- **Show text as syntax-highlighted MATLAB code**: Shows the text as syntax-highlighted MATLAB code.
- **Color**: Specifies the color of the text.

Legal Notice Tab

- **Legal Notice Text**: Specifies an optional legal notice for the report.
- **Style Name**: Specifies the style to use with the legal notice text. To specify a style, perform these steps.

  1. In the Report Options dialog box, set **File format** to one of these values:
     - `Word (from template)`
     - `HTML (from template)`
     - `PDF (from template)`
  2. Set **Style Name** to `Specify`.
  3. In the **Style Name** text box, type a style name.

     To take effect, the style you specify must be a paragraph (or a linked paragraph/character style for Word reports) defined in the template that you use to generate the report. For example, if you use a Word template that defines a `Normal` style, you can enter `Normal` as the style name. For more information about template styles, see “Create Custom Microsoft Word Report Templates” and “ Create Custom HTML Report Templates”.

Style

Note: If you use the **Style Name** field to specify a style for this text, the style formats below override the corresponding formats specified in the style. For example, selecting **Bold** makes the text bold, even if the specified style specifies regular weight text.

- **Bold**: Makes the text bold.
- **Italic**: Makes the text italic.
- **Underline**: Underlines the text.
- **Strikethrough**: Strikes through the text.
- **Retain spaces and carriage returns**: Formats the text in the generated report as you entered it.
- **Show text as syntax-highlighted MATLAB code**: Shows the text as syntax-highlighted MATLAB code.
- **Color**: Specifies the color of the text.

Insert Anything into Report?

Yes. Title page.

Class

`rptgen.cfr_titlepage`

See Also

`Chapter/Subsection`, `Empty Component`, `Image`, `Link`, `List`, `Paragraph`, `Table`, `Text`

Variable Table

Insert table that displays all the variables in the MATLAB workspace

Description

This component inserts a table that displays all the variables in the MATLAB workspace.

Tip Find all the variables in the MATLAB workspace by typing `whos` at the command line.

Source Workspace

Read variables from:

- `Base workspace`: Reads variables from the MATLAB workspace.
- `MAT-file`: Reads variables from a binary file with a `.mat` extension. Use the `%<VariableName>` notation. For more details about this notation, see "%<VariableName> Notation" on page 10-99 on the `Text` component reference page.

Table Title

- **Table title**:
  - `Automatic (Variables from MATLAB workspace)`: Sets the table title to the name of a MATLAB variable.
  - `Custom`: Specifies a custom title.
- **Table Columns**:
  - `Variable dimensions (MxN)`: Includes the size of the variable.
  - `Variable memory bytes`: Includes the number of bytes of memory consumed by the variable.
  - `Variable class`: Includes the variable class.
  - `Variable value`: Includes the value of the variable.

Note: Large variable arrays collapse to `[MxN CLASS]`. For example, if you have a 300-by-200 double array, it appears in the report as `[300x200 DOUBLE]`.

Example

The following is an example of a variable table that includes size, memory bytes, and value information in the table columns.

Name	Size	Bytes	Value
`aCell`	1x2	238	{ [1 2 3 4] Speed (kph) }
`aNumber`	1x1	8	1
`aString`	1x11	22	Speed (kph)
`aStructure`	1x1	302	[struct w/ fields. Inputs, Outputs]
`aVector`	1x4	32	[1 2 3 4]

Insert Anything into Report?

Yes. Table.

Class

`rptgen.cml_whos`

See Also

`Evaluate MATLAB Expression`, `Insert Variable`, `MATLAB Property Table`, `MATLAB/Toolbox Version Number`

While Loop

Iteratively execute child components while a specified condition is true

Description

This component iteratively executes its child components while a specified condition is true. The `While Loop` component must have at least one child component; the purpose of this component is to run its children several times. If it does not have any children, this component does not add anything to the report.

Tip Limit the number of repetitions to prevent infinite loops.

Logic Properties

- **Continue looping if this expression is true**: Specifies a string to evaluate. This string must be a valid MATLAB expression that evaluates to `1` or `0` (`true` or `false`).

  For example, if `a = 1`, `b = 2`, and `c = 3`, the following command:

  ```
  d=(a>b/c)
  ```

  returns:

  ```
  d = 1
  ```

  Because `1` is greater than `b/c` (`2/3`), this expression is `true` and evaluates to `1`.
- **Limit number of loops to**: Allows you to prevent infinite loops. Use the left and right arrows to increase or decrease the number of loops.
- **Initialize with this expression**: Initializes the loop with a valid MATLAB expression.

Insert Anything into Report?

Yes, if it has a child component.

Class

`rptgen_lo.clo_while`

See Also

`For Loop`, `Logical Else`, `Logical Elseif`, `Logical If`, `Logical Then`

Functions – Alphabetical List

compwiz

Create custom MATLAB Report Generator components

Syntax

```
compwiz
compwiz ('–browse')
compwiz ('–v1browse')
compwiz (rptgen.cfr_list)
```

Description

The Create Component dialog box creates a framework for custom report components. For more information, see “Create Custom Components”.

- `compwiz` with no arguments displays the Component Editor in the Report Explorer.
- `compwiz ('–browse')` displays a list of components from which to derive a new component.
- `compwiz ('–v1browse')` displays a list of legacy (`v1.x`) components from which to derive a new component.
- `compwiz (rptgen.cfr_list)` initializes the Component Editor with the settings of the referenced components.

More About

- “Create Custom Components”

See Also

`setedit` | `report` | `rptconvert` | `rptlist`

mlreportgen.dom.CustomElement.append

Package: mlreportgen.dom

Append HTML content to custom element

Syntax

```
customElementOut = append(customElementObj,domObj)
```

Description

`customElementOut = append(customElementObj,domObj)` appends an element to a custom element.

Examples

Append Text to a Custom Element

This example shows how to add a custom element that provides a check box in an HTML report.

Create and a custom element and append text to it.

```
import mlreportgen.dom.*;
d = Document('test');

input1 = CustomElement('input');
input1.CustomAttributes = {
         CustomAttribute('type', 'checkbox'), ...
         CustomAttribute('name', 'vehicle'), ...
         CustomAttribute('value', 'Bike'), ...
         };
append(input1, Text('I have a bike'));
```

Append the custom element to an ordered list and display the report.

```
ol = OrderedList({input1});
```

```
append(d,ol);

close(d);
rptview('test','html');
```

- “Add Content to a Report”

Input Arguments

`customElementObj` — Custom element to append content to

`mlreportgen.dom.CustomElement` object

Custom element to append content to, specified as an `mlreportgen.dom.CustomElement` object.

`domObj` — DOM object to append to custom element

DOM object

DOM object to append to the custom element.

Output Arguments

`customElementOut` — Appended custom element

`mlreportgen.dom.CustomElement` object

Appended custom element, represented by an `mlreportgen.dom.CustomElement` object.

See Also

`mlreportgen.dom.CustomAttribute` | `mlreportgen.dom.CustomElement`

mlreportgen.dom.Document.append

Package: mlreportgen.dom

Append DOM or MATLAB object to document

Syntax

```
domObjOut = append(docObj,textContent)
domObjOut = append(docObj,listContent)
domObjOut = append(docObj,tableContent)
domObjOut = append( ___ ,styleName)

domObjOut = append(docObj,domObj)
```

Description

`domObjOut = append(docObj,textContent)` appends text or numbers to a document and returns a text element object.

`domObjOut = append(docObj,listContent)` appends a one-dimensional cell array as an unordered list and returns an unordered list object.

`domObjOut = append(docObj,tableContent)` appends a two-dimensional cell array as a table and returns a table object.

`domObjOut = append( ___ ,styleName)` appends the specified content, using the specified style.

`domObjOut = append(docObj,domObj)` appends a DOM object to the document and returns a document element object.

Examples

Append an Ordered List Object

Create an `OrderedList` object and append it to a report.

```
import mlreportgen.dom.*;
d = Document('mydoc','html');

ol = OrderedList({'first step' 'second step' 'last step'});
append(d,ol);

close(d);
rptview('mydoc','html');
```

Specify a Style for Appended Text

Use the Word `Title` style for the text.

```
import mlreportgen.dom.*;
d = Document('mydoc','docx');
append(d,'This Is a Title','Title');
close(d);
rptview('mydoc','docx');
```

Append a Cell Array as a Table

```
import mlreportgen.dom.*;
d = Document('mydoc');
table = append(d,{'row 1 - col 1' 'row 1 - col 2';...
    'row 2 - col 1' 'row 2 - col 2'});
table.Style = {Border('double'),ColSep('solid'),RowSep('solid')};
close(d);
rptview('mydoc','html');
```

- “Add Content to a Report”

Input Arguments

`docObj` — Document to append content to

`mlreportgen.dom.Document` object

Document to append content to, specified as an `mlreportgen.dom.Document` object.

`textContent` — Text to append to document

string

Text to append to document.

Example: `myTextObj = append(myDocument,'This is an introduction')`

`listContent` — Items to append to the document as unordered list

horizontal one-dimensional matrix | cell array

Specify items to be displayed in an unordered list. Each matrix or cell-array element becomes a list item.

For a matrix, use each element can be a numeric or Boolean value.

For a cell array, each element can be:

- A string
- A number
- A Boolean value
- One of these DOM objects:
  - `mlreportgen.dom.Text`
  - `mlreportgen.dom.Paragraph`
  - `mlreportgen.dom.ExternalLink`
  - `mlreportgen.dom.InternalLink`
  - `mlreportgen.dom.Table`
  - `mlreportgen.dom.Image`
  - `mlreportgen.dom.CustomElement`
- A horizontal one-dimensional array (for a sublist)

`tableContent` — Items to append to document as table

matrix | cell array

Specify content for a table using either:

- A vertical one-dimensional matrix or cell array
- A two-dimensional matrix or cell array

For a matrix, each element can be a numeric or Boolean value.

For a cell array, each element can be:

- A string

- A number
- A Boolean value
- One of the following DOM objects:
  - `mlreportgen.dom.Text`
  - `mlreportgen.dom.Paragraph`
  - `mlreportgen.dom.OrderedList`
  - `mlreportgen.dom.UnorderedList`
  - `mlreportgen.dom.Table`
  - `mlreportgen.dom.Image`
  - `mlreportgen.dom.CustomElement`
- A horizontal one-dimensional array (for a sublist)

Example: `{'row 1 - col 1' 'row 1 - col 2';'row 2 - col 1' 'row 2 - col 2'}`

`styleName` — Name of style to apply to appended content

string

The style to use with the appended content. The style defines the appearance of the document element in the output document.

Use a style that is defined in the stylesheet of the template of the document you append content to.

`domObj` — DOM document element object to append

DOM object

You can append the following DOM objects:

- `mlreportgen.dom.CustomElement`
- `mlreportgen.dom.DocumentPart`
- `mlreportgen.dom.DOCXSection`
- `mlreportgen.dom.FormalTable`
- `mlreportgen.dom.Group`
- `mlreportgen.dom.ExternalLink`
- `mlreportgen.dom.Image`

- `mlreportgen.dom.InternalLink`
- `mlreportgen.dom.LinkTarget`
- `mlreportgen.dom.OrderedList`
- `mlreportgen.dom.Paragraph`
- `mlreportgen.dom.RawText`
- `mlreportgen.dom.Table`
- `mlreportgen.dom.Text`
- `mlreportgen.dom.UnorderedList`

Output Arguments

`domObjOut` — Appended document element

document element object

Document element created and appended. One of the following DOM objects:

- `mlreportgen.dom.CustomElement`
- `mlreportgen.dom.DocPart`
- `mlreportgen.dom.DOCXSection`
- `mlreportgen.dom.FormalTable`
- `mlreportgen.dom.Group`
- `mlreportgen.dom.ExternalLink`
- `mlreportgen.dom.Image`
- `mlreportgen.dom.InternalLink`
- `mlreportgen.dom.LinkTarget`
- `mlreportgen.dom.OrderedList`
- `mlreportgen.dom.Paragraph`
- `mlreportgen.dom.RawText`
- `mlreportgen.dom.Table`
- `mlreportgen.dom.Text`
- `mlreportgen.dom.UnorderedList`

See Also

`mlreportgen.dom.Document`

mlreportgen.dom.Document.close

Package: mlreportgen.dom

Close document

Syntax

```
close(docObj)
```

Description

`close(docObj)` closes a document. Once a document is closed, you can no longer append content to it. Closing the document outputs any remaining content, such as remaining template text.

Examples

Close a Document

Close the `myReport` document.

```
import mlreportgen.dom.*;
myReport = Document('mydoc','html');

append(myReport,Paragraph('This is an introduction'));

close(myReport);
rptview('mydoc','html');
```

- "Add Content to a Report"

Input Arguments

`docObj` — Document to close

`mlreportgen.dom.Document` object

Document to close, specified as an `mlreportgen.dom.Document` object.

See Also

`mlreportgen.dom.Document` | `mlreportgen.dom.Document.open`

mlreportgen.dom.Document.createAutoNumberStream

Package: mlreportgen.dom

Create numbering stream

Syntax

```
streamOut = createAutoNumberStream(docObj,streamName)
streamOut = createAutoNumberStream(docObj,streamName,streamType)
streamOut = createAutoNumberStream(docObj,streamName,streamType,
initialValue)
```

Description

`streamOut = createAutoNumberStream(docObj,streamName)` creates a numbering stream using Arabic numbers and an initial value of `0`.

`streamOut = createAutoNumberStream(docObj,streamName,streamType)` creates a numbering stream using the specified type of characters (Arabic numbers, alphabetic, or Roman numerals) and an initial value corresponding to 0 (for example, `a` or `i`).

`streamOut = createAutoNumberStream(docObj,streamName,streamType, initialValue)` creates a numbering stream using the specified type of characters (Arabic numbers, alphabetic, or Roman numerals) and specified initial value.

Examples

Create a Numbering Stream for Chapter Heading

```
import mlreportgen.dom.*;
myReport = Document('mydoc','html');

chapStream = createAutoNumberStream(myReport,'chapter','I');
for i=1:5
```

```
    p = Paragraph('Chapter ');
    p.Style = {CounterInc('chapter')};
    p.WhiteSpace = 'pre';
    append(p,AutoNumber('chapter'));
    append(myReport, p);
end

close(myReport);
rptview(myReport.OutputPath,myReport.Type);
```

- "Automatically Number Document Content"

Input Arguments

`docObj` — Document to apply numbering stream to

`mlreportgen.dom.Document` object

Document to apply numbering stream to, specified as an `mlreportgen.dom.Document` object.

`streamName` — Name of numbering stream

string

Consider using a name that indicates the kinds of document element (for example, a chapter heading) that you expect to apply the stream to.

`streamType` — Type of numbering stream characters

string

Use one of these letters to specify the type of characters to use for the numbering values.

- `'n'` — Arabic numerals (you can also use `'N'`).
- `'a'`— Lowercase alphabetic letters (a,b,c,...)
- `'A'` — Uppercase alphabetic letters (A,B,C,...)
- `'i'` — Lowercase Roman numerals (i,ii,iii,...)
- `'I'` — Uppercase Roman numerals (I,II,III,...)

`initialValue` — Starting value for a numbering stream

number

Use a number, regardless of the type of stream. The initial value used by the stream depends on the type of stream. For example, if you set `initialValue` to `0`:

- Arabic numeral stream — `0`
- Alphabetic stream — `a` or `A`
- Roman numerals stream — `i` or `I`

Data Types: `double`

Output Arguments

`streamOut` — Numbering stream

`mlreportgen.dom.AutoNumberStream` object

A numbering stream, represented by an `mlreportgen.dom.AutoNumberStream` object.

More About

Tips

When you append an `mlreportgen.dom.AutoNumber` object, specify a numbering stream.

See Also

`mlreportgen.dom.Document` |
`mlreportgen.dom.Document.createAutoNumberStream` |
`mlreportgen.dom.Document.getAutoNumberStream`

mlreportgen.dom.Document.createTemplate

Package: mlreportgen.dom

Create DOM template

Syntax

```
createTemplate(path)
createTemplate(path,templateType)
```

Description

`createTemplate(path)` creates a DOM template in the specified location. The file extension indicates whether to create a Microsoft Word template (`.dotx`) or an HTML template (`.htmx`).

`createTemplate(path,templateType)` creates a template of the specified type at the specified path.

Examples

Create a Word Template

Create a Microsoft Word template in the current folder.

```
import mlreportgen.dom.*
Document.createTemplate('MyWordTemplate.dotx','docx');
```

- "Create a Microsoft Word Template"
- "Create an HTML Template"

Input Arguments

`path` — Path for new template

string

If you use the path argument without the templateType argument, for a Word template, include the `.dotx` extension and for an HTML template, include the `.htmx` extension.

If you use both the path and templateType arguments, and path does not have an extension, the `createTemplate` method appends the appropriate extension (`.dotx` or `.htmx`).

`templateType` — Type of template to create

string

Use one of these values:

- `docx` — Word template
- `html` — HTML template

If you include an extension in the value for `path`, set `templateType` to be consistent with that extension.

More About

Tips

Invoke `createTemplate` on the `mlreportgne.dom.Document` class itself, but not on an instance of that class. In other words, use `Document.createTemplate`, not `myDocument.createTemplate` (where `myDocument` is a derived class of `Document`).

See Also

`mlreportgen.dom.Document` | `mlreportgen.dom.Template` | `unzipTemplate` | `zipTemplate`

mlreportgen.dom.Document.fill

Package: mlreportgen.dom

Fill document holes with generated content

Syntax

```
fill()
```

Description

`fill()` fills the holes in a document with generated content. Use this method with a class derived from the `mlreportgen.dom.Document` class.

Examples

Add a fill Method to Invoke Hole-Specific fill Methods

This example shows how to define a report that fills a `CustomerName` hole in a Word template.

Create a Word or HTML template that has a `CustomerName` hole. This example assumes that there is a Word template called `CustomerLetter.dotx`.

In a file, create a report class derived from `mlreportgen.dom.Document`. From the MATLAB toolstrip, select **New** > **Class** and define the class. For example:

```
classdef MyReport < mlreportgen.dom.Document
    %MYREPORT defines a customize letter to customers
    %
    % rpt = MyReport('mydoc','docx','CustomerLetter');
    % rpt.CustomerName = 'Smith';
    % fill(rpt);

    properties
        CustomerName;
```

```
    end

    methods
        function rpt = MyReport(filename,type,template)
          rpt = rpt@mlreportgen.dom.Document(filename,type,template);
        end

        function fillCustomerName(rpt)
          append(rpt,rpt.CustomerName);
        end
    end

end
```

Use the report.

```
rpt = MyReport('mydoc','docx','CustomerLetter');
rpt.CustomerName = 'Mr. Smith';
fill(rpt);
```

- “Add Content to a Report”

More About

Tips

In the derived class, define `fill` methods to insert content for each hole in the template. Use this signature:

```
fillHOLE_ID(docObj);
```

`HOLE_ID` is the ID of a hole defined by the template that the document uses, and `docObj` is an instance of the derived class. When invoked on a derived `Document` object, the `fill` method moves from the first hole in the document to the last, invoking the corresponding `fillHOLE_ID` method at each hole. This approach eliminates the need for additional code to loop through the holes in a template.

See Also

`mlreportgen.dom.Document` | `mlreportgen.dom.Document.moveToNextHole`

mlreportgen.dom.Document.getAutoNumberStream

Package: mlreportgen.dom

Return numbering stream

Syntax

```
autoNumStreamOut = getAutoNumberStream(docObj,streamName)
```

Description

`autoNumStreamOut = getAutoNumberStream(docObj,streamName)` returns the specified numbering stream used by the document.

Examples

Return a Numbering Stream

```
import mlreportgen.dom.*;
myReport = Document('mydoc','html');

createAutoNumberStream(myReport,'chapterNum','I',1);
streamOut = getAutoNumberStream(myReport,'chapterNum')
```

```
streamOut =

  AutoNumberStream with properties:

       StreamName: 'chapterNum'
    CharacterType: 'roman'
    CharacterCase: 'upper'
     InitialValue: 1
              Tag: 'dom.AutoNumberStream:500'
               Id: '500'
```

- “Automatically Number Document Content”

Input Arguments

`docObj` — Document that uses numbering stream

`mlreportgen.dom.Document` object

Document that uses the numbering stream, specified as an `mlreportgen.dom.Document` object.

`streamName` — Name of numbering stream to return

string

Name of the numbering stream to return, specified as a string.

Output Arguments

`autoNumStreamOut` — Numbering stream used by document

`mlreportgen.dom.AutoNumberStream` object

Numbering stream used by the document, represented by an `mlreportgen.dom.AutoNumberStream` object.

See Also

`mlreportgen.dom.AutoNumber` | `mlreportgen.dom.AutoNumberStream` | `mlreportgen.dom.Document.createAutoNumberStream`

mlreportgen.dom.Document.getCoreProperties

Package: mlreportgen.dom

Get document or template core properties

Syntax

```
corePropertiesOut = getCoreProperties(path)
```

Description

`corePropertiesOut = getCoreProperties(path)` specifies the core OPC properties for the document or template having the specified path.

Examples

Return Core Properties of a Document

```
import mlreportgen.dom.*;
myReport = Document('mydoc','docx');

append(myReport,'Hello world');

close(myReport);
coreProps = Document.getCoreProperties('mydoc.docx')
```

```
coreProps =

  CoreProperties with properties:

          Category: []
     ContentStatus: []
           Creator: 'MathWorks'
       Description: []
        Identifier: []
          Keywords: []
          Language: []
```

```
    LastModifiedBy: ''
          Revision: '2'
           Subject: []
             Title: ''
           Version: []
               Tag: 'dom.CoreProperties:203'
                Id: '203'
```

Input Arguments

`path` — Path to document or template

string

Path to the document or template, specified as a string.

Output Arguments

`corePropertiesOut` — Core properties of document or template

`mlreportgen.dom.CoreProperties` object

Core properties of the document or template, represented by an `mlreportgen.dom.CoreProperties` object.

More About

- "Report Packages"

See Also

`mlreportgen.dom.Document.getOPCMainPart` | `mlreportgen.dom.Document.setCoreProperties` | `mlreportgen.dom.OPCPart`

mlreportgen.dom.Document.getImageDirectory

Package: mlreportgen.dom

Get image folder of document

Syntax

```
imageDirectory = getImageDirectory(path,type)
```

Description

`imageDirectory = getImageDirectory(path,type)` gets the image folder of a document or template package located at the specified path and of the specified type (Microsoft Word or HTML). This is a static method. Invoke it on the `Document` class.

Examples

Get the Image Folder

Suppose that the main image folder of an HTML document named `MyDoc.htmx` resides in `images` under the `root` of the package. To get the path, enter:

```
mlreportgen.dom.Document.getImageDirectory('MyDoc','html');
```

```
ans =

/images
```

Input Arguments

`path` — Path of document or template package

string

Path of the document or template package

`type` — Type of document or package

`'docx' | 'html'`

Type document or template. For a Word document or template, specify `'docx'`. For an HTML document or template, specify `'html'`.

Output Arguments

`imageDirectory` — Image folder of document

string

The path of the image folder for the package.

More About

- "Report Packages"

See Also

`mlreportgen.dom.Document.getImagePrefix` | `mlreportgen.dom.Document.getOPCMainPart` | `mlreportgen.dom.Document.setCoreProperties` | `mlreportgen.dom.OPCPart`

mlreportgen.dom.Document.getImagePrefix

Package: mlreportgen.dom

Get generated image name prefix

Syntax

```
imagePrefix = getImagePrefix(path,type)
```

Description

`imagePrefix = getImagePrefix(path,type)` gets the image name prefix of a document or template package located at the specified path and of the specified type (Microsoft Word or HTML). The DOM interface uses the prefix when generating internal names of images appended to the document. This is a static method. Invoke it on the `Document` class.

Examples

Get the Image Name Prefix

Suppose that the image name prefix of an HTML document named `MyDoc.htmx` is `image`. To get the image name prefix, enter:

```
mlreportgen.dom.Document.getImagePrefix('MyDoc','html');
```

```
ans =

image
```

Input Arguments

`path` — Path of document or template package

string

Path of the document or template package

`type` — Type of document or package

`'docx' | 'html'`

Type document or template. For a Word document or template, specify `'docx'`. For an HTML document or template, specify `'html'`.

Output Arguments

`imagePrefix` — Image name prefix

string

The generated image name prefix.

More About

- "Report Packages"

See Also

`mlreportgen.dom.Document.getImageDirectory | mlreportgen.dom.Document.getOPCMainPart | mlreportgen.dom.Document.setCoreProperties | mlreportgen.dom.OPCPart`

mlreportgen.dom.Document.getMainPartPath

Package: mlreportgen.dom

Return path of main part of document output package

Syntax

```
pathOut = getMainPartPath(docObj)
```

Description

`pathOut = getMainPartPath(docObj)` returns the full path of the main part of the output package of the specified document. The main part is the file that contains the XML or HTML markup for a document.

Examples

Get Path to Main Part of Output Package

This code returns the path to the main part of an HTML document named `MyReport`. The main part is named `index.html` and it is in the root of the `MyReport` package. This example assumes that there is a `reports` folder on the `S:` drive.

```
d = mlreportgen.dom.Document('S:\reports\MyReport','html');
d.PackageType='unzipped';
getMainPartPath(d)
```

```
's:\reports\MyReport\index.hml'
```

Input Arguments

`docObj` — Document that contains main part

`mlreportgen.dom.Document` object

Document that contains the main part, specified as an `mlreportgen.dom.Document` object.

Output Arguments

`pathOut` — Path of main part of document output package
string

Path of the main part of document output package.

More About

- "Report Packages"

See Also

`mlreportgen.dom.Document.getOPCMainPart` | `mlreportgen.dom.Document.setCoreProperties` | `mlreportgen.dom.OPCPart`

mlreportgen.dom.Document.getOPCMainPart

Package: mlreportgen.dom

Return main part of document, document part, or template

Syntax

```
partOut = getOPCMainPart(path)
partOut = getOPCMainPart(path,docType)
```

Description

`partOut = getOPCMainPart(path)` returns the path of the main part (file) of a package for a document, document part, or template, based on the specified path. The returned path is relative to the root directory of the package, which is symbolized by a forward slash (/). The main part is the file that contains the document or template XML or HTML markup.

`partOut = getOPCMainPart(path,docType)` returns the relative path of the main part of the output package of the specified type (Microsoft Word or HTML) of document, document part, or template.

Examples

Get Path to Main Part of a Document Package

The example returns the path to the main part of an HTML document named `myDoc.htmx`. The main part is named `root.html`, which is in the top-level folder of the package.

```
import mlreportgen.dom.*;
myDocument = Document('myDoc','html');

append(myDocument,'Hello world');

close(myDocument);
```

```
mlreportgen.dom.Document.getOPCMainPart('MyDoc.htmx','html')

ans =

/root.html
```

Input Arguments

`path` — Path of document

string

If you use the path argument without the docType argument, include the `.docx` or `.htmx` extension.

If you use both the path and docType arguments, `getOPCMainPart` appends an extension of the appropriate type (`.docx` or `.htmx`).

`docType` — Type of document, document part, or template

`'docx' | 'html'`

Type of document, document part, or template, specified as a string.

Output Arguments

`partOut` — Path of main part of a package

string

The path to the main part of the document, document part, or template. The returned path is relative to the root directory of the package, which is symbolized by a forward slash (/).

More About

Tips

The `getOPCMainPart` method is a static method. Invoke it on the `Document` class, rather than on an instance of the `Document` class or on a class derived from the `Document` class.

- “Report Packages”

See Also

`mlreportgen.dom.Document.getMainPartPath` | `mlreportgen.dom.Document.setCoreProperties` | `mlreportgen.dom.OPCPart`

mlreportgen.dom.Document.moveToNextHole

Package: mlreportgen.dom

Move document append point to next template hole

Syntax

```
holeID = moveToNextHole(docObj)
```

Description

`holeID = moveToNextHole(docObj)` copies to the output document any text between the current hole and the next hole in the document template. DOM creates an `mlreportgen.dom.RawText` object for the text. This method makes the next hole the current hole and returns the ID of that hole.

Examples

Move to Next Hole

```
import mlreportgen.dom.*;
myReport = Document('myDoc','docx');

moveToNextHole(myReport);
```

- "Add Content to a Report"

Input Arguments

`docObj` — Document

`mlreportgen.dom.Document` object

Document in which to move the append point to the next hole.

Output Arguments

`holeID` — Template hole ID

hole ID

The ID of the template hole that the method moves to (the new current hole).

Data Types: `char`

More About

Tips

The first time you invoke the `moveToNextHole` method, the DOM copies to the output document all of the text up to the first hole in the template. Use `Document.append` methods to add content to the output document to fill the first hole. The next time you invoke `moveToNextHole`, the DOM copies to the output document all the text between the first and second hole in the template. Then use `Document.append` methods to fill in the second hole. In this way, you can successively fill all of the holes in a document.

See Also

`mlreportgen.dom.Document` | `mlreportgen.dom.Document.fill`

mlreportgen.dom.Document.open

Package: mlreportgen.dom

Open document

Syntax

```
open(docObj)
```

Description

`open(docObj)` opens a document for appending content.

Examples

Open a Document

```
import mlreportgen.dom.*;
myReport = Document('myDoc','html');

open(myReport);
```

- "Add Content to a Report"

Input Arguments

`docObj` — Document to open

`mlreportgen.dom.Document` object

Document to open, specified as an `mlreportgen.dom.Document` object.

More About

Tips

- After you open a document, you can no longer change its generated document type or the template.
- The `append` method for a document opens a document if the document is not already opened. Therefore, you rarely need to use the `open` method.

See Also

`mlreportgen.dom.Document` | `mlreportgen.dom.Document.close`

mlreportgen.dom.Document.package

Package: mlreportgen.dom

Add OPC part files to document package

Syntax

```
partOut = package(docObj,opcPart)
```

Description

`partOut = package(docObj,opcPart)` adds a file specified by an OPC part object to the OPC package of a document.

Examples

Add Files to a Document Package

This example shows how to use the `package` method to add special browser processing code. In this example, the `processData.js` file operates on the `data.json` file. This example assumes that there are `data.json` and `processData.js` files in the current folder.

```
import mlreportgen.dom.*;
myReport = Document('myDoc','html');

package(myReport,OPCPart('/data/data.json','data.json'));
package(myReport,OPCPart('/js/processData.js','processData.js'))

close(myReport);
```

Input Arguments

`docObj` — Document OPC package to add files to

`mlreportgen.dom.Document` object

Document OPC package to add files to, specified as an `mlreportgen.dom.Document` object.

`opcPart` — OPC part that specifies file to add to OPC package

`mlreportgen.dom.OPCPart` object

Define an `OPCPart` object to specify the files to add.

Output Arguments

`partOut` — Added OPC part file

`mlreportgen.dom.OPCPart` object

Added OPC part file, represented by an `mlreportgen.dom.OPCPart` object.

More About

- "Report Packages"

See Also

`mlreportgen.dom.Document.getCoreProperties` | `mlreportgen.dom.Document.getOPCMainPart` | `mlreportgen.dom.OPCPart` | `unzipTemplate` | `zipTemplate`

mlreportgen.dom.Document.setCoreProperties

Package: mlreportgen.dom

Set OPC core properties of output document or template

Syntax

```
corePropertiesOut = setCoreProperties(path,corePropertiesObj)
```

Description

`corePropertiesOut = setCoreProperties(path,corePropertiesObj)` sets the core OPC property values of the document or template having the specified path.

Examples

Set OPC Core Properties for a Document Package

This example shows how to use `setCoreProperties` to apply core property settings to a report.

```
import mlreportgen.dom.*;
myReport = Document('mydoc','docx');

append(myReport,'Hello world');
close(myReport);
coreProps = Document.getCoreProperties('mydoc.docx');
coreProps.Title = 'MATLAB Example';
Document.setCoreProperties('mydoc.docx',coreProps)
```

In Windows Explorer, if you navigate to the `mydoc.docx` file, you can see that the `Title` field says `MATLAB Example`.

Input Arguments

`path` — Path of document, document part, or template

string

Path of document, document part, or template, specified as a string.

`corePropertiesObj` — OPC core properties to use
`mlreportgen.dom.CoreProperties` object

OPC core properties to use, specified as an `mlreportgen.dom.CoreProperties` object.

Output Arguments

`corePropertiesOut` — OPC core properties
`mlreportgen.dom.CoreProperties` object

OPC core properties, represented by an `mlreportgen.dom.CoreProperties` object.

More About

- "Report Packages"

See Also

`mlreportgen.dom.CoreProperties` |
`mlreportgen.dom.Document.getCoreProperties` |
`mlreportgen.dom.Document.getOPCMainPart`

mlreportgen.dom.ExternalLink.append

Package: mlreportgen.dom

Append custom element to external link

Syntax

```
externalLinkObjOut = append(externalLinkObj,customElementObj)
```

Description

`externalLinkObjOut = append(externalLinkObj,customElementObj)` appends a custom element to an external link.

Examples

- "Create Links"

Input Arguments

`externalLinkObj` — External link object to append custom element to

`mlreportgen.dom.ExtermalLink` object

External link object to append custom element to, specified as an `mlreportgen.dom.ExtermalLink` object.

`customElementObj` — Custom element to append the content to

`mlreportgen.dom.CustomElement` object

The custom element must be a valid HTML or Word child of an `ExternalLink`, depending on whether the output type of the document to which this element is appended is HTML or Word.

Output Arguments

`externalLinkObjOut` — External link with appended custom element
`mlreportgen.dom.ExternalLink` object

External link with appended custom element, represented by an `mlreportgen.dom.ExternalLink` object.

See Also

`mlreportgen.dom.ExternalLink` | `mlreportgen.dom.InternalTarget` | `mlreportgen.dom.LinkTarget`

mlreportgen.dom.FormalTable.appendFooterRow

Package: mlreportgen.dom

Append row to table footer

Syntax

```
rowObjOut = appendFooterRow(tableObj,rowObj)
```

Description

`rowObjOut = appendFooterRow(tableObj,rowObj)` appends a row of table entries to the footer of a table.

Examples

Append a Table Footer

Create, format, and append a formal table.

```
import mlreportgen.dom.*;
myReport = Document('myDoc','html');

table = FormalTable({'row1 - col1' 'row1 - col2 ';...
    'row2 - col1' 'row2 - col2'});
table.Style = {Border('double'),ColSep('solid'),RowSep('solid')};
append(myReport,table);
```

Create a row (and its entries) for the footer. Use bold text for the text in the row.

```
rowForFooter = TableRow();
rowForFooter.Style = {Bold(true)};
col1Title = TableEntry('Column 1 footer');
col2Title = TableEntry('Column 2 footer');
append(rowForFooter,col1Title);
append(rowForFooter,col2Title);
```

Append the footer row and display the report.

```
footerRow = appendFooterRow(table,rowForFooter);

close(myReport);
rptview('myDoc','html');
```

- “Create and Format Tables”

Input Arguments

`tableObj` — Table

`mlreportgen.dom.FormalTable` object

Table that contains the footer to append a row to.

`rowObj` — Row to append to table footer

`mlreportgen.dom.TableRow` object

Row to append to the table footer, specified as an `mlreportgen.dom.TableRow` object.

Output Arguments

`rowObjOut` — Row appended to table footer

`mlreportgen.dom.TableRow` object

Row appended to the table footer, represented by an `mlreportgen.dom.TableRow` object.

See Also

`mlreportgen.dom.FormalTable` | `mlreportgen.dom.Table`

mlreportgen.dom.FormalTable.appendHeaderRow

Package: mlreportgen.dom

Append row to table header

Syntax

```
rowObjOut = appendHeaderRow(tableObj,rowObj)
```

Description

`rowObjOut = appendHeaderRow(tableObj,rowObj)` appends a row of table entries to the header of this table.

Examples

Append a Table Header

Create a formal table.

```
import mlreportgen.dom.*;
myReport = Document('myDoc','html');

table = FormalTable({'row1 - col1' 'row1 - col2 ';...
    'row2 - col1' 'row2 - col2'});
table.Style = {Border('double'),ColSep('solid'),RowSep('solid')};
append(myReport,table);
```

Create a row for the header.

```
rowForHeader = TableRow();
col1Title = TableEntry('Column 1 header');
col2Title = TableEntry('Column 2 header');
append(rowForHeader,col1Title);
append(rowForHeader,col2Title);
```

Append the header row and display the report.

```
headerRow = appendHeaderRow(table,rowForHeader);

close(myReport);
rptview('myDoc','html');
```

- “Create and Format Tables”

Input Arguments

`tableObj` — Table

`mlreportgen.dom.FormalTable` object

Table that contains the header to append a row to.

`rowObj` — Row to append to table header

`mlreportgen.dom.TableRow` object

Row to append to the table header, specified as an `mlreportgen.dom.TableRow` object.

Output Arguments

`rowObjOut` — Row appended to table header

`mlreportgen.dom.TableRow` object

Row appended to table header, represented by an `mlreportgen.dom.TableRow` object.

See Also

`mlreportgen.dom.FormalTable` | `mlreportgen.dom.Table`

mlreportgen.dom.Group.append

Package: mlreportgen.dom

Add DOM object to group

Syntax

```
domObjOut = append(groupObj,domObj)
```

Description

`domObjOut = append(groupObj,domObj)` appends a DOM object to a group. Use groups to append a set of document elements together.

Examples

Append a Paragraph to a Group

```
import mlreportgen.dom.*;
myReport = Document('myDoc','html');

x = 0:pi/100:2*pi;
y = sin(x);
plot1 = plot(x,y);
saveas(plot1,'plot1.png')

plotimage = Image('plot1.png');
para = Paragraph('Value of the sine function from 0 to 2pi');
groupForPlot = Group();
append(groupForPlot,para);
append(groupForPlot,plotimage);
append(myReport,groupForPlot);

close(myReport);
rptview('myDoc','html');
```

- “Add Content to a Report”

Input Arguments

`groupObj` — Group object to append DOM object to

`mlreportgen.dom.Group` object

Group object to append the DOM object to, specified as an `mlreportgen.dom.Group` object.

`domObj` — DOM document element object to append

DOM object

You can append the following DOM objects:

- `mlreportgen.dom.CustomElement`
- `mlreportgen.dom.DocumentPart`
- `mlreportgen.dom.FormalTable`
- `mlreportgen.dom.Group`
- `mlreportgen.dom.ExternalLink`
- `mlreportgen.dom.Image`
- `mlreportgen.dom.InternalLink`
- `mlreportgen.dom.LinkTarget`
- `mlreportgen.dom.OrderedList`
- `mlreportgen.dom.Paragraph`
- `mlreportgen.dom.RawText`
- `mlreportgen.dom.Table`
- `mlreportgen.dom.Text`
- `mlreportgen.dom.UnorderedList`

Output Arguments

`domObjOut` — Appended document object

DOM object

You can append the following DOM objects:

- mlreportgen.dom.CustomElement
- mlreportgen.dom.DocumentPart
- mlreportgen.dom.FormalTable
- mlreportgen.dom.Group
- mlreportgen.dom.ExternalLink
- mlreportgen.dom.Image
- mlreportgen.dom.InternalLink
- mlreportgen.dom.LinkTarget
- mlreportgen.dom.OrderedList
- mlreportgen.dom.Paragraph
- mlreportgen.dom.RawText
- mlreportgen.dom.Table
- mlreportgen.dom.Text
- mlreportgen.dom.UnorderedList

See Also

mlreportgen.dom.Document | mlreportgen.dom.DocumentPart | mlreportgen.dom.DOCXSection | mlreportgen.dom.Group

mlreportgen.dom.LinkTarget.append

Package: mlreportgen.dom

Append content to link target

Syntax

```
textObj = append(targetObj,text)
textObj = append(targetObj,text,styleName)
textObj = append(targetObj,textObj)
autoNumberObj = append(targetObj,autoNumberObj)
```

Description

`textObj = append(targetObj,text)` converts text to an `mlreportgen.dom.Text` object, appends the text to the link target, and returns the text object.

`textObj = append(targetObj,text,styleName)` converts text to an `mlreportgen.dom.Text` object, appends the text to the link target, and returns the text object.

`textObj = append(targetObj,textObj)` appends the content of an `mlreportgen.dom.Text` object.

`autoNumberObj = append(targetObj,autoNumberObj)` appends an automatically generated number to the link target.

Examples

Append Text to a Link Target

```
import mlreportgen.dom.*
d = Document('mydoc');

target = LinkTarget('home')
append(target,' - top of page')
```

```
append(d,target);
append(d,InternalLink('home','Go to Top');

close(d);
rptview('mydoc', 'html');
```

Append an Automatically Generated Number to a Link Target

```
import mlreportgen.dom.*
d = Document('mydoc','docx');

number = AutoNumber('paragraph');

target = LinkTarget('para');
append(target,'number');
InternalLink('para','Link to paragraph');
q = Paragraph('This paragraph is not linked to.');
append(d,q);
PageBreakBefore(true);
p = Paragraph('This is the paragraph that is linked to.');
append(p,
p.Style = {CounterInc('paragraph'),PageBreakBefore(true)};

append(d,p);

close(d);
rptview('mydoc','docx');
```

- “Add Content to a Report”

Input Arguments

`targetObj` — Link target to append content to

`mlreportgen.dom.LinkTarget` object

Link target to append content to, specified as an `mlreportgen.dom.LinkTarget` object.

`text` — Text to append

string

Text to append, specified as a string.

`styleName` — Name of style
string

Name of style, specified as a string.

`textObj` — Text object containing the text to append
`mlreportgen.dom.Text` object

Text object containing the text to append, specified as an `mlreportgen.dom.Text` object.

`autoNumberObj` — Automatically generated number
`mlreportgen.dom.AutoNumber` object

Automatically generated number, specified as an `mlreportgen.dom.AutoNumber` object.

Output Arguments

`textObj` — Text object
`mlreportgen.dom.Text` object

Text object, represented by an `mlreportgen.dom.Text` object.

`autoNumberObj` — Automatically generated number for link target
`mlreportgen.dom.AutoNumber` object

Automatically generated number for link target, specified as a string.

See Also

`mlreportgen.dom.AutoNumber` | `mlreportgen.dom.Text`

mlreportgen.dom.MessageDispatcher.dispatch

Package: mlreportgen.dom

Dispatch DOM status message

Syntax

```
dispatch(dispatcher,message)
```

Description

`dispatch(dispatcher,message)` dispatches a DOM status message.

Examples

Add and Dispatch a Progress Message

This example shows how to add a progress message to display when generating a report.

Add a dispatcher and listener to the report.

```
import mlreportgen.dom.*;
doctype = 'html';
d = Document('test',doctype);

d.Tag = 'My report';
          dispatcher = MessageDispatcher.getTheDispatcher;
l = addlistener(dispatcher,'Message', ...
    @(src,evtdata) disp(evtdata.Message.formatAsText));

open(d);
dispatch(dispatcher,ProgressMessage('starting chapter',d));

p = Paragraph('Chapter ');
p.Tag = 'chapter title';
append(d,p);
```

```
close(d);
rptview('test',doctype);

delete (l);
```

Check the progress messages in the MATLAB Command Window. The `starting chapter` message appears, in addition to the predefined DOM progress messages.

- "Display Report Generation Messages"

Input Arguments

`dispatcher` — DOM message dispatcher

`mlreportgen.dom.MessageDispatcher` object

DOM message dispatcher, specified as an `mlreportgen.dom.MessageDispatcher` object.

`message` — Message to dispatch

message object

Use one of the following types of DOM message objects:

- `mlreportgen.dom.ProgressMessage`
- `mlreportgen.dom.WarningMessage`
- `mlreportgen.dom.ErrorMessage`
- `mlreportgen.dom.DebugMessage`

See Also

`mlreportgen.dom.MessageDispatcher.getTheDispatcher` | `mlreportgen.dom.MessageEventData` | `mlreportgen.dom.MessageFilter`

mlreportgen.dom.MessageDispatcher.getTheDispatcher

Package: mlreportgen.dom

Return DOM message dispatcher

Syntax

```
getTheDispatcher
```

Description

`getTheDispatcher` returns the DOM message dispatcher. There is only one DOM message dispatcher per MATLAB session.

Examples

Add a Dispatcher and Dispatch a Progress Message

This example shows how to return the DOM message dispatcher and use it to dispatch a progress message.

Add a dispatcher and listener to the report.

```
import mlreportgen.dom.*;
doctype = 'html';
d = Document('test',doctype);
d.Tag = 'My report';

dispatcher = MessageDispatcher.getTheDispatcher;
l = addlistener(dispatcher,'Message', ...
    @(src, evtdata) disp(evtdata.Message.formatAsText));

open(d);
dispatch(dispatcher, ProgressMessage('starting chapter',d));

p = Paragraph('Chapter 1');
p.Tag = 'chapter title';
```

```
append(d, p);

close(d);
rptview('test',doctype);

delete (l);
```

Check the progress messages in the MATLAB Command Window. The `starting chapter` message appears, in addition to the predefined DOM progress messages.

- "Display Report Generation Messages"

See Also

`mlreportgen.dom.MessageDispatcher.dispatch` | `mlreportgen.dom.MessageEventData` | `mlreportgen.dom.MessageFilter`

mlreportgen.dom.OrderedList.append

Package: mlreportgen.dom

Append content to ordered list

Syntax

```
listOut = append(orderedList,listItemObj)
listOut = append(orderedList,listItems)
listOut = append(orderedList,list)

customElementOut = append(orderedList,customElementObj)
```

Description

`listOut = append(orderedList,listItemObj)` appends a list item to an ordered list.

`listOut = append(orderedList,listItems)` appends matrix or a cell array of list items.

`listOut = append(orderedList,list)` appends an ordered or unordered list.

`customElementOut = append(orderedList,customElementObj)` appends a custom element.

Examples

Append Three List Items

Add three items to a list.

```
import mlreportgen.dom.*;
myReport = Document('myDoc','html');

ol = OrderedList({'Item 1' 'Item 2'});
append(myReport,ol);
append(ol,{'Item 3' 'Item 4' 'Item 5'});
```

```
close(myReport);
rptview('myDoc','html');
```

Append an Unordered List

```
import mlreportgen.dom.*;
myReport = Document('myDoc','html');

ol = OrderedList({'Item 1' 'Item 2'});
append(myReport,ol);

ulist = UnorderedList({'subitem1' 'subitem2'});
append(ol,ul);

close(myReport);
rptview('myDoc','html');
```

Append an Ordered Sublist

```
import mlreportgen.dom.*;
myReport = Document('myDoc','html');
ol = OrderedList({'a1',OrderedList({'a1','a2','b2'}),'b1'});
append(myReport,ol);
close(myReport);
rptview('myDoc','html');
```

Append an Unordered Sublist

```
import mlreportgen.dom.*;
myReport = Document('myDoc','html');

ol = OrderedList({'a1',{'a2','b2'},'b1'});
append(myReport,ol);

close(myReport);
rptview('myDoc','html');
```

- “Create and Format Lists”

Input Arguments

`orderedList` — Ordered list to append content to

`mlreportgen.dom.OrderedList` object

Ordered list to append content to, specified as an `mlreportgen.dom.OrderedList` object.

`listItemObj` — List item to append

`mlreportgen.dom.ListItem` object

List item to append, specified as an `mlreportgen.dom.ListItem` object.

`listItems` — Items to append

matrix | cell array

A matrix can include numeric or Boolean values.

Cell array containing a combination of the following:

- A string
- A number
- A Boolean value
- One of the following DOM objects:
  - `mlreportgen.dom.Text`
  - `mlreportgen.dom.Paragraph`
  - `mlreportgen.dom.ExternalLink`
  - `mlreportgen.dom.InternalLink`
  - `mlreportgen.dom.Table`
  - `mlreportgen.dom.Image`
  - `mlreportgen.dom.CustomElement`
- Horizontal one-dimensional array (for a sublist)

To append an ordered list, use an `OrderedList` DOM object instead of using the `listContent` argument.

`list` — List to append

`mlreportgen.dom.OrderedList` object | `mlreportgen.dom.UnorderedList` object

List to append, specified as an `mlreportgen.dom.OrderedList` or `mlreportgen.dom.UnorderedList` object.

`customElementObj` — Custom element to append

`mlreportgen.dom.CustomElement` object

The custom element must be a valid HTML or Word child of a list, depending on whether the output type of the document to which this element is appended is HTML or Word.

Output Arguments

`listOut` — Ordered list

`mlreportgen.dom.OrderedList` object

Ordered list, represented by an `mlreportgen.dom.OrderedList` object.

`customElementOut` — Custom element

`mlreportgen.dom.CustomElement` object

Custom element, represented by an `mlreportgen.dom.CustomElement` object.

See Also

`mlreportgen.dom.ListItem` | `mlreportgen.dom.OrderedList` | `mlreportgen.dom.UnorderedList`

mlreportgen.dom.Paragraph.append

Package: mlreportgen.dom

Append content to paragraph

Syntax

```
paraObjOut = append(paraObj,text)
paraObjOut = append(paraObj,text,styleName)

paraObjOut = append(paraObj,domObj)
```

Description

`paraObjOut = append(paraObj,text)` creates a text object containing the specified text string and appends it to a paragraph.

`paraObjOut = append(paraObj,text,styleName)` creates and appends a text object using the specified style.

`paraObjOut = append(paraObj,domObj)` appends a document element object, such as an image, to a paragraph.

Examples

Append a Text String

```
import mlreportgen.dom.*;
d = Document('mydoc','html');

para = Paragraph('Results: ');
append(d,para);
append(para,'Study 1');

close(d);
```

```
rptview('mydoc','html');
```

Specify a Style for Appended Text

```
import mlreportgen.dom.*;
doc = Document('mydoc','docx');

para = Paragraph('Results: ','Title');
para.WhiteSpace = 'pre';
append(doc,para);
append(para,'Study 2');

close(doc);
rptview('mydoc','docx');
```

Append an External Link

```
import mlreportgen.dom.*;
docLink = Document('mydocLink','html');

mathWorksLink = ExternalLink...
   ('http://www.mathworks.com/','MathWorks site');
para = Paragraph('Go to the ');
append(para, mathWorksLink);
append(docLink,para);

close(docLink);
rptview('mydocLink','html');
```

- “Add Content to a Report”

Input Arguments

`paraObj` — Paragraph to append content to

`mlreportgen.dom.Paragraph` object

Paragraph to append content to, specified as an `mlreportgen.dom.Paragraph` object.

`text` — Text string to append to paragraph

string

Text string to append to the paragraph, specified as a string.

`styleName` — Name of a style to apply to text

string

Name of the style to define the appearance of the text. Use a style that is in the stylesheet of the document that contains the paragraph.

`domObj` — Document element to append to paragraph

DOM object

You can append the following types of document element object to a paragraph:

- `mlreportgen.dom.ExternalLink`
- `mlreportgen.dom.Image`
- `mlreportgen.dom.InternalLink`
- `mlreportgen.dom.LinkTarget`
- `mlreportgen.dom.Text`
- `mlreportgen.dom.CustomElement`

  If you specify a custom element, it must be a valid HTML or Word child of the paragraph, based on the document output type.

Output Arguments

`paraObjOut` — Paragraph with appended content

`mlreportgen.dom.Paragraph` object

Paragraph with appended content, represented by an `mlreportgen.dom.Paragraph` object.

See Also

`mlreportgen.dom.Document` | `mlreportgen.dom.Paragraph` | `mlreportgen.dom.Paragraph.clone`

mlreportgen.dom.Paragraph.clone

Package: mlreportgen.dom

Copy paragraph object

Syntax

```
clonedPara = clone(sourcePara)
```

Description

`clonedPara = clone(sourcePara)` copies (clones) the specified paragraph. The resulting cloned paragraph includes the children of the source paragraph, but not the parent.

Examples

Copy a Paragraph Object

```
import mlreportgen.dom.*;
myReport = Document('myDoc','html');

para1 = Paragraph('This is a paragraph');
para1.Bold = true;
append(d,para1);
para1Copy = clone(para1);
para1Copy
```

```
para1Copy =

  Paragraph with properties:

       OutlineLevel: []
               Bold: 1
             Italic: []
              Color: []
    BackgroundColor: []
```

```
          Underline: []
         WhiteSpace: []
     FontFamilyName: []
           FontSize: []
             Strike: []
             HAlign: []
    OuterLeftMargin: []
    FirstLineIndent: []
          StyleName: []
              Style: {[1x1 mlreportgen.dom.Bold]}
   CustomAttributes: []
           Children: [1x1 mlreportgen.dom.Text]
             Parent: []
                Tag: 'dom.Paragraph:15'
                 Id: '15'
```

- “Add Content to a Report”

Input Arguments

`sourcePara` — Paragraph object to copy

`mlreportgen.dom.Paragraph` object

Paragraph object to copy, specified as an `mlreportgen.dom.Paragraph` object.

Output Arguments

`clonedPara` — Copied paragraph object

`mlreportgen.dom.Paragraph` object

Copied paragraph object, represented by an `mlreportgen.dom.Paragraph` object.

More About

Tips

- Use the `clone` method to append the same paragraph content more than once in a document.

- When you clone a paragraph, DOM copies all of the children objects of the source paragraph, but not the parent of the paragraph.
- The cloned paragraph includes formats that you set in the source paragraph. The cloned paragraph formats use the same format objects as the source paragraph. If you change the format setting in the shared format object, the source and cloned paragraphs reflect that change.

  If you change a format setting in the cloned paragraph, then DOM creates a new format object for the cloned paragraph, using the new format setting. For that format, the source and cloned paragraph no longer share the same format object.

  This example shows the relationship between the formats for the source and cloned paragraphs.

  1. Create a paragraph that uses a style that sets the `Bold` and `Italic` formats to `true`.

     ```
     import mlreportgen.dom.*;
     myReport = Document('myDoc','html');
     p = Paragraph('This is a paragraph');
     append(myReport,p);
     MyStyle = {Bold,Italic};
     p.Style = MyStyle;
     p.Bold

     ans =

          1

     p.Italic

     ans =

          1
     ```

  2. Clone the paragraph. The `Bold` and `Italic` formats are the same as those of the source paragraph.

     ```
     pClone = clone(p);
     pClone.Bold

     ans =

          1
     ```

```
p.Italic

ans =

     1
```

3. For the cloned paragraph, change turn off bold text. The change to the `Bold` format in the cloned paragraph does not affect the text for the source paragraph. The source paragraph text is still bold.

```
pClone.Bold = false;
p.Bold

ans =

     1
```

4. In the style object (`MyStyle`) for the source paragraph, turn off italics. Now the cloned paragraph does not use italics, because it shares the `MyStyle` setting for the `Italics` format.

```
MyStyle(2).Value = false
pClone.Italic

ans =

     0
```

See Also

`mlreportgen.dom.Document` | `mlreportgen.dom.Paragraph` | `mlreportgen.dom.Paragraph.append`

mlreportgen.dom.ProgressMessage.formatAsHTML

Package: mlreportgen.dom

Wrap message in HTML tags

Syntax

```
htmlMessageOut = formatAsHTML(message)
```

Description

`htmlMessageOut = formatAsHTML(message)` returns the message text formatted with HTML tags.

Examples

Format a Message as HTML

This example uses `formatAsHTML` with the Web command to display the progress messages.

```
import mlreportgen.dom.*;
doctype = 'html';
d = Document('test',doctype);
d.Tag = 'My report';

dispatcher = MessageDispatcher.getTheDispatcher;
l = addlistener(dispatcher,'Message', ...
      @(src, evtdata) disp(evtdata.Message.formatAsHTML));

open(d);
dispatch(dispatcher, ProgressMessage('starting chapter',d));
p = Paragraph('Chapter ');
p.Tag = 'chapter title';
p.Style = { CounterInc('chapter'),...
   CounterReset('table'),WhiteSpace('pre') };
append(p,AutoNumber('chapter'));
```

```
append(d,p);

close(d);
rptview('test',doctype);

delete (l);
```

- “Display Report Generation Messages”

Input Arguments

`message` — Progress message

`mlreportgen.dom.ProgressMessage` object

Progress message, specified as an `mlreportgen.dom.ProgressMessage` object.

Output Arguments

`htmlMessageOut` — Progress message with HTML tagging

`mlreportgen.dom.ProgressMessage` object

Progress message with HTML tagging, specified as an `mlreportgen.dom.ProgressMessage` object.

See Also

`mlreportgen.dom.MessageFilter` | `mlreportgen.dom.ProgressMessage` | `mlreportgen.dom.ProgressMessage.formatAsText`

mlreportgen.dom.ProgressMessage.formatAsText

Package: mlreportgen.dom

Format message as text

Syntax

```
textMessageOut = formatAsText(message)
```

Description

`textMessageOut = formatAsText(message)` returns the message text formatted as text.

Examples

Format a Message with White Spaces

This example uses `formatAsText` with the Web command to display the progress messages.

```
import mlreportgen.dom.*;
doctype = 'html';
d = Document('test',doctype);
d.Tag = 'My report';

dispatcher = MessageDispatcher.getTheDispatcher;
l = addlistener(dispatcher,'Message', ...
      @(src, evtdata) disp(evtdata.Message.formatAsText));

open(d);
dispatch(dispatcher,ProgressMessage('starting chapter',d));
p = Paragraph('Chapter ');
p.Tag = 'chapter title';
p.Style = { CounterInc('chapter'),...
    CounterReset('table'),WhiteSpace('pre') };
append(p, AutoNumber('chapter'));
```

```
append(d,p);

close(d);
rptview('test',doctype);

delete(l);
```

- “Display Report Generation Messages”

Input Arguments

`message` — The DOM progress message

`mlreportgen.dom.ProgressMessage` object

The DOM message, specified as an `mlreportgen.dom.ProgressMessage` object.

Output Arguments

`textMessageOut` — DOM progress message formatted as text

`mlreportgen.dom.ProgressMessage` object

DOM progress message formatted as text, represented by an `mlreportgen.dom.ProgressMessage` object.

See Also

`mlreportgen.dom.MessageFilter` | `mlreportgen.dom.ProgressMessage` | `mlreportgen.dom.ProgressMessage.formatAsHTML`

mlreportgen.dom.ProgressMessage.passesFilter

Package: mlreportgen.dom

Determine if message passes filter

Syntax

```
tf = passesFilter(message,filter)
```

Description

`tf = passesFilter(message,filter)` determines whether the message passes the filter.

Examples

Determine Whether a Message Passes a Filter

This example shows how to add a progress message to display when generating a report.

Add a dispatcher and listener to the report. Configure the dispatcher to include debug messages.

```
import mlreportgen.dom.*;
d = Document('test','html');

dispatcher = MessageDispatcher.getTheDispatcher;
     dispatcher.Filter.DebugMessagesPass = true;
l = addlistener(dispatcher,'Message', ...
      @(src, evtdata) disp(evtdata.Message.formatAsText));
```

Create a progress message.

```
open(d);
dispatch(dispatcher, ProgressMessage('starting chapter',d));
p = Paragraph('Chapter ');
```

```
p.Tag = 'chapter title';
p.Style = { CounterInc('chapter'),...
    CounterReset('table'),WhiteSpace('pre') };
append(p,AutoNumber('chapter'));
append(d,p);
```

Generate the report and delete the listener.

```
close(d);
rptview('test','html');

delete(l);
```

Check the progress messages in the MATLAB Command Window. In addition to the predefined DOM progress messages, the `starting chapter` message added in this example appears. The output also includes debug messages.

- "Display Report Generation Messages"

Input Arguments

`message` — DOM progress message

`mlreportgen.dom.ProgressMessage` object

DOM progress message, specified as an `mlreportgen.dom.ProgressMessage` object.

`filter` — Filter to use with message

`mlreportgen.dom.MessageFilter` object

Filter to use with the progress message, specified as an `mlreportgen.dom.MessageFilter` object.

Output Arguments

`tf` — Indication of whether the message passes the filter

a Boolean

- `1` — Messages passes the specified filter (the dispatcher handles the message)
- `0` — Messages fails the specified filter (the dispatcher ignores the message)

See Also

`mlreportgen.dom.MessageFilter` | `mlreportgen.dom.ProgressMessage`

mlreportgen.dom.Table.entry

Package: mlreportgen.dom

Access table entry

Syntax

```
tableEntryOut = entry(tableObj,row,column)
```

Description

`tableEntryOut = entry(tableObj,row,column)` returns the table entry for the specified column of the specified row.

Examples

Color a table entry

Color the table entry in row 3, column 4.

```
import mlreportgen.dom.*;
myReport = Document('myDoc','html');
t = Table(magic(5));
t.entry(3,4);
t.entry(3,4).Children(1).Color = 'red';
append(myReport,t);
close(myReport);
rptview('myDoc','html');
```

- “Create and Format Tables”

Input Arguments

`tableObj` — Table containing the entry

`mlreportgen.dom.Table` object | `mlreportgen.dom.FormalTable` object

`row` — Table row containing the entry

number

Index number of the row (top row is row 1).

Data Types: `double`

`column` — Column containing the entry

number

Index number of the column (in a left-to-right text flow table, the left-most column is 1).

Data Types: `double`

Output Arguments

`tableEntryOut` — Table entry object

`mlreportgen.dom.TableEntry` object

See Also

`mlreportgen.dom.Table.row` | `mlreportgen.dom.TableEntry`

mlreportgen.dom.Table.row

Package: mlreportgen.dom

Access table row

Syntax

```
tableRowOut = row(tableObj,row)
```

Description

`tableRowOut = row(tableObj,row)` returns the table row at the specified row number.

Examples

Color a Table Row

Color the second row of a table.

```
import mlreportgen.dom.*;
myReport = Document('myDoc','html');

t = Table(magic(5));
te = row(t,2);
te.Style = {Color('red')};
append(myReport,t);

close(myReport);
rptview('myDoc','html');
```

- "Create and Format Tables"

Input Arguments

`tableObj` — Table containing entry

`mlreportgen.dom.Table` object | `mlreportgen.dom.FormalTable` object

Table containing the entry, specified as an `mlreportgen.dom.Table` or `mlreportgen.dom.FormalTable` object.

`row` — Table row
number

Index number of the row (top row is row 1).

Data Types: `double`

Output Arguments

`tableRowOut` — Table row object
`mlreportgen.dom.TableRow` object

Table row object, represented by an `mlreportgen.dom.TableRow` object.

See Also

`mlreportgen.dom.TableEntry` | `mlreportgen.dom.TableRow`

mlreportgen.dom.TableRow.append

Package: mlreportgen.dom

Append content to table row

Syntax

```
entryOut = append(rowObj,entryObj)
```

Description

`entryOut = append(rowObj,entryObj)` appends an entry to a table row.

Examples

Append a Table Entry to a Row

Create a two-column table.

```
import mlreportgen.dom.*;
myReport = Document('myDoc','html');
table = Table(2);
table.Style = {Border('solid'),RowSep('solid'),ColSep('solid')};
table.TableEntriesStyle = {Width('2in'),HAlign('center')};
```

Create three table rows with entries. Append each entry to a row using `append(row,te)`.

```
for i=1:3
    row = TableRow();
    te = TableEntry();
    append(te,Text([num2str(i) ' - 1']));
    append(row,te);
    te = TableEntry();
    append(te,Text([num2str(i) ' - 2']));
    append(row,te);
    append(table,row);
```

```
end
```

Append the table and display the report.

```
append(myReport,table);

close(myReport);
rptview('myDoc','html');
```

- "Create and Format Tables"

Input Arguments

`rowObj` — Row to append the table entry to

`mlreportgen.dom.TableRow` object

Row to append the table entry to, specified as an `mlreportgen.dom.TableRow` object.

`entryObj` — Table entry to append

`mlreportgen.dom.TableEntry` object

Table entry to append, specified as an `mlreportgen.dom.TableEntry` object.

Output Arguments

`entryOut` — Appended table entry

`mlreportgen.dom.TableEntry` object

Appended table entry, represented by an `mlreportgen.dom.TableEntry` object.

See Also

`mlreportgen.dom.TableEntry` | `mlreportgen.dom.TableRow`

report

Generate reports from report setup file

Syntax

```
report
report (filename,...)
report (___,-oOPATH)
report (___,-fFORMAT)
report (___,-genOption1,...)
[report1, report2, ...] = report (rptfile1, rptfile2, ...)
```

Description

- `report` with no arguments opens the Report Explorer. For more information on the Report Explorer, see "Report Explorer"
- `report (filename,...)` generates a report from the specified report setup files. You can specify one or more report setup files. When specifying the name of the report setup file, omit the `.rpt` file name extension.
- `report (___,-oOPATH)` sets the name of the generated report. You can specify a path or a single file name for the `OPATH` path argument.
- `report (___,-fFORMAT)` sets the output format and file name extension of the generated report. Supported formats include:

  - Adobe Acrobat PDF (`.pdf`)
  - HTML (`.html`)
  - Microsoft Word (`.doc`)
  - Rich Text format (`.rtf`)

  For example, `report('simple-report','-fPDF')` generates a PDF file.
- `report (___,-genOption1,...)` specifies one or more of the following report generation options:

  - `-noview` — Prevents launching the file viewer

  - `-graphical` — Shows hierarchy in Report Explorer
  - `-debug` — Enables debug mode
  - `-quiet` — Sets error echo level to `0`
  - `-sSTYLESHEETNAME` — Sets stylesheet name (not required when choosing format)
- `[report1, report2, ...] = report (rptfile1, rptfile2, ...)` returns the names of the generated reports. If the MATLAB Report Generator software cannot generate a given report, its returned name is empty.

Note: For reports that use the `Word Document` format, you must have Microsoft Word software installed on the machine that you use to generate the report.

Examples

Example 1: Setting the format of the generated report

- Generate the report `testrpt` in `PDF` format:

  ```
  report testrpt -fpdf
  ```
- Generate the report `testrpt` in `RTF` format:

  ```
  report testrpt -frtf
  ```
- Generate the report `testrpt` in Microsoft Word format:

  ```
  report testrpt -fdoc
  ```

  Note: Only Microsoft Windows platforms support this option.

- Generate a multipage `HTML` report from the `figloop-tutorial` report setup file:

  ```
  report figloop-tutorial -fhtml -shtml-!MultiPage
  ```

Example 2: Specifying the file and path of the generated report

Generate a report named `simple-report` in the folder `/tmp/index.html`:

```
report ('simple-report','-o/tmp/index.html')
```

More About

- “Generate Reports”

See Also

`setedit` | `rptconvert` | `rptlist` | `compwiz`

rptconvert

Convert DocBook XML files into supported document formats

Syntax

```
rptconvert()
rptname = rptconvert (source)
rptname = rptconvert (source, format)
rptname = rptconvert (source, format, stylesheet)
...=rptconvert(...,'-view')
...=rptconvert(...,'-quiet')
...=rptconvert(...,'-verbose')
sheetlist = rptconvert('-stylesheetlist')
sheetlist = rptconvert('-stylesheetlist',format)
FORMATLIST = rptconvert('-formatlist')
```

Description

This function converts a DocBook XML source file created by the report-generation process to a supported document format. For information about supported output formats, see “Supported Report Formats”.

`rptconvert()` with no input arguments launches the converter. When input arguments are passed to this function, `rptconvert` converts the XML document to the specified format and displays status messages to the MATLAB Command Window.

```
rptname = rptconvert (source)
```

```
rptname = rptconvert (source, format)
```

```
rptname = rptconvert (source, format, stylesheet)
```

In the following commands:

`source` is the name of the DocBook XML file created by the report-generation process. You can specify this file name with or without its file extension.

`format` is a unique identifier code for each output format type. If you omit this argument, the XML file is converted to HTML format by default.

`stylesheet` is a unique identifier for a given stylesheet. If you omit this argument, the default stylesheet for the selected `format` is used.

You can also pass the following flags to the input arguments:

- `...=rptconvert(...,'-view')` displays the converted document.
- `...=rptconvert(...,'-quiet')` suppresses status messages.
- `...=rptconvert(...,'-verbose')` shows detailed status messages.
- `sheetlist = rptconvert('-stylesheetlist')` returns a two-column cell array. The first column of this array includes valid stylesheet identifiers. The second column includes descriptions of each stylesheet.
- `sheetlist = rptconvert('-stylesheetlist',format)` returns an array like that returned by `sheetlist = rptconvert('-stylesheetlist')`. The first column of this array includes stylesheet identifiers for the specified `format`.
- `FORMATLIST = rptconvert('-formatlist')` returns a two-column cell array. The first column of this array includes valid `format` values, the second column includes descriptions of each format.

Examples

Retrieve a list of available `HTML` stylesheets:

```
rptconvert('-stylesheetlist','html')
```

More About

- "Convert XML Documents to Different File Formats"

See Also

`setedit` | `report` | `rptlist` | `compwiz`

rptlist

Retrieve list of all report setup files in MATLAB path

Syntax

```
rptlist
rptlist ('system_name')
list = rptlist
```

Description

`rptlist` with no arguments opens the Report Explorer, which lists available report setup files in the MATLAB path.

`rptlist ('system_name')` opens the Report Explorer with the Simulink system's `ReportName` property selected.

`list = rptlist` returns a list of report setup files in the MATLAB path.

See Also

`setedit`

rptview

Display DOM report

Syntax

```
rptview(reportPath)
rptview(reportPath,'pdf')

rptview(reportName,format)
```

Description

`rptview(reportPath)` displays the report `reportPath` in an appropriate viewer, based on the file extension. You can use the `Document.OutputPath` property to specify `reportPath`.

`rptview(reportPath,'pdf')` converts a Word report to PDF and displays the report in a PDF viewer.

`rptview(reportName,format)` displays the report `reportPath` in an appropriate viewer, based on the format specified in `format`.

Examples

Display Report in HTML Viewer

Display an HTML report. Include the file extension when you specify the report name in the `rptview` function.

```
import mlreportgen.dom.*;
d = Document('mydoc','html');

p = Paragraph('Hello World');
append(d,p);

close(d);
```

```
rptview('mydoc.htmx');
```

Convert a Word Report and Display It in a PDF Viewer

Use the `rptview` function to convert a Word report to PDF and display it in a PDF viewer.

```
import mlreportgen.dom.*;
d = Document('mydoc','docx');

p = Paragraph('Hello World');
append(d,p);

close(d);
rptview('mydoc.docx','pdf');
```

Display Report Using the OutputPath Property

Display a report using the value of the `OutputPath` property of the `mlreportgen.dom.Document` object of the report.

```
import mlreportgen.dom.*;
d = Document('mydoc','docx');

p = Paragraph('Hello World');
append(d,p);

close(d);
rptview(d.OutputPath);
```

Display Word Report Based on Name

Create two reports with the same name, but with different formats and content. Specify the format to display the appropriate report.

```
import mlreportgen.dom.*;
d = Document('mydoc','html');

p = Paragraph('Hello World');
append(d,p);
close(d);

dWord = Document('mydoc','docx');
p = Paragraph('Hello again, World');
append(dWord,p);
```

```
close(dWord);

rptview('mydoc','docx');
```

Input Arguments

`reportPath` — Report file path including file extension

string

Path to a specific report file, including the file extension, specified as a string.

The report file name extension determines the viewer in which the report displays.

File Extension	Viewer
`.htmx`	MATLAB Web browser
`.zip`	MATLAB Web browser
`.docx`	The report displays in Microsoft Word unless you add the `'pdf'` argument after `reportPath`.

`reportName` — Report name

string

The full path of a report, without the file extension, specified as a string. You can specify a string with the full path. Alternatively, you can use the value of the `OutputPath` property of the `mlreportgen.dom.Document` object that you create for the report.

`format` — Report output format

string

Use one of these values:

- `'html'`
- `'docx'`
- `'pdf'`

See Also

`mlreportgen.dom.Document`

setedit

Start Report Explorer

Syntax

```
setedit (filename)
```

Description

`setedit (filename)` opens the Report Explorer and loads the report setup file named `filename`. If a file with the specified name does not exist, Report Explorer opens an empty report setup file with that name.

More About

- "Report Explorer"

See Also

`rptlist` | `report` | `rptconvert`

unzipTemplate

Unzip zipped DOM template

Syntax

```
unzipTemplate(zippedTemplatePath)
unzipTemplate(zippedTemplatePath,unzippedTemplatePath)
```

Description

`unzipTemplate(zippedTemplatePath)` unzips the DOM template zip file specified by `zippedTemplatePath` into a subfolder of the folder that contains the zipped template.

`unzipTemplate(zippedTemplatePath,unzippedTemplatePath)` unzips the DOM template into the folder specified by `unzippedTemplatePath`.

Examples

Unzip DOM Template into Subfolder of Zipped Template Folder

Unzip a zipped DOM template called `myTemplate`.

```
unzipTemplate('myTemplate');
```

Unzip DOM Template into Specified Folder

This example assumes that there is a zipped DOM template called `myTemplate` in the current folder and a folder called `H:\report_templates`.

```
unzipTemplate('myTemplate.htmtx','H:\report_templates\myTemplate');
```

Input Arguments

`zippedTemplatePath` — Path of the zipped DOM template

string

If you do not include a file extension in the path, the function assumes the extension is `.htmtx`.

If you do not use the `unzippedTemplatePath` argument, the `unzipTemplate` function unzips the template into a subfolder of the folder that contains the zipped template. The name of the unzipped template folder is the same as the root name of the zipped template. The root name is the zipped template name without its file extension.

`unzippedTemplatePath` — The location to store the unzipped DOM template
string

The template is unzipped into the folder that you specify in `unzippedTemplate` path.

More About

- "Report Packages"

See Also

`mlreportgen.dom.Document.createTemplate` | `zipTemplate`

zipTemplate

Package DOM HTML template in zip file

Syntax

```
zipTemplate(unzippedTemplateFolder)
zipTemplate(zippedTemplate,unzippedTemplateFolder)
zipTemplate(zippedTemplate,unzippedTemplateFolder,mainDocument)
zipTemplate(zippedTemplate,unzippedTemplateFolder,mainDocument,
partTemplates)
```

Description

`zipTemplate(unzippedTemplateFolder)` zips (compresses and puts in a zip file) the unzipped DOM template in `unzippedTemplateFolder`. The resulting zipped template file name is the name specified in `unzippedTemplateFolder`, plus the file extension `htmtx`. The `zipTemplate` function zips all of the files in the unzipped template folder, including files in subfolders. The zipped template folder structure duplicates the folder structure of the unzipped template.

Use this syntax if you created the unzipped template by unzipping a template created in any of these ways:

- Used `mlreportgen.dom.Document.createTemplate`
- Copied the template from a default DOM template
- Created the template without using the DOM API or DOM templates and the zipped file complies with the conditions listed in “Tips”.

`zipTemplate(zippedTemplate,unzippedTemplateFolder)` zips the unzipped DOM template into the file specified by `zippedTemplate`.

`zipTemplate(zippedTemplate,unzippedTemplateFolder,mainDocument)` zips the unzipped DOM template into the file specified by `zippedTemplate`. Use the `mainDocument` argument to specify the name of main document in the unzipped template if the main document name in the unzipped template is not `report.html` or

`root.html` and your document part template library file, if it exists, is in a file called `docpart_templates.html`.

`zipTemplate(zippedTemplate,unzippedTemplateFolder,mainDocument, partTemplates)` zips the unzipped DOM template into the file specified by `zippedTemplate`. Use this syntax when the unzipped template includes a document part template library file whose file name is not `docpart_templates.html`. You must specify `mainDocument` as the third argument, even if the main document file is called `report.html` or `root.html`.

Examples

Zip to a File Whose Base Name is the Unzipped Template Folder

Zip the template `myTemplate` into a zip file called `myTemplate.htmtx`.

```
zipTemplate('myTemplate');
```

Zip to a Specified Zip File Name

Zip the template `myTemplate` into a zip file called `myReportTemplate.htmtx`.

```
zipTemplate('myReportTemplate.htmtx','myTemplate');
```

Zip When Main Document and Part Template File Use Custom Names

Zip a template whose main part is `mainpart.html` and whose part template library file is `documentpart_templates.html`.

```
zipTemplate('myTemplate.htmx','myTemplate',...
    'mainpart.html','documentpart_templates.html');
```

Input Arguments

`unzippedTemplateFolder` — Path to folder containing unzipped template

string

Path to folder containing unzipped template, specified as a string.

`zippedTemplate` — Path for zipped DOM template file

string

Full path for the zipped DOM template, including the file extension `.htmtx`, specified as a string.

`mainDocument` — Name of main document file

string

Main document file name, including the file extension, specified as a string.

`partTemplates` — Document part library file name

string

Document part library file name, including the file extension, specified as a string.

More About

Tips

- If you created the unzipped template by unzipping a template created by using `mlreportgen.dom.Document.createTemplate` or copying the template from a default DOM template, you can use either of these syntaxes with no further action:

  ```
  zipTemplate(unzippedTemplateFolder)

  zipTemplate(zippedTemplate,unzippedTemplateFolder)
  ```

  You can also use either of those two syntaxes if the unzipped template was created without using the DOM interface and the template complies with the following requirements.

  - The main document file is named either `report.html` or `root.html`.
  - The unzipped template either does not include a document part template library file, or it includes a document part template library file named `docpart_templates.html`.
  - The unzipped template stores images in a folder named `images`.

  If the unzipped template main document file is not named either `report.html` or `root.html`, use the `mainDocument` input argument.

  If the unzipped template includes a document part template library file with a name other than `docpart_templates.html`, use the `partTemplates` input argument.

If the unzipped template stores images in a folder other than one named `images` in the root folder of the template, include a text file called `_imgprefix` in the folder that contains images for the unzipped template. In the `_imgprefix` file, you can include a prefix for the DOM interface to use to generate names images appended to documents. For example, if the `_imgprefix` file contains the prefix `graphic`, the generated image names are `graphic1.png`, `graphic2.png`, and so on. If you leave the `_imgprefix` file empty, then the generated images use the prefix `image`.

- "Report Packages"

See Also

`mlreportgen.dom.Document.createTemplate` | `unzipTemplate`

Classes – Alphabetical List

mlreportgen.dom.AllowBreakAcrossPages class

Package: mlreportgen.dom

Allow row to straddle page break

Description

Specifies whether to allow row to straddle page break. This format applies only to Word documents.

Construction

`breakAcrossPagesObj = AllowBreakAcrossPages()` allows a row to flow onto the next page when it cannot fit entirely on the current page.

`breakAcrossPagesObj = AllowBreakAcrossPages(tf)` forces a row to start on the next page when it cannot fit on the current page and tf = `false`.

Input Arguments

`tf` — Allow row to flow onto next page

`true` (default) | logical value

A setting of `false` (or `0`) forces a row to start on the next page when it cannot fit on the current page. A setting of `true` (or `1`) allows a row to flow onto the next page when it cannot fit entirely on the current page.

Data Types: `logical`

Output Arguments

`breakAcrossPagesObj` — Control table row page break

`mlreportgen.dom.AllowBreakAcrossPages` object

Specification of table row page break handling, represented by an `mlreportgen.dom.AllowBreakAcrossPages` object.

Properties

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Value` — Allow row to flow onto next page

`true` (default) | logical value

The possible values are:

- `0`— forces a row to start on the next page when it cannot fit on the current page
- `1`— allows a row to flow onto the next page when it cannot fit entirely on the current page

Data Types: `logical`

See Also

`mlreportgen.dom.RepeatAsHeaderRow` | `mlreportgen.dom.TableRow`

More About

- "Report Formatting Approaches"

mlreportgen.dom.AutoNumber class

Package: mlreportgen.dom

Automatically generated number

Description

Automatically generated number for a DOM document element object.

Construction

`autoObj = AutoNumber()` creates an automatically generated number without a specified number stream.

`autoObj = AutoNumber(stream)` creates a number based on the specified numbering steam.

`autoObj = AutoNumber(stream,styleName)` creates a number using the specified style.

Input Arguments

`stream` — Numbering stream for generating the number

string

Specify a numbering stream, using the value of the `mlreportgen.dom.AutoNumberStream` object `StreamName` property.

If the specified stream does not exist, the DOM interface creates an Arabic number stream having the specified name with an initial value of 0. To use a stream with other properties, such as Roman numerals, create a stream using `mlreportgen.dom.Document.createAutoNumberStream`.

`styleName` — Name of number style defined in the template

string

Name of number style defined in the template, specified as a string. The style specified by `styleName` must be defined in the template used to create the document to which the number is appended.

Output Arguments

`autoObj` — Automatically created number object

`mlreportgen.dom.AutoNumber` object

Automatically created number object, specified as an `mlreportgen.dom.AutoNumber` object.

Properties

`BackgroundColor` — Background color

string

Specify one of these as a string:

- The name of a color. The name must be a CSS color name. See http://www.crockford.com/wrrrld/color.html.
- A hexadecimal RGB (truecolor) value as `#RRGGBB`. For example, `#0000ff` is a shade of blue.

`Bold` — Option to use bold for number

`[ ]` (default) | logical value

To make text bold, set this property to `true` or `1`. If this property is empty and the `StyleName` property for this document element specifies a style sheet style, the weight of the number is determined by that style. Setting the `Bold` property adds a corresponding `mlreportGen.dom.Bold` format object to the `Style` property of this document element. Removing the `Bold` property setting removes the object.

Data Types: `logical`

`Color` — Text color

string

Specify one of these as a string:

- The name of a color. The name must be a CSS color name. See http://www.crockford.com/wrrrld/color.html.
- A hexadecimal RGB (truecolor) value as `#RRGGBB`. For example, `#0000ff` is a shade of blue.

`CustomAttributes` — Custom attributes of document element

array of `mlreportgen.dom.CustomAttribute` objects

HTML or Microsoft Word must support the custom attributes of this document element.

`FontFamilyName` — Name of font family for text

string

The name of a font family.

To specify substitutions for this font, do not set this property. Instead create and add a `mlreportgen.dom.FontFamily` object to the `Style` property of this document element.

Setting the `FontFamilyName` property adds a corresponding `mlreportGen.dom.FontFamily` format object to the `Style` property for this document element. Removing the `FontFamilyName` property setting removes the object.

`FontSize` — Font size

string

If you need to specify substitutions for this font, do not set this property. Instead create and add a `mlreportgen.dom.FontFamily` object to the `Style` property of this document element.

Setting the `FontSize` property adds a corresponding `mlreportGen.dom.FontSize` format object to the `Style` property for this document element. Removing the `FontSize` property setting removes the object.

String having the format `valueUnits`, where `Units` is an abbreviation for the units in which the font size is expressed. Use one of these abbreviations for the units for the font size.

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas

- `pt` — points
- `px` — pixel

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Italic` — Option to use italics for a number

[ ] (default) | logical value

To use italics for a number, set this property to `true`. If this property is empty and the `StyleName` property for this document element specifies a style sheet style, the slant of the number is determined by that style. Setting the `Italic` property adds a corresponding `mlreportGen.dom.Italic` format object to the `Style` property of this document element. Removing the `Italic` property setting removes the object.

Data Types: `logical`

`Strike` — Text strikethrough

string

The default for this property is []. You can set it to one of these values:

- `none` — Do not use strikethrough for Word and HTML documents
- `single` — Use a single line for strikethrough for Word and HTML documents
- `double` — Use a double line for strikethrough for Word documents

Setting the `Strike` property adds a corresponding `mlreportGen.dom.Strike` format object to the `Style` property for this document element. Removing the `Strike` property setting removes the object.

`Style` — Formats that define the element style

array of `mlreportgen.dom.DOCXSection` objects

The formats specified by this property override corresponding formats defined by the stylesheet style specified by the `StyleName` property of this element. Formats that do not apply to this element are ignored.

`StyleName` — Style for the number

string

The style specified by styleName must be defined in the template used to create the document element to which this number is appended.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Underline` — Type of underline, if any, for text

[ ] (default) | string

You can specify one of the following types of underlines.

Border String	Description	Supported Output Types
`dash`	Dashed underline	Word
`dashedHeavy`	Line with heavy dashes	Word
`dashLong`	Line with long dashes	Word
`dashLongHeavy`	Line with heavy long dashes	Word
`dashDotDotHeavy`	Line with heavy dashes with two dots between the dashes	Word
`dashDotHeavy`	Heavy dash-dot line	Word
`dotted`	Dotted line	Word
`dottedHeavy`	Thick dotted line	Word
`dotDash`	Dot-dash line	Word
`dotDotDash`	Dot-dot-dash line	Word
`dashDotHeavy`	Heavy dot-dash line	Word
`double`	Double line	Word
`none`	Do not use underlining	HTML and Word

Border String	Description	Supported Output Types
`single`	Single line	HTML and Word
`thick`	Thick line	Word
`wave`	Wavy line	Word
`waveyDouble`	Double wavy line	Word
`waveyHeavy`	Heavy wavy	Word
`words`	Underline non-space characters only	Word

If this property is empty and `StyleName` property of this document element specifies a style sheet style, the type of underline is determined by that style.

To specify the color as well as the type of the underline, do not set the `Underline` property. Instead, set the `Style` property of this document element to include an `mlreportgen.dom.Underline` format object that specifies the desired underline type and color.

Setting the `Underline` property adds a corresponding `mlreportGen.dom.Underline` format object to the `Style` property for this document element. Removing the `Underline` property setting removes the object.

`WhiteSpace` — White space and line breaks in text

[ ] (default) | string

To specify how to handle white space, use one of the following strings.

Border String	Description	Supported Output Types
`normal`	Does not preserve white space and line breaks	Word and HTML
`nowrap`	Sequences of white space collapse into a single white space. Text never wraps to the next line.	HTML
`preserve`	Preserves white space. Text wraps only on line breaks. Acts like the `<pre>` tag in HTML.	Word and HTML See below for details.

Border String	Description	Supported Output Types
`pre`	Preserves white space. Text wraps only on line breaks. Acts like the `<pre>` tag in HTML.	HTML
`pre-line`	Sequences of white space collapse into a single white space. Text wraps.	HTML
`pre-wrap`	Preserves white space. Text wraps when necessary and on line breaks	HTML

If you want to view HTML output in the MATLAB browser and you want to preserve white space and wrap text only on line breaks, use the `preserve` setting rather than the `pre` setting.

Setting the `WhiteSpace` property adds a corresponding `WhiteSpace` format object to `Style` property. Removing the `WhiteSpace` property setting removes the `WhiteSpace` object.

Methods

Method	Purpose
`append` Use `AutoNumber.append` in a similar way to how you use `ExternalLink.append`.	Append a custom element to this number.
`clone` Use `AutoNumber.clone` in a similar way to how you use `Paragraph.clone`.	Copy the number object.

Examples

Use Automatically Generated Numbers for Chapters and Tables

```
import mlreportgen.dom.*;
```

```
doctype = 'html';
d = Document('test',doctype);

p = Paragraph('Chapter ');
p.Style = {CounterInc('chapter'),CounterReset('table'),WhiteSpace('preserve')};
append(p,AutoNumber('chapter'));
append(d,p);

p = Paragraph('Table ');
append(p,AutoNumber('chapter'));
append(p,'.');
append(p,AutoNumber('table'));
p.Style = {CounterInc('table'),WhiteSpace('preserve')};
append(d,p);

p = Paragraph('Chapter ');
p.Style = {CounterInc('chapter'),CounterReset('table'),WhiteSpace('preserve')};
append(p, AutoNumber('chapter'));
append(d,p);

p = Paragraph('Table ');
append(p, AutoNumber('chapter'));
append(p,'.');
append(p,AutoNumber('table'));
p.Style = {CounterInc('table'),WhiteSpace('preserve')};
append(d,p);

close(d);
rptview('test',doctype);
```

- “Automatically Number Document Content”

See Also

`mlreportgen.dom.CounterInc` | `mlreportgen.dom.CounterReset` | `mlreportgen.dom.Document.createAutoNumberStream` | `mlreportgen.dom.Document.getAutoNumberStream`

mlreportgen.dom.AutoNumberStream class

Package: mlreportgen.dom

Numbering stream

Description

A numbering stream generates a sequence of numbers for numbering chapters, tables, figures, and other document objects. To create a numbering stream object, use the `mlreportgen.dom.Document.createAutoNumberStream` method.

Properties

`CharacterCase` — Character case of generated numbers

string

Values can be:

- `lower` — lowercase (for example, a,b,c)
- `lower` — uppercase (for example, A,B,C)

`CharacterType` — Character type of generated numbers

string

Values can be:

- `alphabetic` — for example, a,b,c
- `arabic` — for example, 1,2,3
- `roman` — for example, i,ii,iii

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`InitialValue` — Initial value of generated number

string

The value of this property should be one less than the number that you want to be generated first. For example, if you want the number of the first item to be numbered by this stream to be 2, set the value of this property to 1.

`StreamName` — Name of numbering stream

string

Name of numbering stream, specified as a string.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

See Also

`mlreportgen.dom.CounterInc` | `mlreportgen.dom.CounterReset` | `mlreportgen.dom.Document.createAutoNumberStream` | `mlreportgen.dom.Document.getAutoNumberStream`

Related Examples

- “Automatically Number Document Content”

mlreportgen.dom.BackgroundColor class

Package: mlreportgen.dom

Background color of document element

Description

Specifies the background color of a document element

Construction

`backgroundColorObj = BackgroundColor()` creates a white background.

`backgroundColorObj = BackgroundColor(colorName)` creates a background color object based on the specified CSS color name.

`backgroundColorObj = BackgroundColor(rgbValue)` creates a background color object using the hexidecimal RGB color value.

Input Arguments

`colorName` — Name of a color to use
string

The name of a color, specified as a string. The name must be a CSS color name. See http://www.crockford.com/wrrrld/color.html.

`rgbValue` — Hexidecimal RGB (red, green, blue) color value
string

A string using the following RGB format: `#RRGGBB`. Use # as the first character and two-digit hexidecimal numbers for each for the red, green, and blue values. For example, `'#0000ff'` specifies blue.

Output Arguments

`backgroundColorObj` — Background color
`mlreportgen.dom.BackgroundColor` object

Background color for a report object, represented by a `mlreportgen.dom.BackgroundColor` object

Properties

`HexValue` — Hexadecimal color value (read-only)

string

Hexadecimal number representing an RGB color value. For example, `'#8b008b'` specifies dark magenta. You can use either uppercase or lowercase letters as part of a hexadecimal value.

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Value` — CSS color name or hexadecimal RGB value for this color

string

Either a CSS color name or a hexidecimal RGB value, specified as a string.

Examples

Create and Apply a Background Color

Create a deep blue color object and apply it to a paragraph. Instead of specifying the CSS color name `'blue'`, you could use the hexadecimal value `'00bfff'`.

```
import mlreportgen.dom.*;
     doctype = 'html';
     d = Document('test', doctype);
     blue = 'DeepSkyBlue';
     % blue = '#00BFFF';
     colorfulStyle = {Bold, Color(blue), BackgroundColor('Yellow')};
     p = Paragraph('deep sky blue paragraph with yellow background');
     p.Style = colorfulStyle;
     append(d, p);
     close(d);
     rptview('test', doctype);
```

See Also

`mlreportgen.dom.Color`

More About

- "Report Formatting Approaches"

mlreportgen.dom.Bold class

Package: mlreportgen.dom

Bold for text object

Description

Specifies whether to use bold for a text object

Construction

`boldObj = Bold()` creates a bold object that specifies to use bold for a text object.

`boldObj = Bold(value)` creates a bold object that specifies to use bold for a text object if value is `true`. Otherwise, creates a bold object that specifies to use regular weight text.

Input Arguments

`value` — Option to use bold or regular weight for text object

`[ ]` (default) | logical value

A setting of `false` (or `0`) uses regular weight text. A setting of `true` (or `1`) renders text in bold.

Data Types: `logical`

Output Arguments

`boldObj` — Bold text

`mlreportgen.dom.Bold` object

Bold text, represented by an `mlreportgen.dom.Bold` object

Properties

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Value` — Option to use bold or regular weight for a text object

`[ ]` (default) | logical value

The possible values are:

- `0`— uses regular weight text
- `1`— renders text in bold

Data Types: `logical`

Examples

Create Paragraph With Bold and Regular-Weight Text

```
import mlreportgen.dom.*;
doctype = 'html';
d = Document('test',doctype);
p = Paragraph('bold text  ');
p.Style = {Bold};
append(d,p);

t = Text('regular weight text');
t.Style = {Bold(false)};
append(p,t);
close(d);
```

```
rptview('test',doctype);
```

See Also

`mlreportgen.dom.Italic`

More About

- “Report Formatting Approaches”

mlreportgen.dom.Border class

Package: mlreportgen.dom

Border properties of object

Description

Specifies the border properties of an object.

Construction

`borderObj = Border()` creates an unspecified border.

`borderObj = Border(style)` creates a border having the specified style.

`borderObj = Border(style,color)` creates a border having the specified style and color.

`borderObj = Border(style,color,width)` creates a border having the specified style, color, and width.

Input Arguments

`style` — Default style of border segments

string

Use one of these values.

String	Applies To	
	DOCX	HTML
`'dashed'`	X	X
`'dashdotstroked'`	X	

String	Applies To	
	DOCX	HTML
'dashsmallgap'	X	
'dotted'	X	X
'dotdash'	X	
'dotdotdash'	X	
'double'	X	X
'doublewave'	X	
'inset'	X	X
'none'	X	X
'outset'	X	X
'single'	X	
'solid'		X
'thick'	X	
'thickthinlargegap'	X	
'thickthinmediumgap'	X	
'thickthinsmallgap'	X	
'thinthicklargegap'	X	
'thinthickmediumgap'	X	
'thinthicksmallgap'	X	
'thinthickthinlargegap'	X	
'thinthickthinmediumgap'	X	
'thinthickthinsmallgap'	X	
'threedemboss'	X	
'threedengrave'	X	
'triple'	X	
'wave'	X	

`color` — Color of border

string

You can specify:

- The name of a color. The name must be a CSS color name. See http://www.crockford.com/wrrrld/color.html.
- A hexadecimal RGB (truecolor) value as `#RRGGBB`. For example, `#0000ff` is a shade of blue.

`width` — Width of border

string

String specifying the width of the border. String must have the format `valueUnits` where `Units` is an abbreviation for the units in which the width size is expressed. Valid abbreviations are:

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixel

Output Arguments

`borderObj` — Table border

`mlreportgen.dom.Border` object

Table border, represented by an `mlreportgen.dom.Border` object.

Properties

`Color` — Default color of border segments

string

You can specify:

- The name of a color. The name must be a CSS color name. See http://www.crockford.com/wrrrld/color.html.

- A hexadecimal RGB (truecolor) value as `#RRGGBB`. For example, `#0000ff` is a shade of blue.

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Style` — Default style of border segments

string

For details, see the description of the `style` input argument for the `mlreportgen.dom.Border` constructor.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Width` — Width of border

string

String specifying the width of the border. String must have the format `valueUnits` where `Units` is an abbreviation for the units in which the width size is expressed. Valid abbreviations are:

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points

- px — pixel

`BottomColor` — Bottom border segment color
string

Bottom border segment color, specified as a string.

`BottomStyle` — Bottom border segment style
string

Bottom border segment style, specified as a string.

`BottomWidth` — Bottom border segment width
string

Bottom border segment width, specified as a string.

`TopColor` — Top border segment color
string

Top border segment color, specified as a string.

`TopStyle` — Top border segment style
string

Top border segment style, specified as a string.

`TopWidth` — Top border segment width
string

Top border segment width, specified as a string.

`LeftColor` — Left border segment color
string

Left border segment color, specified as a string.

`LeftStyle` — Left border segment style
string

Left border segment style, specified as a string.

`LeftWidth` — Left border segment width
string

Left border segment width, specified as a string.

`RightColor` — Right border segment color

string

Right border segment color, specified as a string.

`RightStyle` — Right border segment style

string

Right border segment style, specified as a string.

`RightWidth` — Right border segment width

string

Right border segment width, specified as a string.

Examples

Format Table Borders

```
import mlreportgen.dom.*;
doctype = 'html';
d = Document('test', doctype);
t = Table(magic(5));
t.Style = {Border('inset', 'crimson', '6pt'), Width('50%')};
t.TableEntriesInnerMargin = '6pt';
append(d, t);
close(d);
rptview('test', doctype);
```

- “Create and Format Tables”

See Also

`mlreportgen.dom.ColSep` | `mlreportgen.dom.RowSep` | `mlreportgen.dom.Table`

mlreportgen.dom.BorderCollapse class

Package: mlreportgen.dom

Collapse HTML table borders

Description

Specifies whether to collapse table borders. This applies only to HTML tables.

Construction

`borderCollapseObj = BorderCollapse()` creates an unspecified format. Nothing is inserted in the generated table markup.

`borderCollapseObj = BorderCollapse(value)` creates a border collapse object having the specified value.

Input Arguments

`value` — Specify whether to collapse border

string

String specifying to collapse table borders (`'on'`) or to leave table and adjacent cell borders separate (`'off'`).

Output Arguments

`borderCollapseObj` — Specify whether to collapse table borders

`mlreportgen.dom.BorderCollapse` object

Specify whether to collapse table borders, represented by an `mlreportgen.dom.BorderCollapse` object.

Properties

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Value` — Specify whether to collapse border

string

String specifying to collapse table borders (`'on'`) or to leave table and adjacent cell borders separate (`'off'`).

Examples

Collapse and Separate Table Borders

```
import mlreportgen.dom.*;
doctype = 'html';
d = Document('test',doctype);

magicArray = magic(5);

p = Paragraph('Collapsed Borders');
append(d,p);
table = Table(magicArray);
table.Style = {Border('solid'),BorderCollapse('on')};
     for r = 1:5
         for c = 1:5
             table.entry(r,c).Style = {Border('solid')};
         end
     end
append(d,table);
```

```
p = Paragraph('Separate Borders');
append(d,p);
table = Table(magicArray);
table.Style = {Border('solid'),BorderCollapse('off')};
     for r = 1:5
         for c = 1:5
             table.entry(r,c).Style = {Border('solid')};
         end
     end
append(d,table);

close(d);
rptview(d.OutputPath,doctype);
```

- “Create and Format Tables”

See Also

`mlreportgen.dom.Border` | `mlreportgen.dom.TableColSpec` | `mlreportgen.dom.TableEntry` | `mlreportgen.dom.TableRow`

mlreportgen.dom.CharEntity class

Package: mlreportgen.dom

Create character entity reference

Description

Create a reference to a character entity reference.

Construction

`charEntityObj = CharEntity()` creates a reference to a non-breaking space ( ) entity. Appending this reference to a document causes a nonbreaking space to be inserted.

`charEntityObj = CharEntity(name)` creates a reference to the character entity specified by name.

`charEntityObj = CharEntity(name,n)` creates n references to the character entity specified by name, that is, a string of n special characters.

Input Arguments

`name` — Specify character entity name

string

String must be a name that is listed at http://en.wikipedia.org/wiki/List_of_XML_and_HTML_character_entity_references.

`n` — Number of character entities to use

integer

Number of character entities to use, specified as an integer.

Data Types: `uint16`

Output Arguments

`charEntityObj` — Reference to a character entity

`mlreportgen.dom.CharEntity` object

Reference to a character entity, represented by an `mlreportgen.dom.CharEntity` object.

Properties

`BackgroundColor` — Background color

string

Specify one of these as a string:

- The name of a color. The name must be a CSS color name. See http://www.crockford.com/wrrrld/color.html.
- A hexadecimal RGB (truecolor) value as `#RRGGBB`. For example, `#0000ff` is a shade of blue.

`Bold` — Option to use bold for number

logical value

To make text bold, set this property to `true` or `1`. If this property is empty and the `StyleName` property for this document element specifies a style sheet style, the weight of the number is determined by that style. Setting the `Bold` property adds a corresponding `mlreportGen.dom.Bold` format object to the `Style` property of this document element. Removing the `Bold` property setting removes the object.

Data Types: `logical`

`Color` — Text color

string

Specify one of these as a string:

- The name of a color. The name must be a CSS color name. See http://www.crockford.com/wrrrld/color.html.
- A hexadecimal RGB (truecolor) value as `#RRGGBB`. For example, `#0000ff` is a shade of blue.

`Content` — Text string contained by this document element

string

Text string contained by this document element.

`CustomAttributes` — Custom attributes of document element

array of `mlreportgen.dom.CustomAttribute` objects

HTML or Microsoft Word must support the custom attributes of this document element.

`FontFamilyName` — Name of font family for text

string

The name of a font family.

To specify substitutions for this font, do not set this property. Instead create and add a `mlreportgen.dom.FontFamily` object to the `Style` property of this document element.

Setting the `FontFamilyName` property adds a corresponding `mlreportGen.dom.FontFamily` format object to the `Style` property for this document element. Removing the `FontFamilyName` property setting removes the object.

`FontSize` — Font size

string

If you need to specify substitutions for this font, do not set this property. Instead create and add a `mlreportgen.dom.FontFamily` object to the `Style` property of this document element.

Setting the `FontSize` property adds a corresponding `mlreportGen.dom.FontSize` format object to the `Style` property for this document element. Removing the `FontSize` property setting removes the object.

String having the format `valueUnits`, where `Units` is an abbreviation for the units in which the font size is expressed. Use one of these abbreviations for the units for the font size.

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters

- `pi` — picas
- `pt` — points
- `px` — pixel

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Italic` — Option to use italics for number

logical value

To use italics for a number, set this property to `true`. If this property is empty and the `StyleName` property for this document element specifies a style sheet style, the slant of the number is determined by that style. Setting the `Italic` property adds a corresponding `mlreportGen.dom.Italic` format object to the `Style` property of this document element. Removing the `Italic` property setting removes the object.

Data Types: `logical`

`Name` — Name of character entity

string

The name is a character entity listed in http://en.wikipedia.org/wiki/List_of_XML_and_HTML_character_entity_references.

Data Types: `logical`

`Repeat` — Number of times to repeat character entity

numeric value

Number of times to repeat character entity, specified as a numeric value.

Data Types: `double`

`Strike` — Text strikethrough

string

The default for this property is []. You can set it to one of these values:

- `none` — Do not use strikethrough for Word and HTML documents
- `single` — Use a single line for strikethrough for Word and HTML documents

- `double` — Use a double line for strikethrough for Word documents

Setting the `Strike` property adds a corresponding `mlreportGen.dom.Strike` format object to the `Style` property for this document element. Removing the `Strike` property setting removes the object.

`Style` — Number formatting

array of `mlreportgen.dom.DOCXSection` objects

An array of `mlreportgen.dom.DOCXSection` objects that specifies the format for the number.

`StyleName` — Style for number

string

The style specified by styleName must be defined in the template used to create the document element to which this number is appended.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Underline` — Type of underline, if any, for text

`[ ]` (default) | string

You can specify one of the following types of underlines.

Border String	Description	Supported Output Types
`dash`	Dashed underline	Word
`dashedHeavy`	Line with heavy dashes	Word
`dashLong`	Line with long dashes	Word
`dashLongHeavy`	Line with heavy long dashes	Word

Border String	Description	Supported Output Types
`dashDotDotHeavy`	Line with heavy dashes with two dots between the dashes	Word
`dashDotHeavy`	Heavy dash-dot line	Word
`dotted`	Dotted line	Word
`dottedHeavy`	Thick dotted line	Word
`dotDash`	Dot-dash line	Word
`dotDotDash`	Dot-dot-dash line	Word
`dashDotHeavy`	Heavy dot-dash line	Word
`double`	Double line	Word
`none`	Do not use underlining	HTML and Word
`single`	Single line	HTML and Word
`thick`	Thick line	Word
`wave`	Wavy line	Word
`waveyDouble`	Double wavy line	Word
`waveyHeavy`	Heavy wavy	Word
`words`	Underline non-space characters only	Word

If this property is empty and `StyleName` property of this document element specifies a style sheet style, the type of underline is determined by that style.

To specify the color as well as the type of the underline, do not set the `Underline` property. Instead, set the `Style` property of this document element to include an `mlreportgen.dom.Underline` format object that specifies the desired underline type and color.

Setting the `Underline` property adds a corresponding `mlreportGen.dom.Underline` format object to the `Style` property for this document element. Removing the `Underline` property setting removes the object.

`WhiteSpace` — White space and line breaks in text

[ ] (default) | string

To specify how to handle white space, use one of the following strings.

Border String	Description	Supported Output Types
`normal`	Does not preserve white space and line breaks	Word and HTML
`nowrap`	Sequences of white space collapse into a single white space. Text never wraps to the next line.	HTML
`preserve`	Preserves white space. Text wraps only on line breaks. Acts like the `<pre>` tag in HTML.	Word and HTML See below for details.
`pre`	Preserves white space. Text wraps only on line breaks. Acts like the `<pre>` tag in HTML.	HTML
`pre-line`	Sequences of white space collapse into a single white space. Text wraps.	HTML
`pre-wrap`	Preserves white space. Text wraps when necessary and on line breaks	HTML

If you want to view HTML output in the MATLAB browser and you want to preserve white space and wrap text only on line breaks, use the `preserve` setting rather than the `pre` setting.

Setting the `WhiteSpace` property adds a corresponding `WhiteSpace` format object to `Style` property. Removing the `WhiteSpace` property setting removes the `WhiteSpace` object.

Methods

Method	Purpose
`append`	Append a custom element to this character entity.

Method	Purpose
Use `CharEntity.append` in a similar way to how you use `ExternalLink.append`.	
`clone` Use `CharEntity.clone` in a similar way to how you use `Paragraph.clone`.	Clone this character entity.

Examples

Append a British Pound Sign

```
import mlreportgen.dom.*;
doctype = 'html';
d = Document('test',doctype);

p = Paragraph(CharEntity('pound'));
append(d,p);
append(p,'3');

close(d);
rptview('test',doctype);
```

Append Two Nonbreaking Spaces

```
import mlreportgen.dom.*;
doctype = 'html';
d = Document('test',doctype);

p = Paragraph('Some text');
append(d,p);
ce = CharEntity('nbsp',5);
append(p,ce);
append(p,'more text after five blank spaces');

close(d);
rptview('test',doctype);
```

See Also

`mlreportgen.dom.Paragraph` | `mlreportgen.dom.Text`

More About

- "Report Formatting Approaches"

mlreportgen.dom.Color class

Package: mlreportgen.dom

Color of document element

Description

Specifies the color of a document element.

Construction

`colorObj = Color()` creates a black color object.

`colorObj = Color(colorName)` creates a color object based on the specified CSS color name.

`colorObj = Color(rgbValue)` creates a color object using the hexidecimal RGB color value.

Input Arguments

`colorName` — Name of color

string

Name of a color. The name must be a CSS color name. See http://www.crockford.com/wrrrld/color.html.

`rgbValue` — Hexidecimal RGB (red, green, blue) color value

string

A string using the following RGB format: `#RRGGBB`. Use # as the first character and two-digit hexidecimal numbers for each for the red, green, and blue values. For example, `'#0000ff'` specifies blue.

Output Arguments

`colorObj` — Color for document element

`mlreportgen.dom.Color` object

Color for document element, represented by an `mlreportgen.dom.Color` object.

Properties

`HexValue` — hexidecimal color value (read-only)

string

Hexadecimal number representing an RGB color value. For example, `'#8b008b'` specifies dark magenta. You can use either uppercase or lowercase letters as part of a hexadecimal value.

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Value` — CSS color name or hexidecimal RGB value for this color

string

Either a CSS color name or a hexidecimal RGB value.

Examples

Create and Apply a Color Object

Create a deep blue color object and apply it to a paragraph. Instead of specifying the CSS color name `'blue'`, you could use the hexadecimal value `'00bfff'`.

```
import mlreportgen.dom.*;
doctype = 'html';
d = Document('test',doctype);

blue = 'DeepSkyBlue';
colorfulStyle = {Bold,Color('blue')};
p = Paragraph('deep sky blue paragraph');
p.Style = colorfulStyle;
append(d,p);

close(d);
rptview('test',doctype);
```

See Also

`mlreportgen.dom.BackgroundColor`

More About

- "Report Formatting Approaches"

mlreportgen.dom.ColSep class

Package: mlreportgen.dom

Draw lines between table columns

Description

Draw lines between table columns.

Construction

`colSepObj = ColSep()` creates unspecified column separators.

`colSepObj = ColSep(style)` creates a column separator of the specified style.

`colSepObj = ColSep(style,color)` creates a column separator having the specified style and color.

`colSepObj = ColSep(style,color,width)` creates a column separator having the specified style, color, and width.

Input Arguments

`style` — Style of column separator in table

string

String specifying the style of the table column separator.

String	Applies To	
	DOCX	HTML
`'dashed'`	X	X
`'dashdotstroked'`	X	

String	Applies To	
	DOCX	HTML
'dashsmallgap'	X	
'dotted'	X	X
'dotdash'	X	
'dotdotdash'	X	
'double'	X	X
'doublewave'	X	
'inset'	X	X
'none'	X	X
'outset'	X	X
'single'	X	
'solid'		X
'thick'	X	
'thickthinlargegap'	X	
'thickthinmediumgap'	X	
'thickthinsmallgap'	X	
'thinthicklargegap'	X	
'thinthickmediumgap'	X	
'thinthicksmallgap'	X	
'thinthickthinlargegap'	X	
'thinthickthinmediumgap'	X	
'thinthickthinsmallgap'	X	
'threedemboss'	X	
'threedengrave'	X	
'triple'	X	
'wave'	X	

`color` — Color of column separator in table
string

You can specify:

- The name of a color. The name must be a CSS color name. See http://www.crockford.com/wrrrld/color.html.
- A hexadecimal RGB (truecolor) value as `#RRGGBB`. For example, `#0000ff` is a shade of blue.

`width` — Width of column separator in the table

string

String specifying the color of the table column separator. String must have the format `valueUnits` where `Units` is an abbreviation for the units in which the width size is expressed. Valid abbreviations are:

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixel

Output Arguments

`colSepObj` — Column separator definition

`mlreportgen.dom.ColSpec` object

Column separator definition, represented by an `mlreportgen.dom.ColSpec` object.

Properties

`Color` — Separator color

string

You can specify:

- The name of a color. The name must be a CSS color name. See http://www.crockford.com/wrrrld/color.html.

- A hexadecimal RGB (truecolor) value as `#RRGGBB`. For example, `#0000ff` is a shade of blue.

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Style` — Format for separator

array of format objects

Array of format objects (such as `Bold` objects) that specify the format for the separator.

This property overrides corresponding formats defined by the stylesheet style specified by the `StyleName` property.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Width` — Separator width

string

String representing a percentage (for example, `'100%'`) or a number of units of measurement, having the format `valueUnits`, where `Units` is an abbreviation for the units in which the width is expressed.

The string has the format `valueUnits`, where `Units` is an abbreviation for the units in which the width is expressed. Use one of these abbreviations for the units of a width.

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches

- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixel

Data Types: `char`

Examples

Specify Table Column Formatting

Set the width and color of the first column of a table.

```
import mlreportgen.dom.*
doc = Document('myTableColReport','docx');

grps(1) = TableColSpecGroup;
grps(1).Span = 1;
grps(1).Style = {Color('red'),Width('1in')};

table = Table(magic(5));
table.ColSpecGroups = grps;
append(doc,table);

close(doc);
rptview('myTableColReport','docx');
```

- “Create and Format Tables”

See Also

`mlreportgen.dom.RowSep`

mlreportgen.dom.CoreProperties class

Package: mlreportgen.dom

OPC core properties of document or template

Description

OPC core properties of a document or template.

Construction

`corePropsObj = CoreProperties()` creates an empty core properties object. Core properties are metadata stored in a document OPC package that describe various properties of the document. Windows Explorer displays some of the core properties when you select a document.

Output Arguments

`corePropsObj` — OPC core properties
`mlreportgen.dom.CoreProperties` object

OPC core properties, represented by an `mlreportgen.dom.CoreProperties` object.

Properties

`Category` — Category of document
string

Category of a document, specified as a string.

`ContentStatus` — Content status of document
string

Content status of a document, specified as a string.

`Creator` — Creator of document
string

Creator of a document, specified as a string.

`Description` — Description of document
string

Description of a document, specified as a string.

`Id` — ID for document element
string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Identifier` — Identifier for document
string

Identifier for a document, specified as a string.

`Keywords` — Keywords associated with document
array of strings

Keywords associated with a document, specified as a string.

`Language` — Language of document
string

Language of a document, specified as a string.

`LastModifiedBy` — Agent that last modified this document
string

Agent that last modified this document, specified as a string.

`Revision` — Revision of document
string

Revision of a document, specified as a string.

`Subject` — Subject of document
string

Subject of a document, specified as a string.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Title` — Title of document

string

Title of a document, specified as a string.

`Version` — Version of document

string

Version of a document, specified as a string.

See Also

`mlreportgen.dom.Document.getCoreProperties` | `mlreportgen.dom.Document.setCoreProperties`

More About

- “Report Packages”

mlreportgen.dom.CounterInc class

Package: mlreportgen.dom

Number stream counter incrementer

Description

Creates a numbering stream counter incrementer.

Construction

`counterIncObj = CounterInc()` creates an empty counter incrementer.

`counterIncObj = CounterInc(streamName)` creates a counter incrementer for the specified numbering stream. Assigning this format to the style of a DOM object causes the associated stream counter to be incremented when the object is appended to a document.

Input Arguments

`streamName` — Numbering stream name
string

Numbering stream name, specified as a string.

Output Arguments

`counterIncObj` — Numbering stream counter incrementer
`mlreportgen.dom.CounterInc` object

Numbering stream counter incrementer, represented by an `mlreportgen.dom.CounterInc` object.

Properties

`Id` — ID for document element
string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`StreamName` — Numbering stream name

string

Numbering stream name, specified as a string.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

Examples

Increment Chapter Numbering

```
import mlreportgen.dom.*;
doctype = 'html';
d = Document('test',doctype);

p = Paragraph('Chapter ');
p.Style = {CounterInc('chapter'),WhiteSpace('preserve')};
append(p,AutoNumber('chapter'));
append(d,p);

p = Paragraph('Chapter ');
p.Style = {CounterInc('chapter'), WhiteSpace('preserve')};
append(p,AutoNumber('chapter'));
append(d,p);

close(d);
rptview('test',doctype);
```

- “Automatically Number Document Content”

See Also

`mlreportgen.dom.AutoNumber` | `mlreportgen.dom.AutoNumberStream` | `mlreportgen.dom.CounterReset`

mlreportgen.dom.CounterReset class

Package: mlreportgen.dom

Reset numbering stream counter

Description

Reset a numbering stream counter.

Construction

`counterResetObj = CounterReset()` creates an empty counter reset object.

`counterResetObj = CounterReset(streamName)` creates a counter resetter for the specified numbering stream. Assigning this format to the style of a DOM object causes the associated stream counter to be reset to its initial value when the object is appended to a document.

Input Arguments

`streamName` — Numbering stream name
string

Numbering stream name, specified as a string.

Output Arguments

`reset` — Numbering stream counter reset
`mlreportgen.dom.CounterReset` object

Numbering stream counter reset, represented by an `mlreportgen.dom.CounterReset` object.

Properties

`Id` — ID for document element
string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`StreamName` — Numbering stream name

string

Numbering stream name, specified as a string.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

Examples

Reset Numbering for Chapters and Tables

```
import mlreportgen.dom.*;
doctype = 'html';
d = Document('test',doctype);

p = Paragraph('Chapter ');
p.Style = {CounterInc('chapter'),CounterReset('table'),...
   WhiteSpace('preserve') };
append(p,AutoNumber('chapter'));
append(d,p);

p = Paragraph('Table ');
append(p,AutoNumber('chapter'));
append(p,'.');
append(p,AutoNumber('table'));
p.Style = {CounterInc('table'),WhiteSpace('preserve') };
append(d,p);

p = Paragraph('Chapter ');
```

```
p.Style = {CounterInc('chapter'),CounterReset('table'),...
   WhiteSpace('preserve')};
append(p,AutoNumber('chapter'));
append(d,p);

p = Paragraph('Table ');
append(p,AutoNumber('chapter'));
append(p,'.');
append(p, AutoNumber('table'));
p.Style = {CounterInc('table'),WhiteSpace('preserve')};
append(d,p);

close(d);
rptview('test',doctype);
```

- “Automatically Number Document Content”

See Also

`mlreportgen.dom.AutoNumber` | `mlreportgen.dom.AutoNumberStream` | `mlreportgen.dom.CounterInc`

mlreportgen.dom.CustomAttribute class

Package: mlreportgen.dom

Custom element attribute

Description

Custom element attribute.

Construction

`customAttributeObj = CustomAttribute()` creates an empty custom attribute.

`customAttributeObj = CustomAttribute(name)` creates an attribute having the specified name.

`customAttributeObj = CustomAttribute(name,value)` creates an attribute having the specified name and value.

Input Arguments

`name` — Attribute name
string

Attribute name, specified as a string.

`value` — Attribute value
string

Attribute value, specified as a string.

Output Arguments

`customAttributeObj` — Custom attribute
`mlreportgen.dom.CustomAttribute` object

Custom attribute, represented by an `mlreportgen.dom.CustomAttribute` object.

Properties

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Name` — Attribute name

string

Attribute name, specified as a string.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Value` — Value of this attribute

string

Value of this attribute, specified as a string.

Examples

Create Custom Attributes for a List

This example shows how to define custom attributes and append them to an unordered list.

```
import mlreportgen.dom.*;
d = Document('test');

ul = UnorderedList();
```

```
li = ListItem('Owl');
li.CustomAttributes = {CustomAttribute('data-animal-type','bird')};
append(ul,li);

li = ListItem('Salmon');
li.CustomAttributes = {CustomAttribute('data-animal-type','fish')};
append(ul,li);

li = ListItem('Tarantula');
li.CustomAttributes = {CustomAttribute('data-animal-type','spider')};

append(ul,li);
append(d,ul);

close(d);
rptview('test','html');
```

See Also

`mlreportgen.dom.CustomElement` | `mlreportgen.dom.CustomText`

mlreportgen.dom.CustomElement class

Package: mlreportgen.dom

Custom element of document

Description

Use a custom element to extend the DOM API. You can create a custom HTML or Microsoft Word element that provides functionality not yet included in the DOM API.

Construction

`customElementObj = CustomElement()` creates an empty element.

`customElementObj = CustomElement(name)` creates a custom element having the specified name.

Input Arguments

`name` — Custom element name
string

Name of an element supported by the type of document to which this custom element is appended. For example, specify `'div'` for a custom HTML div element or `'w:p'` for a custom Word paragraph element.

Output Arguments

`customElementObj` — Custom element
`mlreportgen.dom.CustomElement` object

Custom element, represented by an `mlreportgen.dom.CustomElement` object.

Properties

`CustomAttributes` — Custom attributes of document element
array of `mlreportgen.dom.CustomAttribute` objects

HTML or Microsoft Word must support the custom attributes of this document element.

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Name` — Element name

string

Element name, specified as a string.

`Style` — Format specification

array of format objects

This property is ignored.

`StyleName` — Name of custom element style

string

This property is ignored.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

Methods

Method	Purpose
append	Append a custom element to the document element

Method	Purpose
`clone` Use `CustomElement.clone` similar to how you use `Paragraph.clone`.	Copy custom element.

Examples

Create a Check Box Custom Element

This example shows how to add a custom element that provides a check box in an HTML report.

Create and a custom element and append text to it.

```
import mlreportgen.dom.*;
d = Document('test');

input1 = CustomElement('input');
input1.CustomAttributes = {
         CustomAttribute('type', 'checkbox'), ...
         CustomAttribute('name', 'vehicle'), ...
         CustomAttribute('value', 'Bike'), ...
         };
append(input1, Text('I have a bike'));
```

Append the custom element to an ordered list and display the report.

```
ol = OrderedList({input1});
append(d,ol);

close(d);
rptview('test','html');
```

See Also

`mlreportgen.dom.CustomAttribute` | `mlreportgen.dom.CustomText`

mlreportgen.dom.CustomText class

Package: mlreportgen.dom

Plain text appended to custom element

Description

Plain text string to append to a custom element.

Construction

`customTextObj = CustomText()` creates an empty `CustomText` object.

`customTextObj = CustomText(text)` creates a `CustomText` object containing the specified text string.

Input Arguments

`text` — Text string to append to custom element
string

Text specified as a string.

Output Arguments

`customTextObj` — Text string to append to custom element
`mlreportgen.dom.CustomText` object

Text to append to a custom element, represented by an `mlreportgen.dom.CustomText` object.

Properties

`Id` — ID for document element
string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Parent` — Parent of document element

a DOM object

This read-only property lists the parent of this document element.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Value` — Text to add

string

Text to add to a custom element, specified as a string.

Examples

Create Custom Text for a Script

```
import mlreportgen.dom.*;
d = Document('test');

script = CustomElement('script');
append(script,CustomText('document.write("Hello World!")'));
append(d,script);

close(d);
rptview('test','html');
```

See Also

`mlreportgen.dom.CustomAttribute` | `mlreportgen.dom.CustomElement`

mlreportgen.dom.DebugMessage class

Package: mlreportgen.dom

Debugging message

Description

Creates debugging message text originating from the specified source object.

Construction

`debugMsgObj = DebugMessage(text,sourceObject)` creates a debugging message with the specified text, originating from the specified source object.

Input Arguments

`text` — Message text
string

The text to display for the message.

`sourceObject` — DOM object from which message originates
a DOM object

The DOM object from which the message originates.

Output Arguments

`debugMsgObj` — Debugging message
`mlreportgen.dom.DebugMessage` object

Debug message, represented by an `mlreportgen.dom.DebugMessage` object.

Properties

`Id` — ID for document element
string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Source` — Source object message originates from

a DOM object

Source DOM object from which the message originates.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Text` — Text of the message

string

Message text, specified as a string.

Methods

Use `DebugMessage` methods similar to how you use `ProgressMessage` methods.

Method	Purpose
`formatAsHTML`	Format message as HTML.
`formatAsText`	Format message as text.
`passesFilter`	Determine whether message passes filter.

Examples

Create a Debug Message

Create the report document.

```
import mlreportgen.dom.*;
d = Document('test','html');
```

Create a message dispatcher.

```
dispatcher = MessageDispatcher.getTheDispatcher;
l = addlistener(dispatcher,'Message', ...
      @(src, evtdata) disp(evtdata.Message.formatAsText));
```

Dispatch the message.

```
open(d);
dispatch(dispatcher,DebugMessage('starting chapter',d));
```

Add report content.

```
p = Paragraph('Chapter ');
p.Tag = 'chapter title';
p.Style = { CounterInc('chapter'),...
    CounterReset('table'),WhiteSpace('pre') };
append(p, AutoNumber('chapter'));
append(d,p);
```

Run report and delete the listener.

```
close(d);
rptview('test','html');

delete(l);
```

- “Display Report Generation Messages”

See Also

`mlreportgen.dom.MessageDispatcher.dispatch`

mlreportgen.dom.Document class

Package: mlreportgen.dom

Report definition document

Description

Create `mlreportgen.dom.Document` object that defines:

- The type of output (HTML, Microsoft Word, or PDF)
- Where and how to store the output
- The template to use

Construction

`documentObj = Document()` creates an HTML document named `Untitled.htmx` in the current directory, using the default HTML template.

`documentObj = Document(outputPath)` creates an HTML document at the specified location.

`documentObj = Document(outputPath,type)` creates a document of the specified type (for example, Word), using the default template for that type.

`documentObj = Document(outputPath,type,templatePath)` creates a document, using the specified document type and Word or HTML template corresponding to the type setting.

Input Arguments

`outputPath` — Path for the output file generated by the document

string

Full path of output file or folder for this document. If you do not specify a file extension, the extension is based on the document type (for example, `.docx` for Microsoft Word). When the document is open, you cannot set this property.

What you specify for the path depends on the value of the `PackageType` property.

- `zipped`— name of zip file
- `unzipped`— folder for the output files
- `both`— name of zip file

Data Types: `char`

`type` — Type of output
string

The format for the output. Use one of these values:

- `html`
- `docx`
- `pdf`

If you specify a template using the masterTemplatePath input argument, the value for type must be consistent with that type of template. If you set type to `pdf`, then set masterTemplatePath to a Word template.

`templatePath` — The path of the document template
`[]` | string

If you do not want to use the default HTML or Word template, specify a template.

Full path of output file or folder for the template. If you do not specify a file extension, the extension is based on the document type (for example, `.docx` for Word). Before setting this property, close the document.

Data Types: `char`

Output Arguments

`documentObj` — Report definition document
`mlreportgen.dom.Document` object

Report definition document, represented by an `mlreportgen.dom.Document` object.

Properties

`Children` — Children of this document
cell array of `mlreportgen.dom.Element` objects

This read-only property lists child elements that the document element contains.

`CurrentHoleId` — Hole ID of current hole in document

string

This read-only property is the hole ID of the current hole in this document.

`CurrentHoleType` — Type of current hole

string

This read-only property is the type (inline or block) of the current template hole.

- An inline hole is for document elements that a paragraph element can contain: `Text`, `Image`, `LinkTarget`, `ExternalLink`, `InternalLink`, `CharEntity`, `AutoNumber`.
- A block hole can contain a `Paragraph`, `Table`, `OrderedList`, `UnorderedList`, `DocumentPart`, and `Group`.

`CurrrentDOCXSection` — The current section of Word document

`mlreportgen.dom.DOCXSection` object

This read-only property for a Word document is a `mlreportgen.dom.DOCXSection` object that specifies the properties, as well as the headers and footers, of the current document section. In HTML documents, the value of this property is always `[]`.

`ForceOverwrite` — Option to overwrite existing output file

`[]` (default) | logical value

Set this property to `true` to overwrite an existing output file of the same name for a report from this document. If this property is `false`, or if the existing output file is read-only, then generating an output file using the same path as an existing output file causes an error.

Data Types: `logical`

`HTMLHeadExt` — Custom content for HTML header

string

Custom content for HTML header, specified as a string.

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`OutputPath` — Path of output file or folder for this document

string

You cannot set this property once the document has been opened.

Path of this document's output file. If you do not specify the file extension, the DOM interface adds an extension based on the output type of the document.

For unzipped output packaging, the path specifies the folder for the output files. The default is the current folder.

`PackageType` — Packaging for files generated from this document

string

String specifying how to package the output files generated from this document. Use one of these values:

- `zipped` (default)
- `unzipped`
- `both`

For zipped packaging, the document output is a zip file located at the location specified by the `OutputPath` property. The zip file has the extension that matches the document type: `docx` (for Word output) or `htmx` (for HTML output). For example, if the document type is `docx` and `OutputPath` is `s:\docs\MyDoc`, the output is packaged in a zip file named `s:\docs\MyDoc.docx`.

For unzipped packaging, the document output is stored in a folder having the root file name of the `OutputPath` property. For example, if the `OutputPath` is `s:\docs\MyDoc`, the output folder is `s:\docs\MyDoc`.

If you set `PackageType` to `both`, generating the report produces zipped and unzipped output.

`Parent` — Parent of document element

a DOM object

This read-only property lists the parent of this document element.

`StreamOutput` — Option to stream output to disk

`false` (default) | logical value

By default, document elements are stored in memory until the document is closed. Set this property to `true` to write document elements to disk as the elements are appended to the document.

Data Types: `logical`

`Tag` — Tag for this document

session-unique tag when the document is generated (default) | custom tag

String that identifies this document. The tag has the form `CLASS:ID`, where `CLASS` is the document class and `ID` is the value of the `Id` property of the object.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

Data Types: `char`

`TemplatePath` — Path of the template used for this document element

string

The full path to the HTML or Word template to use for this document element.

`TitleBarText` — Title for HTML browser title bar

string

For HTML documents, this property specifies the text for the title bar of the browser. Word documents ignore this property.

Set this property before opening the document for output.

`type` — Type of output

string

The format for the output. Use one of these values:

- `html`
- `docx`
- `pdf`

If you specify a template as an input argument, the value for type must be consistent with that type of template. If you set type to `pdf`, then set the input argument to a Word template.

Methods

Method	Purpose
`append`	Append document element to the document.
`close`	Close this document.
`createAutoNumberStream`	Create automatically generated numbering stream.
`createTemplate`	Create document template.
`fill`	Fill document hole.
`getAutoNumberStream`	Get the automated numbering stream.
`getCoreProperties`	Get core properties of document.
`getMainPartPath`	Get relative path of main part of output document.
`getOPCMainPart`	Get full path of main part of output document.
`moveToNextHole`	Move to next template hole.
`open`	Open this document.
`package`	Append file to OPC package of document.
`setCoreProperties`	Set core properties of document element.

Examples

Create a Document

```
import mlreportgen.dom.*;
d = Document('mydoc','html');

p = Paragraph('Hello World');
```

```
append(d,p);

close(d);
rptview('mydoc_1.htmx');
```

See Also

`mlreportgen.dom.DocumentPart`

mlreportgen.dom.DocumentPart class

Package: mlreportgen.dom

Document part

Description

This class defines a form that can be filled out and appended to a document or another document part of the same output type.

Construction

`documentPartObj = DocumentPart()` creates an HTML document part using the default HTML template.

`documentPart = DocumentPart(type)` creates a document part of the specified type (for example, Microsoft Word).

`documentPartObj = DocumentPart(type,masterTemplatePath)` creates a document part based on the specified template. The template must be either an HTML or Word template, depending on the part type. For PDF document parts, use a Microsoft Word template.

`documentPartObj = DocumentPart(type,masterTemplatePath, embeddedTemplateName)` creates a document part of the specified type based on the embedded template stored in the specified master template.

`documentPartObj = DocumentPart(masterTemplateSrc, embeddeTemplateName)` creates a document part with the output type of the template used by the specified master template source. The template source is a document or document part that contains the embedded template.

Input Arguments

`type` — Type of output

string

The format for the output. Use one of these values:

- `html`
- `docx`
- `pdf`

If you specify a template using the masterTemplatePath input argument, the value for type must be consistent with that type of template. If you set type to `pdf`, then set masterTemplatePath to a Word template.

`masterTemplatePath` — Path of document template
`[]` | string

You cannot set this property once the document has been opened.

If you do not want to use the default HTML or Word template, specify a template.

Full path of output file or folder for the template. If you do not specify a file extension, the extension is based on the document type (for example, `.docx` for Word).

`embeddedTemplateName` — Embedded template name
string

An embedded template is a template that is embedded in a Word template.

`masterTemplateSrc` — Document or document part whose template is master template
`mlreportgen.dom.Document` object | `mlreportgen.dom.DocumentPart` object

Document or document part whose template is the master template, specified as an `mlreportgen.dom.Document` or `mlreportgen.dom.DocumentPart` object.

Output Arguments

`documentPartObj` — Document part
`mlreportgen.dom.DocumentPart` object

Document part, represented by an `mlreportgen.dom.DocumentPart` object.

Properties

`Children` — Children of this document
cell array of `mlreportgen.dom.Element` objects

This read-only property lists child elements that the document element contains.

`CurrentHoleId` — Hole ID of current hole in document

string

This read-only property is the hole ID of the current hole in this document.

`CurrentHoleType` — Type of current hole

string

This read-only property is the type (inline or block) of the current template hole.

- An inline hole is for document elements that a paragraph element can contain: `Text`, `Image`, `LinkTarget`, `ExternalLink`, `InternalLink`, `CharEntity`, `AutoNumber`.
- A block hole can contain a `Paragraph`, `Table`, `OrderedList`, `UnorderedList`, `DocumentPart`, and `Group`.

`CurrrentDOCXSection` — The current section of Word document

`mlreportgen.dom.DOCXSection` object

This read-only property for a Word document is a `mlreportgen.dom.DOCXSection` object that specifies the properties, as well as the headers and footers, of the current document section. In HTML documents, the value of this property is always `[]`.

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Parent` — Parent of document element

a DOM object

This read-only property lists the parent of this document element.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`TemplatePath` — Path of the template used for this document element

string

The full path to the HTML or Word template to use for this document element.

`type` — Type of output

string

The format for the output. Use one of these values:

- `html`
- `docx`
- `pdf`

If you specify a template using the masterTemplatePath input argument, the value for type must be consistent with that type of template. If you set type to `pdf`, then set masterTemplatePath to a Word template.

Methods

Use `DocumentPart` methods like you use the corresponding `Document` methods.

Method	Purpose
`append`	Append document element to the document part.
`close`	Close this document part.
`createTemplate`	Create document part template.
`fill`	Fill document hole.
`getCoreProperties`	Get core properties of document part.
`getOPCMainPart`	Get full path of main part of output document.
`moveToNextHole`	Move to next template hole.
`open`	Open this document part.

Method	Purpose
`setCoreProperties`	Set core properties of document part.

See Also

`mlreportgen.dom.Document` | `mlreportgen.dom.DOCXSection` | `mlreportgen.dom.DOCXSubDoc`

Related Examples

- "Use Subforms in a Report"

More About

- "Form-Based Reporting"

mlreportgen.dom.DOCXPageFooter class

Package: mlreportgen.dom

Page footer definition for Microsoft Word document

Description

Add a footer to the first page of a section or to odd pages, even pages, or both.

Construction

`docxPageFooterObj = DOCXPageFooter()` creates an empty page footer based on the default Word template.

`docxPageFooterObj = DOCXPageFooter(pageType,templatePath)` creates an empty page footer for the specified type of page based on the specified template.

`docxPageFooterObj = DOCXPageFooter(pageType,templatePath,embeddedTemplateName)` creates an empty page footer for the specified type of page, based on the specified template embedded in the specified master template.

`docxPageFooterObj = DOCXPageFooter(pageType,templateSrc,embeddedTemplateName)` creates an empty page footer for the specified type of page, based on the specified embedded template in the specified master template of the specified document or document part (templateSrc).

Input Arguments

`pageType` — Type of pages on which footer appears

`[ ]` (default) | string

You can specify one of these settings:

- `default`— footer appears on odd pages in a section and the first page, if there are no page footers defined with pageType set to `first`

- `first`— footer appears only on the first page of a section
- `even`— footer appears on even pages in a section

For example, to have a footer appear on the first page and on even pages, define two separate footers, one with pageType set to `first` and the other with pageType set to `even`.

`templatePath` — Full path of footer template
string

To use a template other than the default Word template, specify a Word footer template.

`embeddedTemplateName` — Embedded template name
string

An embedded template is a template that is embedded in a Word template.

`templateSrc` — Document or document part whose template is master template
`mlreportgen.dom.Document` object | `mlreportgen.dom.DocumentPart` object

Document or document part whose template is the master template, specified as an `mlreportgen.dom.Document` or `mlreportgen.dom.DocumentPart` object.

Output Arguments

`docxPageFooterObj` — Page footer for Word document
`mlreportgen.dom.DOCXPageFooter` object

Page footer for a Word document, represented by an `mlreportgen.dom.DOCXPageFooter` object.

Properties

`Children` — Children of this document
cell array of `mlreportgen.dom.Element` objects

This read-only property lists child elements that the document element contains.

`CurrrentDOCXSection` — The current section of Word document
`mlreportgen.dom.DOCXSection` object

This read-only property for a Word document is a `mlreportgen.dom.DOCXSection` object that specifies the properties, as well as the headers and footers, of the current document section. In HTML documents, the value of this property is always `[]`.

`CurrentHoleId` — Hole ID of current hole in document

string

This read-only property is the hole ID of the current hole in this document.

`CurrentHoleType` — Type of current hole

string

This read-only property is the type (inline or block) of the current template hole.

- An inline hole is for document elements that a paragraph element can contain: `Text`, `Image`, `LinkTarget`, `ExternalLink`, `InternalLink`, `CharEntity`, `AutoNumber`.
- A block hole can contain a `Paragraph`, `Table`, `OrderedList`, `UnorderedList`, `DocumentPart`, and `Group`.

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`PageType` — Type of pages on which footer appears

`[ ]` (default) | string

Specify the type of page on which the footer appears.

- `default`— appears on odd pages in a section and the first page, if there are no page footers defined with pageType set to `first`
- `first`— appears only on the first page of a section
- `even`— appears even paged in a section

To have a footer appear on the first page and on even pages, define two separate footers, one with pageType set to `first` and the other with pageType set to `even`.

`Parent` — Parent of document element

a DOM object

This read-only property lists the parent of this document element.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`TemplatePath` — Path to template used for footer

string

Full path to a Microsoft Word template to use for this footer.

`Type` — Type of output

string

The format for the output. Use one of these values:

- `html`
- `docx`
- `pdf`

If you specify a template using an input argument, the value for type must be consistent with that type of template. If you set type to `pdf`, then specify a Word template as an input argument.

Methods

Use `DocumentPageFooter` methods like you use the corresponding `Document` methods.

Method	Purpose
`append`	Append one of these DOM objects to the footer:

Method	Purpose
	• `CustomElement` • `DOCXSection` • `FormalTable` • `Group` • `ExternalLink` • `Image` • `InternalLink` • `OrderedList` • `Paragraph` • `RawText` • `Table` • `Text` • `UnorderedList`
`close`	Close footer.
`fill`	Fill template hole.
`moveToNextHole`	Move to next template hole.
`open`	Open footer.

See Also

`mlreportgen.dom.DOCXPageHeader` | `mlreportgen.dom.DOCXSection`

Related Examples

- "Create Page Footers and Headers"

mlreportgen.dom.DOCXPageHeader class

Package: mlreportgen.dom

Page header definition for Microsoft Word document

Description

Add a header to the first page of a section or to odd pages, even pages, or both.

Construction

`docxPageHeaderObj = DOCXPageHeader()` creates an empty page header based on the default Word template.

`headerObj = DOCXPageHeader(pageType,templatePath)` creates an empty page header for the specified type of page, based on the specified master template.

`docxPageHeaderObj = DOCXPageHeader(pageType,templatePath,embeddedTemplateName)` creates an empty page header for the specified type of page, based on the specified embedded template in the specified master template.

`docxPageHeaderObj = DOCXPageHeader(pageType,templateSrc,embeddedTemplateName)` creates an empty page header for the specified type of page, based on the specified embedded template in the template used by the specified document or document part (templateSrc).

Input Arguments

`pageType` — Type of pages on which header appears

`[ ]` (default) | string

Specify the type of page on which the header appears.

- `default`— header appears on odd pages in a section and the first page, if there are no page headers defined with pageType set to `first`

- `first`— header appears only on the first page of a section
- `even`— header appears even paged in a section

For example, to have a header appear on the first page and on even pages, define two separate headers, one with pageType set to `first` and the other with pageType set to `even`.

`templatePath` — Full path of header template
string

To use a template other than the default Word template, specify a Word header template.

`embeddedTemplateName` — Embedded template name
string

An embedded template is a template that is embedded in a Word template.

`templateSrc` — Document or document part whose template is master template
`mlreportgen.dom.Document` object | `mlreportgen.dom.DocumentPart` object

Document or document part whose template is the master template, specified as an `mlreportgen.dom.Document` or `mlreportgen.dom.DocumentPart` object.

Output Arguments

`docxPageHeaderObj` — Page header for Word document
`mlreportgen.dom.DOCXPageHeader` object

Page header for a Word document, represented by an `mlreportgen.dom.DOCXPageHeader` object.

Properties

`Children` — Children of this document
cell array of `mlreportgen.dom.Element` objects

This read-only property lists child elements that the document element contains.

`CurrentHoleId` — Hole ID of current hole in document
string

This read-only property is the hole ID of the current hole in this document.

`CurrentHoleType` — Type of current hole

string

This read-only property is the type (inline or block) of the current template hole.

- An inline hole is for document elements that a paragraph element can contain: `Text`, `Image`, `LinkTarget`, `ExternalLink`, `InternalLink`, `CharEntity`, `AutoNumber`.
- A block hole can contain a `Paragraph`, `Table`, `OrderedList`, `UnorderedList`, `DocumentPart`, and `Group`.

`CurrrentDOCXSection` — The current section of Word document

`mlreportgen.dom.DOCXSection` object

This read-only property for a Word document is a `mlreportgen.dom.DOCXSection` object that specifies the properties, as well as the headers and footers, of the current document section. In HTML documents, the value of this property is always `[]`.

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`PageType` — Type of pages on which header appears

`[]` (default) | string

Specify the type of page on which the header appears.

- `default`— header appears on odd pages in a section and the first page, if there are no page headers defined with pageType set to `first`
- `first`— header appears only on the first page of a section
- `even`— header appears on even pages in a section

For example, to have a header appear on the first page and on even pages, define two separate headers, one with pageType set to `first` and the other with pageType set to `even`.

`Parent` — Parent of document element

a DOM object

This read-only property lists the parent of this document element.

`Tag` — Tag for document element
string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`TemplatePath` — The path to template used for header
string

Full path to a Microsoft Word template to use for this header.

`Type` — Type of output
string

The format for the output. Use one of these values:

- `html`
- `docx`
- `pdf`

If you specify a template using an input argument, the value for type must be consistent with that type of template. If you set type to `pdf`, then specify a Word template as an input argument.

Methods

Use `DocumentPageHeader` methods like you use the corresponding `Document` methods.

Method	Purpose
`append`	Append one of these DOM objects to the header:

Method	Purpose
	• `CustomElement` • `DOCXSection` • `FormalTable` • `Group` • `ExternalLink` • `Image` • `InternalLink` • `OrderedList` • `Paragraph` • `RawText` • `Table` • `Text` • `UnorderedList`
`close`	Close header.
`fill`	Fill template hole.
`moveToNextHole`	Move to next template hole.
`open`	Open header.

See Also

`mlreportgen.dom.DOCXPageFooter` | `mlreportgen.dom.DOCXSection`

Related Examples

- "Create Page Footers and Headers"

mlreportgen.dom.DOCXPageMargins class

Package: mlreportgen.dom

Page margins for Microsoft Word page layout

Description

Specifies the size of the page margins of a section of a Microsoft Word document.

Construction

`docxPageMarginsObj = DOCXPageMargins()` specifies default page margins, which are one inch for the top, bottom, left, and right margins, and one-half inch for the gutter, header, and footer margins.

Output Arguments

`docxPageMarginsObj` — Page margins
`DOCXPageMargins` object

Page margins, represented by an `DOCXPageMargins` object.

Properties

`Bottom` — Bottom margin size
string

String specifying the width of the bottom margin. The string must have the format `valueUnits` where `Units` is an abbreviation for the units in which the width size is expressed. Valid abbreviations are:

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters

- `pi` — picas
- `pt` — points
- `px` — pixels

`Footer` — Footer size

string

Specify the size using the same format used for the `Bottom` property.

`Gutter` — Gutter size

string

Specify the size using the same format used for the `Bottom` property.

`Header` — Header size

string

Specify the size using the same format used for the `Bottom` property.

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Left` — Left margin size

string

Specify the size using the same format used for the `Bottom` property.

`Right` — Right margin size

string

Specify the size using the same format used for the `Bottom` property.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Top` — Top margin size

string

Specify the size using the same format used for the `Bottom` property.

Examples

Reset Default Margins

Reset the margins specified by the default DOM template.

```
import mlreportgen.dom.*;
d = Document('myreport','docx');
open(d);

s = d.CurrentDOCXSection;
s.PageMargins.Left  = '.5in';
s.PageMargins.Right = '.5in';
append(d,'Left and right margins are .5 inch');

close(d);
rptview('myreport','docx');
```

See Also

`mlreportgen.dom.DOCXSection`

More About

- “Report Formatting Approaches”

mlreportgen.dom.DOCXPageSize class

Package: mlreportgen.dom

Size and orientation of pages in Microsoft Word document

Description

Specifies the height, width, and orientation of pages in a section of a Microsoft Word document.

Construction

`docxPageSizeObj = DOCXPageSize()` creates a page size object having default values of 8.5-by-11 inches and portrait orientation.

`docxPageSizeObj = DOCXPageSize(height,width)` creates a portrait page having a specified height and width.

`docxPageSizeObj = DOCXPageSize(height,width,orientation)` creates a page having a specified height, width, and orientation.

Input Arguments

`height` — Height of page

`'11in'` (default) | string

String specifying the height of the page. The string must have the format `valueUnits` where `Units` is an abbreviation for the units in which the width size is expressed. Valid abbreviations are:

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters

- `pi` — picas
- `pt` — points
- `px` — pixels

`width` — Width of page

`'8.5in'` (default) | string

The string must have the format `valueUnits`, where `Units` is an abbreviation for the units in which the width size is expressed. Valid abbreviations are:

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

`orientation` — Orientation of page

string

Use one of these values:

- `'portrait'` (default)
- `'landscape'`

Specify height and width values that reflect the orientation setting. For example, if the orientation is landscape and the document is to be printed on 8.5x11-inch paper, set `height` to `'8.5in'` and `width` to `'11in'`.

Output Arguments

`docxPageSizeObj` — Page size and orientation of Word document

`mlreportgen.dom.DOCXPageSize` object

Page size and orientation of a Word document, represented by an `mlreportgen.dom.DOCXPageSize` object.

Properties

`Height` — Height of pages in Word page layout section

string

String specifying the page height. The string must have the format `valueUnits` where `Units` is an abbreviation for the units in which the width size is expressed. Valid abbreviations are:

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Orientation` — Orientation (portrait or landscape) for pages in section

string

Use one of these values:

- `'portrait'` (default)
- `'landscape'`

Specify height and width values that reflect the orientation setting. For example, if the orientation is landscape and the document is to be printed on 8.5x11-inch paper, set `height` to `'8.5in'` and `width` to `'11in'`.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Width` — Width of page

`'8.5in'` (default) | string

The string must have the format `valueUnits`, where `Units` is an abbreviation for the units in which the width size is expressed. Valid abbreviations are:

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

Examples

Set Page Orientation and Size

Change the page orientation and size specified by the default DOM template.

```
import mlreportgen.dom.*;
d = Document('myreport','docx');
open(d);

s = d.CurrentDOCXSection;
s.PageSize.Orientation  ='landscape';
s.PageSize.Height = '8.5in';
s.PageSize.Width = '11in';
append(d,'This document has landscape pages');

close(d);
```

```
rptview('myreport','docx');
```

- “Report Formatting Approaches”

See Also

`mlreportgen.dom.DOCXPageMargins` | `mlreportgen.dom.DOCXSection`

mlreportgen.dom.DOCXRawFormat class

Package: mlreportgen.dom

XML markup for array of Microsoft Word formats

Description

XML markup for an array of Microsoft Word formats.

Construction

`docxRawFormatObj = DOCXRawFormat()` creates an empty array of raw formats.

Output Arguments

`docxRawFormatObj` — XML markup for Word formats

`mlreportgen.dom.DOCXRawFormat` object

XML markup for Word formats, represented by an `mlreportgen.dom.DOCXRawFormat` object.

Properties

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Markup` — Word XML markup strings

cell array of strings

Specify a cell array of strings. Each string contains Word XML markup for a Word format.

For information about XML markup for Word formats, see http://officeopenxml.com/anatomyofOOXML.php.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

Examples

Turn on Line Numbering Based on Default DOM Template

In this example, the `RawFormats` property of a `DOCXSection` is initialized with the markup for properties specified by the default template. This code appends the line numbering property to the existing properties.

```
import mlreportgen.dom.*;
d = Document('myreport','docx');
open(d);

s = d.CurrentDOCXSection;
s.RawFormats = [s.RawFormats ...
{'<w:lnNumType w:countBy="1" w:start="1" w:restart="newSection"/>'}];
append(d,'This document has line numbers');

close(d);
rptview('myreport','docx');
```

See Also

`mlreportgen.dom.DOCXSection`

More About

- “Report Formatting Approaches”

mlreportgen.dom.DOCXSection class

Package: mlreportgen.dom

Page format and layout for Microsoft Word document section

Description

Use a `mlreportgen.dom.DOCXSection` object to define the page format, headers, and footers of a Word document section.

If this is the first `DOCXSection` in a document, then it controls the page layout of all the document elements from the beginning of a document to this `DOCXSection`.

If this is the second or later `DOCXSection` in a document, then it controls the page layout of all the document elements from the preceding `DOCXSection` to itself.

Construction

`docxSectionObj = DOCXSection()` creates an empty document section.

Output Arguments

`docxSectionObj` — Numbering stream counter reset
`mlreportgen.dom.DOCXSection` object

Page format and layout for Word document section, represented by an `mlreportgen.dom.DOCXSection` object.

Properties

`Id` — ID for document element
string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`PageFooters` — Page footers for this section

array of `mlreportgen.dom.DOCXPageFooter` objects

You can define up to three page footers for a section — one each for:

- The first page of the section
- Even pages
- Odd pages

`PageHeaders` — Page headers for this section

array of `mlreportgen.dom.DOCXPageHeader` objects

You can define up to three page headers for a section — one each for:

- The first page of the section
- Even pages
- Odd pages

`PageMargins` — Margin sizes and page orientation in this section

`mlreportgen.dom.DOCXPageMargins` object

Margin sizes and page orientation in this section, specified as an `mlreportgen.dom.DOCXPageMargins` object.

`PageSize` — Size of pages in this section

`mlreportgen.dom.DOCXPageSize` object

Size of pages in this section, specified as an `mlreportgen.dom.DOCXPageSize` object.

`Parent` — Parent of document element

a DOM object

This read-only property lists the parent of this document element.

`RawFormats` — XML markup for unsupported section formats

cell array

Cell array of strings, with each string containing Word XML markup for a Word format. For information about XML markup for Word formats, see http://officeopenxml.com/anatomyofOOXML.php.

`Style` — Formats defining section style

array of format objects

The formats you specify using this property override corresponding formats defined by the stylesheet style specified by the `StyleName` property. The DOM interface ignores formats that do not apply to this element.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

See Also

`mlreportgen.dom.DocumentPart` | `mlreportgen.dom.DOCXPageFooter` | `mlreportgen.dom.DOCXPageHeader` | `mlreportgen.dom.DOCXPageMargins` | `mlreportgen.dom.DOCXPageSize` | `mlreportgen.dom.DOCXRawFormat` | `mlreportgen.dom.DOCXSubDoc`

More About

- “Report Formatting Approaches”

mlreportgen.dom.DOCXSubDoc class

Package: mlreportgen.dom

Reference to external Microsoft Word document

Description

Reference to external Microsoft Word document.

Construction

`docxSubDocObj = DOCXSubDoc()` creates an empty document reference.

`docxSubDocObj = DOCXSubDoc(path)` creates a reference to a Word document at the specified path. Appending this reference to a Word document (the master document) inserts a link to the subdocument at the point at which the reference is appended.

Opening a master document in Word causes the link to the subdocument to be displayed, instead of its content. To replace the link with the content, select **Expand Subdocuments** from the **Outlining** tab of the **View** tab on the Word tool strip. The `rptview` command expands subdocuments automatically when it opens a Word document.

Input Arguments

`path` — Path of document targeted by this reference

string

Path of document targeted by this reference, specified as a string.

Output Arguments

`docxSubDocObj` — Reference to external Word document

`mlreportgen.dom.DOCXSubDoc` object

Path of Word document targeted by this reference, represented by an `mlreportgen.dom.DOCXSubDoc` object.

Properties

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Target` — Path of document targeted by this reference

string

Path of document targeted by this reference, specified as a string. Use ASCII characters. Use the following format for specifying a full path involving a mapped drive.

```
'file:///C:/UserPath/FileName.docx'
```

Methods

Method	Purpose
`clone` Use `DOCXSubDoc.clone` in a similar way to how you use `Paragraph.clone`.	Clone this Word document reference.

Examples

Append a Word Document to a Report

```
import mlreportgen.dom.*

info = Document('CompanyInfo', 'docx');
append(info, 'XYZ, Inc., makes widgets.');
close(info);

infoPath = info.OutputPath;

rpt = Document('Report', 'docx');
open(rpt);

para = append(d, Paragraph('About XYZ, Inc.'));
append(rpt, para);

append(rpt, DOCXSubDoc(infoPath));

close(rpt);
rptview(rpt.OutputPath);
```

See Also

`mlreportgen.dom.DocumentPart` | `mlreportgen.dom.DOCXSection`

mlreportgen.dom.ErrorMessage class

Package: mlreportgen.dom

Error message

Description

Specifies error message text originating from a specified source object.

Construction

`errorMsgObj = ErrorMessage(text,sourceObject)` creates an error message with the specified text originating from the specified source object.

Input Arguments

`text` — Message text
string

The text to display for the message.

`sourceObject` — The DOM object from which the message originates
a DOM object

The DOM object from which the message originates.

Output Arguments

`errorMsgObj` — Error message
`mlreportgen.dom.ErrorMessage` object

Error message, represented by an `mlreportgen.dom.ErrorMessage` object.

Properties

`Id` — ID for document element
string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Source` — Source object from which the message originates

a DOM object

Source DOM object from which the message originates.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Text` — Text of message

string

Message text, specified as a string.

Methods

Use `ErrorMessage` methods similar to how you use `ProgressMessage` methods.

Method	Purpose
`formatAsHTML`	Format message as HTML.
`formatAsText`	Format message as text.
`passesFilter`	Determine whether message passes filter.

Examples

Create an Error Message

```
import mlreportgen.dom.*;
```

```
d = Document('test','html');

dispatcher = MessageDispatcher.getTheDispatcher;
l = addlistener(dispatcher,'Message', ...
      @(src, evtdata) disp(evtdata.Message.formatAsText));

open(d);
dispatch(dispatcher,ErrorMessage('invalid chapter',d));
p = Paragraph('Chapter ');
p.Tag = 'chapter title';
p.Style = {CounterInc('chapter'),...
    CounterReset('table'),WhiteSpace('pre')};
append(p,AutoNumber('chapter'));
append(d,p);

close(d);
rptview('test','html');

delete(l);
```

- “Display Report Generation Messages”

See Also

`mlreportgen.dom.MessageDispatcher.dispatch`

mlreportgen.dom.ExternalLink class

Package: mlreportgen.dom

Hyperlink to a location outside of document

Description

Defines a hyperlink to a location outside of the document.

Construction

`externalLinkObj = ExternalLink(target,linkText)` creates a hyperlink to the specified target and having the specified link text. This constructor creates a text object (`mlreportgen.dom.Text`) to hold the link text.

`externalLinkObj = ExternalLink(target,linkText,linkTextStyleName)` creates a hyperlink with the specified link text and style name.

`externalLinkObj = ExternalLink(target,textObj)` creates a hyperlink to the specified target using the link text specified by textObj.

Input Arguments

`target` — Target of link

string | `mlreportgen.dom.LinkTarget` object

The link target of the external link, specified as either a string (for a URL) or as an `mlreportgen.dom.LinkTarget` object.

`linkText` — Link text

string

The text to use for the link text.

`linkTextStyleName` — Name of style for link text

string

Name of style to use for the link text.

`textObj` — Text object containing link text
`mlreportgen.dom.Text` object

Text object containing link text, specified by an `mlreportgen.dom.Text` object.

Output Arguments

`externalLinkObj` — External link
`mlreportgen.dom.ExternalLink` object

External link, represented by an `mlreportgen.dom.ExternalLink` object.

Properties

`CustomAttributes` — Custom attributes of document element
array of `mlreportgen.dom.CustomAttribute` objects

HTML or Microsoft Word must support the custom attributes of this document element.

`Id` — ID for document element
string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Style` — Format specification
array of format objects

Format objects that specify the format of a document element.

`StyleName` — Name of link style defined in the template
string

Name of link style defined in the template, specified as a string. The style specified by `styleName` must be defined in the template used to create the document to which the link is appended.

`Tag` — Tag for document element
string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Target` — Target URL of link

string

This read-only property displays the URL of the link target of this hyperlink.

Methods

Method	Purpose
`clone` Use `ExternalLink.clone` in a similar way to how you use `Paragraph.clone`.	Copy the external link

Examples

Add an External Link

```
import mlreportgen.dom.*
d = Document('mydoc');

append(d, ExternalLink('http://www.mathworks.com/','MathWorks'));

close(d);
rptview('mydoc','html');
```

- “Create Links”

See Also

`mlreportgen.dom.InternalLink` | `mlreportgen.dom.LinkTarget`

mlreportgen.dom.FirstLineIndent class

Package: mlreportgen.dom

Indent first line of paragraph

Description

Indent first line of a paragraph.

Construction

`firstLineIndentObj = FirstLineIndent()` creates an empty first line indentation format object.

`firstLineIndentObj = FirstLineIndent(width)` indents first line of paragraph by the specified amount.

`firstLineIndentObj = FirstLineIndent(style,width)` indents either the first line of the paragraph relative to the page margin or indents the subsequent lines relative to the page margin (hanging indentation).

Input Arguments

`width` — Width of indentation of first line of paragraph

string

String specifying the width of indentation of first line of paragraph. String must have the format `valueUnits` where `Units` is an abbreviation for the units in which the size is expressed. Valid abbreviations are:

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas

- `pt` — points
- `px` — pixels

`style` — Type of indentation
string

String specifying the style of indentation of the first line of the paragraph.

- `normal` (default) — indent relative to the page margin
- `hanging` — indent relative to the subsequent lines

Output Arguments

`firstLineIndentObj` — Indentation for first line of paragraph
`mlreportgen.dom.FirstLineIndent` object

Indentation for first line of paragraph, represented by an `mlreportgen.dom.FirstLineIndent` object.

Properties

`Id` — ID for document element
string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Style` — Type of indentation
string

String specifying the style of indentation of the first line of the paragraph.

- `normal` (default) — indent relative to the page margin
- `hanging` — indent relative to the subsequent lines

`Tag` — Tag for document element
string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Width` — Amount of indentation

string

String specifying the width of indentation of first line of paragraph. String must have the format `valueUnits` where `Units` is an abbreviation for the units in which the size is expressed. Valid abbreviations are:

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

See Also

`mlreportgen.dom.Paragraph`

More About

- "Report Formatting Approaches"

mlreportgen.dom.FlowDirection class

Package: mlreportgen.dom

Direction of text or table column flow

Description

Specifies the direction for text to flow across a page or the order of columns.

Construction

`flowDirectionObj = FlowDirection()` causes text to flow from left to right and for the first column to be on the left side of a table.

`flowDirectionObj = FlowDirection(flow)` causes text to flow or column to appear in the specified direction (left-to-right or right-to-left).

Input Arguments

`flow` — Control text flow or table column ordering

string

String specifying the direction for text to flow or for table columns to appear.

- `'ltr'` — text flow or table column order is from left to right
- `'rtl'` — text flow or table column order is from right to left

Output Arguments

`flowDirectionObj` — Text flow direction or column order

`mlreportgen.dom.FlowDirection` object

Text flow or table column order, represented by an `mlreportgen.dom.FlowDirection` object.

Properties

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Value` — Text flow direction

string

String specifying the direction for text to flow or the order of table columns.

- `'ltr'` — text flow or table column order is from left to right
- `'rtl'` — text flow or table column order is from right to left

Examples

Flow Text from Right to Left

In this example, changing the text flow direction changes “stressed” into “desserts”.

```
import mlreportgen.dom.*;
doctype = 'docx';
d = Document('test',doctype);

p = Paragraph('desserts');
p.Style = {FlowDirection('rtl')};
append(d,p);
```

```
q = clone(p);
q.Style = {FlowDirection('ltr')};
append(d,q);

close(d);
rptview(d.OutputPath,doctype);
```

mlreportgen.dom.FontFamily class

Package: mlreportgen.dom

Font family

Description

Properties of font family to be used to format document text.

Construction

`fontFamilyObj = FontFamily()` creates a Times New Roman font family.

`fontFamilyObj = FontFamily(fontStr)` creates the specified font family.

Input Arguments

`fontStr` — Font family

string

Font family, specified as a string.

Output Arguments

`fontFamilyObj` — Font family

`mlreportgen.dom.FontFamily` object

Font family, represented by an `mlreportgen.dom.FontFamily` object.

Properties

`BackupFamilyNames` — Backup font families

cell array

For HTML documents only. Cell array of strings specifying font families that a browser can use if the font family specified in `FamilyName` is not available on a system.

`ComplexScriptFamilyName` — Font family for complex scripts

string

For Word documents only. String specifying a font family to substitute in a locale that requires a complex script (such as Arabic) to render text.

`EastAsiaFamilyName` — Font family for East Asian locales

string

For Word documents only. String specifying a font family to substitute in an East Asian locale, such as China, Japan, or Korea.

`FamilyName` — Font family to use if possible

string

String specifying a font family to be used for document text.

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

See Also

`mlreportgen.dom.CharEntity` | `mlreportgen.dom.FontSize` | `mlreportgen.dom.Paragraph` | `mlreportgen.dom.Text`

More About

- “Report Formatting Approaches”

mlreportgen.dom.FontSize class

Package: mlreportgen.dom

Font size

Description

Specifies the size of a font.

Construction

`fontSizeObj = FontSize()` creates a 12-point font.

`fontSizeObj = FontSize(sizeStr)` creates the specified font size.

Input Arguments

`sizeStr` — Font size
`'12pt'` (default) | string

String having the format `valueUnits`, where `Units` is an abbreviation for the units in which the size is expressed. The following abbreviations are valid:

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

Output Arguments

`fontSizeObj` — Font size
`mlreportgen.dom.FontSize` object

Font size, represented by an `mlreportgen.dom.FontSize` object.

Properties

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Value` — Font size

`'12pt'` (default) | string

String having the format `valueUnits`, where `Units` is an abbreviation for the units in which the size is expressed. The following abbreviations are valid:

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

See Also

`mlreportgen.dom.FontFamily` | `mlreportgen.dom.Paragraph` | `mlreportgen.dom.Text`

More About

- "Report Formatting Approaches"

mlreportgen.dom.FormalTable class

Package: mlreportgen.dom

Formal table

Description

Defines a formal table, which is a table that has a body and optionally a table header or table footer, or both.

Construction

`formalTableObj = FormalTable(ncols)` creates an empty formal table having the specified number of columns. Use this constructor as the starting point to create a formal table from scratch.

`formalTableObj = FormalTable(body)` creates a formal table whose body content you specify as a two-dimensional array. The constructor converts basic MATLAB types to corresponding DOM objects. For example, the constructor converts strings to `mlreportgen.dom.Text` objects.

`formalTableObj = FormalTable(body,styleName)` creates a formal table having the specified body content and style.

`formalTableObj = FormalTable(header,body)` creates a formal table with a header and a body using the specified contents, and an empty footer.

`formalTableObj = FormalTable(header,body,styleName)` creates a formal table using the specified content and style. The table has an empty footer.

`formalTableObj = FormalTable(header,body,footer)` creates a formal table with the specified content for the body, header, and footer.

Input Arguments

`ncols` — Number of columns in table

numeric value

Number of columns in a table, specified as a numeric value.

Data Types: `double`

`body` — Table body content

two-dimensional numeric array | two-dimensional cell array

The cell array may contain:

- Character array (strings)
- One- or two-dimensional cell array
- `double`
- `mlreportgen.dom.Text` object
- `mlreportgen.dom.Paragraph` object
- `mlreportgen.dom.Image` object
- `mlreportgen.dom.Table` object
- `mlreportgen.dom.FormalTable` object
- `mlreportgen.dom.OrderedList` object
- `mlreportgen.dom.UnorderedList` object
- `mlreportgen.dom.ExternalLink` object
- `mlreportgen.dom.InternalLink` object
- `mlreportgen.dom.CharEntity` object

`styleName` — Style for table

string

The style specified by styleName must be defined in the template used to create the document that contains this table.

`header` — Header content

two-dimensional numeric array | two-dimensional cell array of strings

The cell array may contain:

- Character array (strings)
- One- or two-dimensional cell array
- `double`
- `mlreportgen.dom.Text` object

- `mlreportgen.dom.Paragraph` object
- `mlreportgen.dom.Image` object
- `mlreportgen.dom.Table` object
- `mlreportgen.dom.FormalTable` object
- `mlreportgen.dom.OrderedList` object
- `mlreportgen.dom.UnorderedList` object
- `mlreportgen.dom.ExternalLink` object
- `mlreportgen.dom.InternalLink` object
- `mlreportgen.dom.CharEntity` object

`footer` — Footer content
two-dimensional numeric array | two-dimensional cell array of strings

The cell array may contain:

- Character array (strings)
- One- or two-dimensional cell array
- `double`
- `mlreportgen.dom.Text` object
- `mlreportgen.dom.Paragraph` object
- `mlreportgen.dom.Image` object
- `mlreportgen.dom.Table` object
- `mlreportgen.dom.FormalTable` object
- `mlreportgen.dom.OrderedList` object
- `mlreportgen.dom.UnorderedList` object
- `mlreportgen.dom.ExternalLink` object
- `mlreportgen.dom.InternalLink` object
- `mlreportgen.dom.CharEntity` object

Output Arguments

`formalTableObj` — Formal table
`mlreportgen.dom.FormalTable` object

Formal table, represented by an `mlreportgen.dom.FormalTable` object.

Properties

`BackgroundColor` — Background color

string

Specify one of these as a string:

- The name of a color. The name must be a CSS color name. See http://www.crockford.com/wrrrld/color.html.
- A hexadecimal RGB (truecolor) value as `#RRGGBB`. For example, `#0000ff` is a shade of blue.

`Body` — Table body (read-only)

`mlreportgen.dom.TableBody` object

The table constructor creates a table body object and assigns it to this property when the formal table is constructed. You cannot subsequently set this property. However, you can append content to the table body and set its properties via this property.

`Border` — Type of border to draw

string

Specify one of the following as a string.

Border String	Description	Supported Output Types
`dashed`	Dashed line	Word and HTML
`dashdotstroked`	Line with alternating diagonal dashes and dot	Word
`dashsmallgap`	Dashed line with a small gap between dashes	Word
`dotted`	Dotted line	Word and HTML
`dotdash`	Line with alternating dots and dashes	Word
`dotdotdash`	Line with alternating double dots and a dash	Word
`double`	Double line	Word and HTML
`doublewave`	Double wavy line	Word
`groove`	3-D effect grooved line	HTML

Border String	Description	Supported Output Types
`hidden`	No line See discussion below this table.	HTML
`inset`	3-D effect line	Word and HTML
`none`	No line See discussion below this table.	Word and HTML
`outset`	3-D effect line	Word and HTML
`ridge`	3-D effect ridged line	HTML
`single`	Single line	Word
`solid`	Single line	HTML
`thick`	Thick line	Word
`thickthinlargegap`	Dashed line with alternating thick and thin dashes with a large gap	Word
`thickthinmediumgap`	Dashed line with alternating thick and thin dashes with a medium gap	Word
`thickthinsmallgap`	Dashed line with alternating thick and thin dashes with a small gap	Word
`thinthicklargegap`	Dashed line with alternating thin and thick dashes with a medium gap	Word
`thinthickmediumgap`	Dashed line with alternating thin and thick dashes, with a medium gap	Word
`thinthicksmallgap`	Dashed line with alternating thin and thick dashes with a small gap	Word

Border String	Description	Supported Output Types
`thinthickthinlargegap`	Dashed line with alternating thin and thick dashes with a large gap	Word
`thinthickthinmediumgap`	Dashed line with alternating thin and thick dashes with a medium gap	Word
`thinthickthinsmallgap`	Dashed line with alternating thin and thick dashes with a small gap	Word
`threedemboss`	Embossed effect line	Word
`threedengrave`	Engraved effect line	Word
`triple`	Triple line	Word
`wave`	Wavy line	Word

`BorderCollapse` — Collapse borders of adjacent cells into single border (HTML only)

string

A value of `'on'` collapses borders of adjacent cells into a single border. A value of `'off'` keeps borders of adjacent cells.

`BorderColor` — Border color

string

You can specify:

- Name of a color. The name must be a CSS color name. See http://www.crockford.com/wrrrld/color.html.
- A hexadecimal RGB (truecolor) value as `#RRGGBB`. For example, `#0000ff` is a shade of blue.

`BorderWidth` — Table border width

string

String specifying the width of the border. The string must have the format `valueUnits` where `Units` is an abbreviation for the units in which the width size is expressed. Valid abbreviations are:

- no abbreviation — pixels

- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

`Children` — Children of this document

cell array of `mlreportgen.dom.Element` objects

This read-only property lists child elements that the document element contains.

`ColSep` — Style of line separating columns

string

The style the line separating the columns of a table or table section (header, body, footer), as specified by a `mlreportgen.dom.ColSep` object.

See the description of the `Border` property for a description of the possible values.

`ColSepColor` — Color of line separating columns

string

You can specify:

- Name of a color. The name must be a CSS color name. See http://www.crockford.com/wrrrld/color.html.
- A hexadecimal RGB (truecolor) value as `#RRGGBB`. For example, `#0000ff` is a shade of blue.

`ColSepWidth` — Width of line separating table columns

string

String having the format `valueUnits`, where `Units` is an abbreviation for the units in which the width is expressed. Use one of these abbreviations for the units of a width.

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches

- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

For example, for a three pica wide column separator, set the `ColSepWidth` property to `3pi`.

`ColSpecGroups` — Properties of group of columns in table

array of `mlreportgen.dom.TableColSpecGroups` objects

An array of `mlreportgen.dom.TableColSpecGroups` objects that specifies the width, alignment, and other properties of a group of columns. The first object applies to the first group of columns, the second object to the second group, etc. Specify the number of columns belonging to each group using the `Span` property of the `TableColSpecGroups` object. For example, if the first object has a span of 2, it applies to the first two columns. If the second group has a span of 3, it applies to the next three columns, etc.

`CustomAttributes` — Custom attributes for document element

array of `mlreportgen.doc.CustomAttribute` objects

The custom attributes must be supported by the output type of the document to which this document element is appended.

`FlowDirection` — Column flow direction

string

String specifying the direction for table columns to flow.

- `'ltr'` — flow from left to right (column 1 is to the left in the table)
- `'rtl'` — flow from right to left (column 1 is to the right in the table)

`Footer` — Footer for this table

`mlreportgen.dom.TableFooter` object

The table constructor creates a table footer object and assigns it to this property when the formal table is constructed. You cannot subsequently set this property. However, you can append content to the table body and set its properties via this property.

`HAlign` — Horizontal alignment of this table

string

Possible values are:

- `center`
- `left`
- `right`

`Header` — Table header

`mlreportgen.dom.TableHeader` object

The table constructor creates a table header object and assigns it to this property when the formal table is constructed. You cannot subsequently set this property. However, you can append content to the table body and set its properties via this property.

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`OuterLeftMargin` — Left margin (indentation) of document element

string

String specifying the left indentation. The string must have the format `valueUnits` where `Units` is an abbreviation for the units in which the width size is expressed. Valid abbreviations are:

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

`Parent` — Parent of document element

a DOM object

This read-only property lists the parent of this document element.

`RowSep` — Style of lines separating rows

string

The style of a line separating the rows of a table or table section (header, body, or footer).

See the description of the `Border` property for a description of the possible values.

`RowSepColor` — Color of row separator

string

You can specify:

- Name of a color. The name must be a CSS color name. See http://www.crockford.com/wrrrld/color.html.
- A hexadecimal RGB (truecolor) value as `#RRGGBB`. For example, `#0000ff` is a shade of blue.

`RowSepWidth` — Width of row separator

string

String specifying the width of the row separator. The string must have the format `valueUnits` where `Units` is an abbreviation for the units in which the width size is expressed. Valid abbreviations are:

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

`Style` — Format for table

array of format objects

Array of format objects (such as `Bold` objects) that specify the format for this table.

This property overrides corresponding formats defined by the stylesheet style specified by the `StyleName` property.

`StyleName` — Style in document or document part stylesheet

string

Name of a style specified in the stylesheet of the document or document part to which this table is appended

The style that specifies the appearance of this table in the output document, for formats not specified by `Style` property.

You can set the `StyleName` property of any formal table section. Setting `StyleName` overrides the style specified by the formal table itself. However, if you do this for a Word document, you must explicitly specify the width of each column in a section to ensure that all sections have the same width. Word, unlike HTML, has no built-in support for formal tables. To handle this, the DOM interface represents a formal table as three tables, one for each section, embedded in a 3x1 table.

`TableEntriesStyle` — Style to use for table entries

cell array

Cell array of format objects that specify the format for table entries.

`TableEntriesInnerMargin` — Inner margin for table entries

string

The inner margin is the margin between table cell content and the cell borders.

The string must have the format `valueUnits` where `Units` is an abbreviation for the units in which the width size is expressed. Valid abbreviations are:

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Width` — Table width

string

String representing a percentage (for example, `'100%'`) of the page width (minus margins for Word reports) or a number of units of measurement, having the format `valueUnits`, where `Units` is an abbreviation for the units in which the width is expressed.

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

Methods

Method	Purpose
`append` Use `FormalTable.append` similar to how you use `TableRow.append`.	Append a row of table entries to table.
`clone` Use `FormalTable.clone` the same way you use `Paragraph.clone`.	Copy the table.

See Also

`mlreportgen.dom.Table` | `mlreportgen.dom.TableBody` | `mlreportgen.dom.TableColSpec` | `mlreportgen.dom.TableEntry` | `mlreportgen.dom.TableFooter` | `mlreportgen.dom.TableHeader` | `mlreportgen.dom.TableRow`

Related Examples

- “Create and Format Tables”

mlreportgen.dom.Group class

Package: mlreportgen.dom

Group of document objects

Description

Group of document objects that you can append multiple times in a document without you having to clone the group. When you append a group to a document, the DOM interface clones the group.

Construction

`groupObj = Group()` creates an empty group.

Output Arguments

`groupObj` — Group of document objects

`mlreportgen.dom.Group` object

Group of document objects, represented by an `mlreportgen.dom.Group` object.

Properties

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Children` — Children of this document

cell array of `mlreportgen.dom.Element` objects

This read-only property lists child elements that the document element contains.

`Parent` — Parent of document element

a DOM object

This read-only property lists the parent of this document element.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

Methods

Method	Purpose
`append`	Append a DOM object to the group

mlreportgen.dom.HAlign class

Package: mlreportgen.dom

Specify horizontal alignment of document object

Description

Specifies horizontal alignment of a document object.

Construction

`alignObj = HAlign()` creates an alignment object having the value `'left'`.

`alignObj = HAlign(value)` creates an alignment object having the specified value.

Input Arguments

`value` — Horizontal alignment

string

String that specifies the horizontal alignment of a document object.

- `'center'`
- `'left'`
- `'right'`

Output Arguments

`horizontalAlignObj` — Horizontal alignment

`mlreportgen.dom.HAlign` object

Horizontal alignment, represented by an `mlreportgen.dom.HAlign` object.

Properties

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Value` — Horizontal alignment

string

- `'center'`
- `'left'`
- `'right'`

See Also

`mlreportgen.dom.VAlign`

More About

- "Report Formatting Approaches"

mlreportgen.dom.Heading class

Package: mlreportgen.dom

Heading paragraph

Description

Create a heading paragraph.

Construction

`headingObj = Heading(level)` creates an empty heading at the specified level.

`headingObj = Heading(level,text)` creates the specified level heading containing the specified text.

`headingObj = Heading(level,text,styleName)` creates the specified level heading containing the specified text and using the specified style.

`headingObj = Heading(level,domObj)` creates the specified level heading containing the specified DOM object.

Input Arguments

`text` — Text string
string

Text to use for the heading.

`level` — Heading level
numeric value

Heading level, specified as a numeric value.

Data Types: `double`

`styleName` — Style for text
string

The style specified by styleName must specify a paragraph style defined in the template used to create the document to which this heading is appended.

`domObj` — DOM object to include in heading
DOM object

- `ExternalLink`
- `Image`
- `InternalLink`
- `LinkTarget`
- `Text`

Output Arguments

`headingObj` — Heading paragraph
`mlreportgen.dom.Heading` object

Heading paragraph, represented by an `mlreportgen.dom.Heading` object.

Properties

`BackgroundColor` — Background color
string

Specify one of these as a string:

- The name of a color. The name must be a CSS color name. See http://www.crockford.com/wrrrld/color.html.
- A hexadecimal RGB (truecolor) value as `#RRGGBB`. For example, `#0000ff` is a shade of blue.

`Bold` — Option to use bold for text
[ ] (default) | logical value

To make text bold, set this property to `true` or `1`. If this property is empty and the `StyleName` property for this document element specifies a style sheet style, the weight of the text is determined by that style. Setting the `Bold` property adds a corresponding `mlreportGen.dom.Bold` format object to the `Style` property of this document element. Removing the `Bold` property setting removes the object.

Data Types: `logical`

`Color` — Text color

string

Specify one of these as a string:

- The name of a color. The name must be a CSS color name. See http://www.crockford.com/wrrrld/color.html.
- A hexadecimal RGB (truecolor) value as `#RRGGBB`. For example, `#0000ff` is a shade of blue.

`CustomAttributes` — Custom attributes of document element

array of `mlreportgen.dom.CustomAttribute` objects

HTML or Microsoft Word must support the custom attributes of this document element.

`FirstLineIndent` — Indentation amount for first line of paragraph

string

Amount by which to indent the first line of this paragraph relative to succeeding lines.

To create a hanging indent, in which all the lines are indented except for the first line, use a negative number.

The string has the format `valueUnits`, where `Units` is an abbreviation for the units in which the indentation is expressed. Use one of these abbreviations for the units for indentation.

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

`FontFamilyName` — Name of font family for text

string

The name of a font family.

To specify substitutions for this font, do not set this property. Instead create and add a `mlreportgen.dom.FontFamily` object to the `Style` property of this document element.

`FontSize` — Font size for text

string

String having the format `valueUnits`, where `Units` is an abbreviation for the units in which the font size is expressed. Use one of these abbreviations for the units for the font size.

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

`HAlign` — Horizontal alignment of this table

string

Possible values are:

- `center`
- `left`
- `right`

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Italic` — Option to use italics for text

[ ] (default) | logical value

To use italics for text, set this property to `true`. If this property is empty and the `StyleName` property for this document element specifies a style sheet style, the slant of the text is determined by that style. Setting the `Italic` property adds a corresponding `mlreportGen.dom.Italic` format object to the `Style` property of this document element. Removing the `Italic` property setting removes the object.

Data Types: `logical`

`OuterLeftMargin` — Left margin (indentation) of document element

string

String specifying the left indentation. The string must have the format `valueUnits` where `Units` is an abbreviation for the units in which the width size is expressed. Valid abbreviations are:

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

`OutlineLevel` — Outline level of this paragraph

[ ] (default) | numeric value

Setting the `OutlineLevel` property causes this paragraph to be included in automatically generated outlines, such as a table of contents. The value specifies the level of the paragraph in the table of contents. For example, to make a paragraph appear as a `Heading 1` (Word) or `h1` (HTML), set `OutlineLevel` to `1`.

Data Types: `int32`

`Strike` — Text strikethrough

string

The default for this property is []. You can set it to one of these values:

- `none` — Do not use strikethrough for Word and HTML documents
- `single` — Use a single line for strikethrough for Word and HTML documents
- `double` — Use a double line for strikethrough for Word documents

Setting the `Strike` property adds a corresponding `mlreportGen.dom.Strike` format object to the `Style` property for this document element. Removing the `Strike` property setting removes the object.

`Style` — Text formatting

array of `mlreportgen.dom.DOCXSection` objects

An array of `mlreportgen.dom.DOCXSection` objects that specifies the format for the text.

`StyleName` — Name of style to apply to text

string

The style specified by styleName must be defined in the template used to create the document element to which this text is appended.

Data Types: `char`

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Underline` — Type of underline, if any, for text

`[ ]` (default) | string

You can specify one of the following types of underlines.

Border String	Description	Supported Output Types
`dash`	Dashed underline	Word
`dashedHeavy`	Line with heavy dashes	Word
`dashLong`	Line with long dashes	Word
`dashLongHeavy`	Line with heavy long dashes	Word
`dashDotDotHeavy`	Line with heavy dashes with two dots between the dashes	Word
`dashDotHeavy`	Heavy dash-dot line	Word

Border String	Description	Supported Output Types
`dotted`	Dotted line	Word
`dottedHeavy`	Thick dotted line	Word
`dotDash`	Dot-dash line	Word
`dotDotDash`	Dot-dot-dash line	Word
`dashDotHeavy`	Heavy dot-dash line	Word
`double`	Double line	Word
`none`	Do not use underlining	HTML and Word
`single`	Single line	HTML and Word
`thick`	Thick line	Word
`wave`	Wavy line	Word
`waveyDouble`	Double wavy line	Word
`waveyHeavy`	Heavy wavy	Word
`words`	Underline non-space characters only	Word

If this property is empty and `StyleName` property of this document element specifies a style sheet style, the type of underline is determined by that style.

To specify the color as well as the type of the underline, do not set the `Underline` property. Instead, set the `Style` property of this document element to include an `mlreportgen.dom.Underline` format object that specifies the desired underline type and color.

Setting the `Underline` property adds a corresponding `mlreportGen.dom.Underline` format object to the `Style` property for this document element. Removing the `Underline` property setting removes the object.

`WhiteSpace` — White space and line breaks in text

`[ ]` (default) | string

To specify how to handle white space, use one of the following strings.

Border String	Description	Supported Output Types
`normal`	Does not preserve white space and line breaks	Word and HTML

Border String	Description	Supported Output Types
`nowrap`	Sequences of white space collapse into a single white space. Text never wraps to the next line.	HTML
`preserve`	Preserves white space. Text wraps only on line breaks. Acts like the `<pre>` tag in HTML.	Word and HTML See below for details.
`pre`	Preserves white space. Text wraps only on line breaks. Acts like the `<pre>` tag in HTML.	HTML
`pre-line`	Sequences of white space collapse into a single white space. Text wraps.	HTML
`pre-wrap`	Preserves white space. Text wraps when necessary and on line breaks	HTML

If you want to view HTML output in the MATLAB browser and you want to preserve white space and wrap text only on line breaks, use the `preserve` setting rather than the `pre` setting.

Setting the `WhiteSpace` property adds a corresponding `WhiteSpace` format object to `Style` property. Removing the `WhiteSpace` property setting removes the `WhiteSpace` object.

Methods

Method	Purpose
`append` Use `Heading.append` similar to how you use `Paragraph.append`.	Append content to heading.

Method	Purpose
`append` Use `Heading.clone` the similar to how you use `Paragraph.clone`.	Copy heading.

See Also

`mlreportgen.dom.Paragraph`

mlreportgen.dom.Height class

Package: mlreportgen.dom

Height of object

Description

Specifies the height of an image.

Construction

`heightObj = Height()` creates a format object that specifies a height of 1 inch.

`heightObj = Height(value)` creates a height object having the specified height.

Input Arguments

`value` — Height of object
`'1in'` (default) | string

String having the format `valueUnits`, where `Units` is an abbreviation for the units in which the height is expressed. The following abbreviations are valid:

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

Output Arguments

`heightObj` — Height of object
`mlreportgen.dom.Height` object

Height of object, represented by an `mlreportgen.dom.Height` object.

Properties

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Value` — Object height

`1in` (default) | string

String having the format `valueUnits`, where `Units` is an abbreviation for the units in which the height is expressed. The following abbreviations are valid:

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

See Also

`mlreportgen.dom.RowHeight` | `mlreportgen.dom.Width`

More About

- "Report Formatting Approaches"

mlreportgen.dom.Image class

Package: mlreportgen.dom

Create image to be included in report

Description

Create an image to be included in a report.

Construction

`imageObj = Image(imagePath)` creates an image object containing the image file specified by imagePath.

The contents of the specified image file are copied into the output document either when the image object is appended to the document (in document streaming mode) or when the document is closed. Do not delete the original file before it has been copied into the document.

Input Arguments

`imagePath` — Path of image file

string

Path of an image file, specified as a string.

For a Microsoft Word report, you can use these image formats:

- `.bmp`
- `.emf`
- `.eps`
- `.gif`
- `.jpeg`
- `.jpg`

- `.png`
- `.tif`
- `.tiff`

For HTML reports, you can use the same image formats as for a Word report, plus you can use `.svg` format.

Output Arguments

`imageObj` — Image
`mlreportgen.dom.Image` object

Image, represented by an `mlreportgen.dom.Image` object.

Properties

`CustomAttributes` — Custom attributes of document element
array of `mlreportgen.dom.CustomAttribute` objects

HTML or Microsoft Word must support the custom attributes of this document element.

`Height` — Height of image
string

String having the format `valueUnits`, where `Units` is an abbreviation for the units in which the height is expressed. The following abbreviations are valid:

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

Alternatively, you can specify the image height using the `Image.Style` property. For example:

```
Image.Style = {Height('4in')};
```

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Map` — Map of hyperlink areas in image (HTML only)

`mlreportgen.dom.ImageMap` object

Map of hyperlink areas in image, specified as an `mlreportgen.dom.ImageMap` object

`Path` — Path of image file

string

Path of image file, specified as a string.

`Style` — Format specification

array of format objects

Format objects that specify the format of a document element.

`StyleName` — Name of image style sheet

string

Name of image style sheet, specified as a string.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`VAlign` — Vertical alignment table cell content

string

Possible values are:

- `top`
- `bottom`
- `middle`

`Width` — Image width

string

String having the format `valueUnits`, where `Units` is an abbreviation for the units in which the height is expressed. The following abbreviations are valid:

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

Methods

Method	Purpose
`append` Use `Image.append` in a similar way to how you use `ExternalLink.append`.	Append a custom element to this image.
`clone` Use `Image.clone` in a similar way to how you use `Paragraph.clone`.	Clone this image

See Also

`mlreportgen.dom.ImageArea` | `mlreportgen.dom.ImageMap` | `mlreportgen.dom.ScaleToFit`

Related Examples

- "Create and Format Images"

mlreportgen.dom.ImageArea class

Package: mlreportgen.dom

Define image area as hyperlink

Description

Define an area in an image to be an HTML hyperlink. When a user clicks an image area, the HTML browser displays the target page, based on the URL or link target you specify. You can provide alternative text for screen reader users.

Construction

`imageAreaObj = ImageArea()` creates an empty image area.

`imageAreaObj = ImageArea(target,altText,x1,y1,x2,y2)` creates a rectangular image area.

`imageAreaObj = ImageArea(target,altText,x,y,radius)` creates a circular image area.

`imageAreaObj = ImageArea(target,altText,polygonCoordinates)` creates a polygonal image area.

Input Arguments

`target` — Image area hyperlink target

string

String that specifies either of these values:

- URL of the page to be loaded when this image area is clicked
- Name of a link target

`altText` — Text to display if image is not visible

string

Text to display if the image is not visible, specified as a string.

x1 — x coordinate of top-left corner of rectangular image area, in pixels
unsigned integer

Specify relative to the top-left corner of the image.

Data Types: `uint16`

y1 — y coordinate of top-left corner of rectangular image area
unsigned integer

Specify relative to the top-left corner of the image, in pixels.

Data Types: `uint16`

x2 — x coordinate of bottom-right corner of rectangular image area
unsigned integer

Specify relative to the top-left corner of the image, in pixels.

Data Types: `uint16`

y2 — y coordinate of bottom-right corner of rectangular image area
unsigned integer

Specify relative to the top-left corner of the image, in pixels.

Data Types: `uint16`

x — x coordinate of center of circular image area
unsigned integer

Specify relative to the top-left corner of the image, in pixels.

Data Types: `uint16`

y — y coordinate of center of circular image area
unsigned integer

Specify relative to the top-left corner of the image, in pixels.

Data Types: `uint16`

`radius` — Radius of circular image area
unsigned integer

The radius, in pixels.

Data Types: `uint16`

`polygonCoordinates` — Coordinates of polygonal image area

array

Specify an array of x and y coordinate pairs, with coordinates for each corner of the polygon, in the form `[x1, y1, x2, y2, ... xN, yN]`. Specify the coordinates to reflect the corners of the polygon, in sequence.

Specify each coordinate relative to the top-left corner of the image, in pixels.

Output Arguments

`imageAreaObj` — Image area hyperlink

`mlreportgen.dom.ImageArea` object

Image area hyperlink, represented by an `mlreportgen.dom.ImageArea` object.

Properties

`Target` — Image area target

string

String that specifies either of these values:

- URL of the page to be loaded when this image area is clicked
- Name of a link target

`AlternateText` — Text to display if image is not visible

string

Text to display if the image is not visible, specified as a string.

`Shape` — Shape of image area

string

(Read-only) Possible values are:

- `'rect'` — rectangular image area

- `'circle'` — circular image area
- `'poly'` — polygonal image area

`Coords` — Coordinates for image area

array

(Read-only) The coordinates represent different kinds of points, depending on the shape of the image area. Coordinates are relative to the top-left corner of the image.

- For a rectangle, the coordinates represent the top-left corner and the bottom-right corner.
- For a circle, the array represents the coordinates at the center of the circle and the radius.
- For a polygon, the coordinates represent the corners.

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

Examples

Add Image Area to Image of a MATLAB Plot

```
import mlreportgen.dom.*
d = Document('imageArea','html');
```

```
x = 0:pi/100:2*pi;
y = sin(x);
plot(x,y);
annotation('textbox', [0.2,0.4,0.1,0.1],...
           'String', 'Help on plot function');
saveas(gcf,'plot_img.png');

plot1 = Image('plot_img.png');
append(d,plot1);

area1 = ImageArea(...
    ['http://www.mathworks.com/help/matlab/ref/' ...
    'plot.html?searchHighlight=plot'], ...
    'plot function help', 240,450,463,492);

map = ImageMap();
plot1.Map = map;
append(map,area1);

close(d);
rptview(d.OutputPath);
```

- “Create and Format Images”

See Also

`mlreportgen.dom.Image` | `mlreportgen.dom.ImageMap` | `mlreportgen.dom.LinkTarget`

mlreportgen.dom.ImageMap class

Package: mlreportgen.dom

Map of hyperlink areas in image

Description

Map of image areas, which are areas within an image where a user can click to open content in an HTML browser.

Construction

`map = ImageMap()` creates an empty image map. Use the `ImageMap.append` method to add image areas to the map.

Output Arguments

`map` — Map of hyperlink areas in image

`mlreportgen.dom.ImageMap` object

Map of hyperlink areas in image, specified as an `mlreportgen.dom.ImageMap` object.

Properties

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

Methods

Method	Purpose
`append`	Append an image area to this image map.
`clone` Use `ImageMap.clone` in a similar way you how you use `Paragraph.clone`.	Clone this image map.

Examples

Append an Image Area to an Image Map

```
import mlreportgen.dom.*
d = Document('imageArea','html');

x = 0:pi/100:2*pi;
y = sin(x);
plot(x,y);
annotation('textbox', [0.2,0.4,0.1,0.1],...
           'String', 'Help on plot function');
saveas(gcf,'plot_img.png');

plot1 = Image('plot_img.png');
append(d,plot1);

area1 = ImageArea(...
    ['http://www.mathworks.com/help/matlab/ref/' ...
    'plot.html?searchHighlight=plot'], ...
    'plot function help', 240,450,463,492);

map = ImageMap();
```

```
plot1.Map = map;
append(map,area1);

close(d);
rptview(d.OutputPath);
```

- “Create and Format Images”

See Also

`mlreportgen.dom.Image` | `mlreportgen.dom.ImageArea`

mlreportgen.dom.InnerMargin class

Package: mlreportgen.dom

Margin between content and bounding box

Description

Specifies the margin between the content and the bounding box of a document object. A bounding box of an object includes the border of the object (if it has a border), the inner margin, and the object content.

Construction

`marginObj = InnerMargin()` creates an unspecified margin between the content of an object and its bounding box.

`marginObj = InnerMargin(all)` creates the specified margin on all sides between the content of an object and its bounding box.

`marginObj = InnerMargin(left,right)` creates the specified margins between the left and right sides of the content of an object and its bounding box.

`marginObj = InnerMargin(left,right,top,bottom)` creates the specified margins between sides of the content of an object and its bounding box.

Input Arguments

`all` — Margin size on all sides

string

String specifying the margin on all sides between the content of an object and its bounding box. String must have the format `valueUnits` where `Units` is an abbreviation for the units in which the width size is expressed. Valid abbreviations are:

- No abbreviation — pixels

- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixel

`left` — Left margin size
string

String specifying the left margin between the content of an object and its bounding box. See the `all` input argument description for valid strings.

`right` — Right margin size
string

String specifying the right margin between the content of an object and its bounding box. See the `all` input argument description for valid strings.

`top` — Top margin size
string

String specifying the top margin between the content of an object and its bounding box. See the `all` input argument description for valid strings.

`bottom` — Bottom margin size
string

String specifying the bottom margin between the content of an object and its bounding box. See the `all` input argument description for valid strings.

Output Arguments

`marginObj` — Margin between content and bounding box
`mlreportgen.dom.InnerMargin` object

Margin between content and bounding box, specified with an `mlreportgen.dom.InnerMargin` object.

Properties

`Bottom` — Size of bottom margin

string

String specifying the bottom margin. String must have the format `valueUnits` where `Units` is an abbreviation for the units in which the width size is expressed. Valid abbreviations are:

- No abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixel

`Left` — Size of left margin

string

String specifying the left margin between the content of an object and its bounding box. See the `Bottom` property description for valid strings.

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Right` — Size of right margin

string

String specifying the right margin between the content of an object and its bounding box. See the `Bottom` property description for valid strings.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Top` — Size of top margin

string

String specifying the top margin between the content of an object and its bounding box. See the `Bottom` property description for valid strings.

Examples

Add Inner Margins to a Paragraph

```
import mlreportgen.dom.*;
doctype = 'html';
d = Document('test',doctype);

p = Paragraph('Hello World');
p.Style = {Border('solid','red'), ...
   HAlign('center'),InnerMargin('12pt')};
append(d,p);

p = Paragraph('More Greetings');
p.Style = {Border('solid','blue'), ...
   HAlign('center'),InnerMargin('30pt')};

append(d,p);
close(d);
rptview('test',doctype);
```

See Also

`mlreportgen.dom.OuterMargin`

More About

- “Report Formatting Approaches”

mlreportgen.dom.InternalLink class

Package: mlreportgen.dom

Hyperlink to a location in same document

Description

Hyperlink to a location in the same document that contains the hyperlink. Use this kind of link to provide internal navigation within a document.

Construction

`internalLinkObj = InternalLink(targetName,linkText)` creates a hyperlink to the specified link target object and uses the specified link text.

`internalLinkObj = InternalLink(targetName,linkText, linkTextStyleName)` creates a hyperlink to the specified link target and uses the specified style name for the link text.

`internalLinkObj = InternalLink(targetName,textObj)` creates a hyperlink to the specified link target using the text contained in the specified `Text` object.

Input Arguments

`targetName` — Link target name
string

Link target name, specified as string. The string is the `value in the Name property of an mlreportgen.dom.LinkTarget object` or a URL.

`linkText` — Link text
string

The text to use for the link text.

`linkTextStyleName` — Name of style for link text
string

Name of style to use for the link text.

`textObj` — Text object containing link text
`mlreportgen.dom.Text` object

Text object containing link text, specified by an `mlreportgen.dom.Text` object.

Output Arguments

`internalLinkObj` — Internal link
`mlreportgen.dom.InternalLink` object

Internal link, represented by an `mlreportgen.dom.InternalLink` object.

Properties

`Children` — Children of this document
cell array of `mlreportgen.dom.Element` objects

This read-only property lists child elements that the document element contains.

`CustomAttributes` — Custom attributes of document element
array of `mlreportgen.dom.CustomAttribute` objects

HTML or Microsoft Word must support the custom attributes of this document element.

`Id` — ID for document element
string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Parent` — Parent of document element
a DOM object

This read-only property lists the parent of this document element.

`StyleName` — Name of link style defined in the template
string

Name of link style defined in the template, specified as a string. The style specified by `styleName` must be defined in the template used to create the document to which the link is appended.

`Style` — Format specification

array of format objects

Format objects that specify the format of a document element.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Target` — Internal target link

string

This read-only property displays the link target of this hyperlink.

Methods

Method	Purpose
`clone` Use `InternalLink.clone` in a similar way to how you use `Paragraph.clone`.	Copy the internal link.

Examples

Add Internal Link

```
import mlreportgen.dom.*
```

```
d = Document('mydoc');

append(d, InternalLink('bio','About the Author'));
h = Heading(1, LinkTarget('bio'));
append(h,'Author''s Biography');
append(d,h);

close(d);
rptview('mydoc','html');
```

- “Create Links”

See Also

`mlreportgen.dom.ExternalLink` | `mlreportgen.dom.LinkTarget`

mlreportgen.dom.Italic class

Package: mlreportgen.dom

Italic for text object

Description

Specifies whether text should be rendered italic.

Construction

`italicObj = Italic()` creates a format object that specifies that text should be rendered italic.

`italicObj = Italic(value)` creates a format object that specifies that text should be rendered italic if `value` is `true`; otherwise, upright.

Input Arguments

`value` — Option to use italic or not for a text object

logical value

A setting of `false` (or `0`) uses upright text. A setting of `true` (or `1`) renders text in italic

Data Types: `logical`

Output Arguments

`italicObj` — Italic format object

`mlreportgen.dom.Italic` object

Italic format, represented by an `mlreportgen.dom.Italic` object.

Properties

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Value` — Use italic or roman for text object

[ ] (default) | logical value

The possible values are:

- 0— uses roman (straight) text
- 1— renders text in italic

Data Types: `logical`

Examples

Create paragraph that whose text is italic by default

```
import mlreportgen.dom.*
d = Document('mydoc');
p = Paragraph('italic text');
p.Style = {Italic};
append(d,p);
close(d);
rptview('mydoc', 'html');
```

Add Upright Text

```
import mlreportgen.dom.*
d = Document('mydoc');
p = Paragraph('italic text  ');
```

```
p.Style = {Italic};
append(d,p);
t = Text('upright text');
t.Style = {Italic(false)};
append(p,t);
close(d);
rptview('mydoc', 'html');
```

More About

- “Report Formatting Approaches”

mlreportgen.dom.KeepLinesTogether class

Package: mlreportgen.dom

Start paragraph on new page if necessary

Description

Start paragraph on new page if necessary

Construction

`keepLinesTogetherObj = KeepLinesTogether()` starts a paragraph on a new page if it cannot fit entirely on current page.

`keepLinesTogetherObj = KeepLinesTogether(onoff)` starts paragraph on a new page only if it cannot fit entirely on current page and onoff is `true`.

Input Arguments

`onoff` — Keep paragraph on one page
logical

Use one of these values:

- `true` (default)
- `false`
- `0`

A setting of `true` (or `1`) starts a paragraph on a new page when it cannot fit entirely on the current page. A setting of `false` (or `0`) allows a paragraph to span two pages when it cannot fit entirely on the current page.

Data Types: `logical`

Output Arguments

`keepLinesTogetherObj` — Start paragraph on new page if necessary
`mlreportgen.dom.KeepLinesTogether` object

Start paragraph on new page if necessary, represented by an `mlreportgen.dom.KeepLinesTogether` object.

Properties

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Value` — Keep paragraph lines together

logical

Possible values are:

- `true` or `1` — Starts paragraph on a new page when it cannot fit entirely on the current page.
- `false` or `0` — Allows the paragraph to span two pages when it cannot fit entirely on the current page.

Data Types: `logical`

See Also

`mlreportgen.dom.KeepWithNext` | `mlreportgen.dom.PageBreakBefore`

More About

- "Report Formatting Approaches"

mlreportgen.dom.KeepWithNext class

Package: mlreportgen.dom

Keep paragraph on same page as next

Description

Keep paragraph on same page as paragraph that follows it. This format applies only to Microsoft Word documents.

Construction

`obj = KeepWithNext()` keeps a paragraph on the same page as the paragraph that follows it.

`obj = KeepWithNext(onoff)` keeps a paragraph on the same page as the paragraph that follows it if onoff is `true`.

Input Arguments

`onoff` — Keep paragraph on same page as next

logical

Use one of these values:

- `true` (default)
- `false`
- `1`
- `0`

A setting of `true` (or `1`) keeps a paragraph on the same page as the paragraph that follows it. A setting of `false` (or `0`) allows a paragraph to be on a different page from the paragraph that follows it.

Data Types: `logical`

Output Arguments

`keepWithNextObj` — Keep paragraph on same page as next
`mlreportgen.dom.keepWithNext` object

Keep paragraph on same page as next, represented by an `mlreportgen.dom.keepWithNext` object.

Properties

`Id` — ID for document element
string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Tag` — Tag for document element
string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Value` — Keep paragraph on same page as next paragraph
logical

Use one of these values:

- `true` or `1` — Keeps a paragraph on the same page as the paragraph that follows it.
- `false` or `0` — Allows a paragraph to be on a different page from the paragraph that follows it.

Data Types: `logical`

See Also

`mlreportgen.dom.KeepLinesTogether` | `mlreportgen.dom.PageBreakBefore`

More About

- "Report Formatting Approaches"

mlreportgen.dom.LineSpacing class

Package: mlreportgen.dom

Spacing between lines of paragraph

Description

Specifies the spacing between lines of a paragraph.

Construction

`lineSpacingObj = LineSpacing()` specifies line spacing equal to the height of one line at the paragraph font size.

`lineSpacingObj = LineSpacing(multiple)` specifies a line spacing as a multiple of the paragraph text line height (for example, 1.5).

`lineSpacingObj = LineSpacing(spacingHeight)` specifies line spacing as a dimension, for example, `'10pt'`.

`lineSpacingObj = LineSpacing(spacingHeight,spacingType)` specifies line spacing value and type.

Input Arguments

`mulitple` — Multiple of paragraph line height

1 (default) | scalar

Scalar that specifies the line spacing relative to the paragraph text line height.

`spacingHeight` — Height of line spacing

string

String having the format `valueUnits`, where `Units` is an abbreviation for the units in which the height is expressed. The following abbreviations are valid:

- no abbreviation — pixels
- `cm` — centimeters

- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points

`spacingType` — Line spacing type
string

Type of line spacing, specified as one of these strings:

- `'multiple'` — Value is the spacing in terms of number of lines.
- `'exact'` — Value is the exact size of the line spacing.
- `'atleast'` — Value is the minimum size of the line spacing (applies only to Microsoft Word)

Output Arguments

`lineSpacingObj` — Spacing between lines of paragraph
`mlreportgen.com.LineSpacing` object

Spacing between lines of paragraph, represented by an `mlreportgen.com.LineSpacing` object.

Properties

`Id` — ID for document element
string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Tag` — Tag for document element
string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Type` — Option to specify type of line spacing height

string | `'exact'` |

Type of line spacing, specified as one of these strings:

- `'multiple'` — Value is the spacing in terms of number of lines.
- `'exact'` — Value is the exact size of the line spacing.
- `'atleast'` — Value is the minimum size of the line spacing (applies only to Word)

`Value` — Height of line spacing

`'1in'` (default) | string

String having the format `valueUnits`, where `Units` is an abbreviation for the units in which the height is expressed. The following abbreviations are valid:

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points

Examples

Create Line Spacing 1.5 Times the Height of the Paragraph Text Lines

```
p = Paragraph();
p.Style = {LineSpacing(1.5)};
```

mlreportgen.dom.LinkTarget class

Package: mlreportgen.dom

Target for internal or external links or image area links

Description

A target to use for internal and external links and for image area links. You can specify a `LinkTarget` object when you construct an `mlreportgen.dom.InternalLink` or `mlreportgen.dom.ImageArea` object.

Construction

`targetObj = LinkTarget(name)` creates a link target with the specified name.

Input Arguments

`name` — Name of link target

string

Name of a link target, specified as a string.

To set up a link target for an external link:

- In a Word report, specify a Word bookmark.
- In an HTML report, specify an HTML named anchor (for example, `<a name='appendix'/>`).

Microsoft Word replaces spaces in a link target names with underscore characters. Avoid spaces in link target names in Word reports.

Output Arguments

`targetObj` — Link target object

`mlreportgen.dom.LinkTarget` object

Link target, represented by an `mlreportgen.dom.LinkTarget` object.

Properties

`CustomAttributes` — Custom attributes of document element

array of `mlreportgen.dom.CustomAttribute` objects

HTML or Microsoft Word must support the custom attributes of this document element.

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Name` — Name of link target

string

Microsoft Word replaces spaces in a link target names with underscore characters. Avoid spaces in link target names in Word reports.

`Style` — Format specification

array of format objects

Format objects that specify the format of a document element.

`StyleName` — This property is ignored

string

This property is ignored.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

Methods

Method	Purpose
`append`	Append content to link target.
`clone` Use `LinkTarget.clone` in a similar way to how you use `Paragraph.clone`.	Copy link target.

Examples

Link to Top of a Document

Define a link target at the top of the report and add an internal link to that target. In an actual report, links to this target would appear further down in the report.

```
import mlreportgen.dom.*
d = Document('mydoc');

append(d,LinkTarget('home'));
append(d,InternalLink('home','Go to Top'));

close(d);
rptview('mydoc', 'html');
```

- “Create Links”

See Also

`mlreportgen.dom.ExternalLink` | `mlreportgen.dom.ImageArea` | `mlreportgen.dom.InternalLink`

mlreportgen.dom.ListItem class

Package: mlreportgen.dom

Create item for ordered or unordered list

Description

Specifies an item in an ordered (numbered) or unordered (bulleted) list.

Construction

`listItemObj = ListItem()` creates an empty list item.

`listItemObj = ListItem(text)` creates a list item using the specified text. The constructor creates a Text object and appends the text object to the list item.

`listItemObj = ListItem(text,styleName)` creates a list item using the specified text and applies the specified style.

`listItemObj = ListItem(domObj)` creates a list item and appends the specified document element object to the list item.

`listItemObj = ListItem(domObj,styleName)` creates a list item using the specified document element object and style name.

Input Arguments

`text` — Text for list item

string

The constructor creates an `mlreportgen.dom.Text` object for the specified text.

`domObj` — Document element object

a DOM object

You can specify a `Paragraph` object or elements that you can append to a paragraph, including the following kinds of DOM objects:

- `mlreportgen.dom.Text`

- `mlreportgen.dom.Paragraph`
- `mlreportgen.dom.Image`
- `mlreportgen.dom.Table`
- `mlreportgen.dom.FormalTable`
- `mlreportgen.dom.ExternalLink`
- `mlreportgen.dom.InternalLink`
- `mlreportgen.dom.CustomElement`

`styleName` — Name of style for list item
string

Name of style to use for the list item, specified as a string.

Output Arguments

`listItemObj` — List item
`mlreportgen.dom.ListItem` object

List item, represented by an `mlreportgen.dom.ListItem` object.

Properties

`Children` — Children of this document
cell array of `mlreportgen.dom.Element` objects

This read-only property lists child elements that the document element contains.

`CustomAttributes` — Custom attributes of document element
array of `mlreportgen.dom.CustomAttribute` objects

HTML or Microsoft Word must support the custom attributes of this document element.

`Id` — ID for document element
string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Style` — Format specification
array of format objects

Format objects that specify the format of a document element.

`Parent` — Parent of document element

a DOM object

This read-only property lists the parent of this document element.

`StyleName` — This property is ignored

string

This property is ignored.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

Methods

Method	Purpose
`append` Use `ListItem.append` in a similar way as you use `Paragraph.append`, except you can append different content to a list item than to a paragraph.	Append a string or any of these kinds of DOM objects to a list item: • `Text` • `Paragraph` • `Table` • `Image` • `ExternalLink` • `InternalLink` • `CustomElement`

Method	Purpose
`clone` Use `ListItem.clone` the same way you use `Paragraph.clone`.	Clone a list item.

Examples

Create List Items for an Ordered List

```
import mlreportgen.dom.*;
doctype = 'html';
d = Document('test',doctype);
p = Paragraph('Perform the following steps.');
append(d,p);

step1 = ListItem('Do this step first.');
textForItem = Text('Next, do this.');
step2 = ListItem(textForItem);
procedure = OrderedList();
append(procedure,step1);
append(procedure,step2);
append(d,procedure);

close(d);
rptview('test',doctype);
```

- “Create and Format Lists”

See Also

`mlreportgen.dom.OrderedList` | `mlreportgen.dom.UnorderedList`

mlreportgen.dom.MessageDispatcher class

Package: mlreportgen.dom

DOM message dispatcher

Description

Dispatcher for document generation status messages.

Properties

`Filter` — Message filter

string

(Read-only) The value of this property is a filter that determines the types of messages the dispatcher dispatches. You can control which types of messages are dispatched by setting the properties of the filter.

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

Methods

Method	Purpose
`dispatch`	Dispatch a document generation status message.
`getTheDispatcher`	Get the message dispatcher.

Examples

Add and Dispatch a Progress Message

This example shows how to add a progress message to display when generating a report.

Add a dispatcher and listener to the report.

```
import mlreportgen.dom.*;
doctype = 'html';
d = Document('test',doctype);
d.Tag = 'My report';
          dispatcher = MessageDispatcher.getTheDispatcher;
l = addlistener(dispatcher,'Message', ...
    @(src,evtdata) disp(evtdata.Message.formatAsText));

open(d);
dispatch(dispatcher,ProgressMessage('starting chapter',d));
p = Paragraph('Chapter ');
p.Tag = 'chapter title';
append(d,p);

close(d);
rptview('test',doctype);

delete (l);
```

Check the progress messages in the MATLAB Command Window. The `starting chapter` message appears, in addition to the predefined DOM progress messages.

- “Display Report Generation Messages”

See Also

`mlreportgen.dom.MessageDispatcher.dispatch` | `mlreportgen.dom.MessageDispatcher.getTheDispatcher` | `mlreportgen.dom.MessageEventData` | `mlreportgen.dom.MessageFilter`

mlreportgen.dom.MessageEventData class

Package: mlreportgen.dom

Holds message triggering message event

Description

Contains the message that triggered a message event.

Construction

`messageEventDataObj = MessageEventData(msg)` creates a message event data object that contains a DOM message (for example, a message of type `mlreportgen.dom.ProgressMessage`).

The DOM message dispatcher attaches an object of this type to a message event when it dispatches a message. This enables message event listeners to retrieve the dispatched message. You need to create instances of this type only if you want to create your own message dispatcher.

Input Arguments

`msg` — Message object

message object

A message object, such as an `mlreportgen.dom.ProgressMessage` object, that triggers a message event.

Output Arguments

`messageEventDataObj` — Holds message triggering message event

`mlreportgen.dom.MessageEventData` object

Container for message triggering message event data, represented by an `mlreportgen.dom.MessageEventData` object.

Properties

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Message` — Message object (read-only)

message object

The value of this read-only property is a DOM message object, such as an `mlreportgen.dom.ProgressMessage` object, that triggers a message event.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

Examples

Capture Message Event Data

When you add a dispatcher, the DOM API creates the `evtdata` object, which is an `mlreportgen.dom.MessageEventData` object.

```
import mlreportgen.dom.*;
doctype = 'html';
d = Document('test', doctype);
d.Tag = 'My report';

dispatcher = MessageDispatcher.getTheDispatcher;
l = addlistener(dispatcher, 'Message', ...
   @(src, evtdata) disp(evtdata.Message.formatAsText));
```

```
open(d);
dispatch(dispatcher, ProgressMessage('starting chapter', d));
p = Paragraph('Chapter ');
p.Tag = 'chapter title';
p.Style = { CounterInc('chapter'), CounterReset('table'), WhiteSpace('pre') };
append(p, AutoNumber('chapter'));
append(d, p);

close(d);
rptview('test', doctype);

delete (l);
```

- “Display Report Generation Messages”

See Also

`mlreportgen.dom.MessageDispatcher`

mlreportgen.dom.MessageFilter class

Package: mlreportgen.dom

Filter to control message dispatcher

Description

Filter for messages dispatched by the message dispatcher.

Properties

`DebugMessagePass` — Pass or block debug messages

logical value

- `true`— Pass debug messages.
- `false`— Block debug messages.

Data Types: `logical`

`ErrorMessagePass` — Pass or block error messages

logical value

- `true`— Pass error messages.
- `false`— Block error messages.

Data Types: `logical`

`GlobalFilter` — Pass or block all messages

logical value

- `true`— Pass all messages.
- `false`— Block all messages.

Data Types: `logical`

`ProgressMessagePass` — Pass or block progress messages

logical value

- `true`— Pass progress messages.
- `false`— Block progress messages.

Data Types: `logical`

`GlobalFilter` — Pass or block all messages
logical value

- `true`— Pass all messages.
- `false`— Block all messages.

Data Types: `logical`

`SourceFilter` — Pass messages only for this DOM object
DOM object

Pass messages only from the specified DOM object if the messages meet the other filter conditions specified by this `MessageFilter` object.

See Also

`mlreportgen.dom.MessageDispatcher.dispatch`

Related Examples

- "Display Report Generation Messages"

mlreportgen.dom.OPCPart class

Package: mlreportgen.dom

Document part to include in OPC package

Description

Document part to include in an OPC package.

Construction

`opcPartObj = OPCPart()` creates an empty OPC part.

`opcPartObj = OPCPart(name,sourcePath)` creates a part having the specified name whose source file is located at the specified path. Appending the part to a document using the `Document.package` method causes a copy of the source file to be inserted in the document package at the location specified by the part name.

Input Arguments

`name` — Name of part

string

Name of part, specified as a string.

`sourcePath` — Path of source file for part

string

Path of source file for part, specified as a string.

Output Arguments

`opcPartObj` — OPC part

`mlreportgen.dom.OPCPart` object

OPC part, represented by an `mlreportgen.dom.OPCPart` object.

Properties

`ContentType` — Content type of part

string

Specifies the content type, using a file extension. For a list of file content types, see http://www.en.wikipedia.org/wiki/Open_Packaging_Conventions.

If you do not set this property is not set and the part is one of the types listed below, the DOM interface sets the content type when you append the part to a document.

File Type	File Extension
Windows bitmap	`.bmp`
Cascading style sheet	`.css`
Plain text	`.txt`
Icon	`.cur`
Windows metafile	`.emf`
Encapsulated PostScript	`.eps`
GIF image	`.gif`
HTML	`.html`
JPEG image	`.jpe`
JPEG image	`.jpeg`
JPEG	`.jpg`
JavaScript®	`.js`
JavaScript object Notation	`.json`
PNG image	`.png`
PSD	`.psd`
Rich Text Format	`.rtf`
Scalable Vector Graphics	`.svg`
TIFF image	`.tif`
TIFF image	`.tiff`
Truetype font	`.ttf`

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Name` — Path of part

string

Path of this part relative to the root of the package. For example, to add an image named `myimage.jpg` to a document images folder, specify the path as `'/images/myimage.jpg'`.

For information about OPC part names, see http://www.en.wikipedia.org/wiki/Open_Packaging_Conventions.

`RelatedPart` — Path name of part to which specified part is related

string

For information about OPC part names, see http://www.en.wikipedia.org/wiki/Open_Packaging_Conventions.

`RelationshipID` — Relationship ID

string

For information about OPC relationship IDs, see http://www.en.wikipedia.org/wiki/Open_Packaging_Conventions.

`RelationshipType` — Relationship type

string

Specifies a relationship type, using a file extension. For a list of file content types, see http://www.en.wikipedia.org/wiki/Open_Packaging_Conventions.

If you do not set this property is not set and the part is one of the types listed below, the DOM interface sets the content type when you append the part to a document.

File Type	File Extension
Windows bitmap	`.bmp`
Cascading style sheet	`.css`
Plain text	`.txt`

File Type	File Extension
Icon	`.cur`
Windows metafile	`.emf`
Encapsulated PostScript	`.eps`
GIF image	`.gif`
HTML	`.html`
JPEG image	`.jpe`
JPEG image	`.jpeg`
JPEG	`.jpg`
JavaScript	`.js`
JavaScript object Notation	`.json`
PNG image	`.png`
PSD	`.psd`
Rich Text Format	`.rtf`
Scalable Vector Graphics	`.svg`
TIFF image	`.tif`
TIFF image	`.tiff`
Truetype font	`.ttf`

`SourceFilePath` — Source file path

string

Source file path, specified as a string.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

Examples

Add a File to an OPC Package

This code inserts a copy of the `data.json` file in the data subfolder of the `mydoc` package. This example assumes that there is a `data.json` file in the current folder.

```
import reportgen.dom.*;
d = Document('mydoc','html');
package(d,OPCPart('/data/data.json','data.json'));
close(d);
```

See Also

`mlreportgen.dom.Document.package`

More About

- "Report Packages"

mlreportgen.dom.OrderedList class

Package: mlreportgen.dom

Create ordered list

Description

Create an ordered (numbered) list.

Construction

`orderedListObj = OrderedList()` creates an empty ordered list.

`orderedListObj = OrderedList(listItems)` creates an ordered list from a cell array of strings specifying the list items.

Input Arguments

`listItems` — Content to include in the ordered list

cell array of strings

Cell array containing a combination of the following:

- A string
- A number
- A Boolean value
- One of the following DOM objects:
  - `mlreportgen.dom.Text`
  - `mlreportgen.dom.Paragraph`
  - `mlreportgen.dom.ExternalLink`
  - `mlreportgen.dom.InternalLink`
  - `mlreportgen.dom.Table`
  - `mlreportgen.dom.Image`

  - `mlreportgen.dom.CustomElement`
- Horizontal one-dimensional array (for a sublist)

To append an ordered list, use an `OrderedList` DOM object instead of using the `listItems` argument.

Output Arguments

`orderedListObj` — Ordered list

`mlreportgen.dom.OrderedList` object

An ordered list containing the specified list items.

Properties

`CustomAttributes` — Custom attributes of document element

array of `mlreportgen.dom.CustomAttribute` objects

HTML or Microsoft Word must support the custom attributes of this document element.

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Style` — Format specification

array of format objects

Format objects that specify the format of a document element.

`StyleName` — This property is ignored

string

This property is ignored.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

Methods

Method	Purpose
`append`	Append items to this list.
`clone` Use the `OrderedList.clone` method similar to how you use `Paragraph.clone`.	Copy the list.

Examples

Create an Ordered List

```
import mlreportgen.dom.*;
d = Document('test','html');

ol = OrderedList({Text('a'), 'b', 1,...
    {'c', Paragraph('d')}});
append(d,ol);

close(d);
rptview('test','html');
```

- “Create and Format Lists”

See Also

`mlreportgen.dom.ListItem` | `mlreportgen.dom.UnorderedList`

mlreportgen.dom.OuterMargin class

Package: mlreportgen.dom

Margin between bounding box and its surroundings

Description

Specifies the margin between the bounding box of an object and adjacent document objects. A bounding box of an object includes the border of the object (if it has a border), the inner margin, and the object content.

Construction

`marginObj = OuterMargin()` creates an unspecified margin between the bounding box of an object and its surroundings.

`marginObj = OuterMargin(all)` creates the specified margin on all sides between the bounding box of an object and its surroundings.

`marginObj = OuterMargin(left,right)` creates the specified margins between the left and right sides of the bounding box of an object and its surroundings.

`marginObj = OuterMargin(left,right,top,bottom)` creates the specified margins between sides of the bounding box of an object and its surroundings.

Input Arguments

`all` — Outer margin size on all sides

string

String specifying the margin on all sides between the bounding box of an object and its surroundings. String must have the format `valueUnits` where `Units` is an abbreviation for the units in which the width size is expressed. Valid abbreviations are:

- No abbreviation — pixels

- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

`left` — Outer left margin size
string

String specifying the left margin between the bounding box of an object and its surroundings. See the all argument for description of valid strings.

`right` — Outer right margin size
string

String specifying the right margin between the bounding box of an object and its surroundings. See the all argument for description of valid strings.

`top` — Outer top margin size
string

String specifying the top margin between the bounding box of an object and its surroundings. See the all argument for description of valid strings.

`bottom` — Outer bottom margin size
string

String specifying the bottom margin between the bounding box of an object and its surroundings. See the all argument for description of valid strings.

Output Arguments

`marginObj` — Margin between bounding box and surroundings
`mlreportgen.dom.OuterMargin` object

A `mlreportgen.dom.OuterMargin` object specifying the margin between bounding box and surroundings.

Properties

`Bottom` — Size of bottom margin

string

String specifying the bottom margin. String must have the format `valueUnits` where `Units` is an abbreviation for the units in which the width size is expressed. Valid abbreviations are:

- No abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

`Left` — Size of left margin

string

String specifying the left margin. See the `Bottom` property for description of valid strings.

`Right` — Size of right margin

string

String specifying the right margin. See the `Bottom` property for description of valid strings.

`Top` — Size of top margin

string

String specifying the top margin. See the `Bottom` property for description of valid strings.

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

Tag — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

Examples

Add Margins to Paragraph That Has a Border

```
import mlreportgen.dom.*;
doctype = 'html';
d = Document('test',doctype);

p = Paragraph('Hello World');
p.Style = {Border('solid','Red'), ...
   HAlign('center'),...
   OuterMargin('Opt','Opt','Opt','24pt')};
append(d, p);

p = Paragraph('Greetings from MATLAB');
p.Style = {Border('solid','green'), ...
   HAlign('center')};
append(d,p);

p = Paragraph('End of report');
p.Style = {Border('solid','blue'),...
   HAlign('center'),...
   OuterMargin('Opt','Opt','Opt','12pt')}
append(d,p);

close(d);
rptview('test',doctype);
```

See Also

`mlreportgen.dom.InnerMargin`

More About

- "Report Formatting Approaches"

mlreportgen.dom.OutlineLevel class

Package: mlreportgen.dom

Level of paragraph in outline

Description

Specifies the level of a paragraph in an automatically generated outline. This class is intended for Microsoft Word reports, because HTML does not support displaying paragraphs in a table of contents.

Construction

`outlineLevelObj = OutlineLevel()` sets the outline level of this paragraph to 1. This causes the content of the paragraph to appear at the top level in an automatically generated outline (for example, a table of contents).

`outlineLevelObj = OutlineLevel(level)` sets the paragraph to the specified outline level.

Input Arguments

`level` — Specify the level of a paragraph in an outline

integer

Outline level for a paragraph, specified as a positive integer, from 1 to 9.

Data Types: `int16`

Output Arguments

`outlineLevelObj` — Level of paragraph in outline

`mlreportgen.dom.OutlineLevel` object

Level of paragraph in outline, represented by an `mlreportgen.dom.OutlineLevel` object.

Properties

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Value` — Specify the level of a paragraph in an outline

integer

Outline level for a paragraph, specified as a positive integer, from 1 to 9.

Data Types: `int16`

Examples

Add a Table of Contents

Add an automatically generated table of contents and set the outline level of the "Glossary" paragraph so that the paragraph appears at the top level of the table of contents. This example uses the default DOM Word template.

Create a document and document part for the table of contents. The document part uses the `ReportTOC` building block from the default DOM Word template.

```
import mlreportgen.dom.*
d = Document('tocDoc','docx');
```

```
open(d);

dp = DocumentPart(d,'ReportTOC');
append(d,dp);
```

Set the `OutlineLevel` property internally, so that there are four levels in the table of contents.

```
for i = 1:4
    % set internally the OutlineLevel property
    append(d,Heading(i,'My Chapter'));
    append(d,Paragraph('chapter content....'));
end
```

Use `OutlineLevel` to set the level of the `Glossary` paragraph to `1`, so that the paragraph appears at the top level of the table of contents. Display the report.

```
para = append(d,Paragraph('Glossary'));
para.Style = {OutlineLevel(1)};

close(d);
rptview(d.OutputPath,d.Type);
```

See Also

`mlreportgen.dom.Heading` | `mlreportgen.dom.Paragraph`

More About

- “Automatically Number Document Content”

mlreportgen.dom.PageBreakBefore class

Package: mlreportgen.dom

Start paragraph on new page

Description

Specifies to always start paragraph on new page. This is for Microsoft Word reports.

Construction

`pageBreakBeforeObj = PageBreakBefore()` always starts paragraph on a new page.

`pageBreakBeforeObj = PageBreakBefore(onOff)` always starts paragraph on a new page if `onOff` is `true`.

Input Arguments

`onOff` — Start paragraph on new page
`true` (default)

Specify one of the following logical values:

- `true` or `1` — Starts a paragraph on a new page.
- `false` or `0` — Allows a paragraph to start on the current page.

Data Types: `logical`

Output Arguments

`pageBreakBeforeObj` — Start paragraph on new page
`mlreportgen.dom.PageBreakBefore` object

Start paragraph on new page, represented by an `mlreportgen.dom.PageBreakBefore` object.

Properties

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Value` — Start paragraph on new page

`true` (default)

Possible values are:

- `true` or `1` — Starts a paragraph on a new page.
- `false` or `0` — Allows a paragraph to start on the current page.

Data Types: `logical`

See Also

`mlreportgen.dom.Paragraph`

More About

- "Report Formatting Approaches"

mlreportgen.dom.Paragraph class

Package: mlreportgen.dom

Formatted block of text (paragraph)

Description

Use a `mlreportgen.dom.Paragraph` object to define a paragraph. You can append document elements, such as an image, to a paragraph.

Construction

`paragraphObj = Paragraph(text)` creates a paragraph containing a mlreportgen.dom.Text object with the text specified by the text string.

`paragraphObj = Paragraph(text,styleName)` creates a paragraph having that specified style. The style specified by styleName must be defined in the template used for the document element to which this paragraph is appended.

`paragraphObj = Paragraph(docElementObj)` creates a paragraph containing the document element specified by docElementObj (for example, an image).

Input Arguments

`text` — Paragraph text

string

Paragraph text, specified as a string.

`styleName` — Style for the paragraph

string

The name of a style, specified as a string. The style must be defined in the template used to create the document to which this paragraph is appended.

`docElementObj` — Document element to include in the new paragraph

a DOM object

A DOM object to include in a paragraph. You can specify these DOM objects:

- `mlreportgen.dom.ExternalLink`
- `mlreportgen.dom.Image`
- `mlreportgen.dom.InternalLink`
- `mlreportgen.dom.Text`
- `mlreportgen.dom.LinkTarget`

Output Arguments

`paragraphObj` — Paragraph
`mlreportgen.dom.Paragraph` object

Paragraph, represented by an `mlreportgen.dom.Paragraph` object.

Properties

`BackgroundColor` — Background color
string

Specify one of these as a string:

- The name of a color. The name must be a CSS color name. See http://www.crockford.com/wrrrld/color.html.
- A hexadecimal RGB (truecolor) value as `#RRGGBB`. For example, `#0000ff` is a shade of blue.

`Bold` — Option to use bold for text
[ ] (default) | logical value

To make text bold, set this property to `true` or `1`. If this property is empty and the `StyleName` property for this document element specifies a style sheet style, the weight of the text is determined by that style. Setting the `Bold` property adds a corresponding `mlreportGen.dom.Bold` format object to the `Style` property of this document element. Removing the `Bold` property setting removes the object.

Data Types: `logical`

`Color` — Text color
string

Specify one of these as a string:

- The name of a color. The name must be a CSS color name. See http://www.crockford.com/wrrrld/color.html.
- A hexadecimal RGB (truecolor) value as `#RRGGBB`. For example, `#0000ff` is a shade of blue.

`Children` — Children of this paragraph

array of `mlreportgen.dom.Element` objects

This read-only property lists children elements, such as an image (`mlreportgen.dom.Image`) object, that the paragraph contains.

`CustomAttributes` — Custom attributes of document element

array of `mlreportgen.dom.CustomAttribute` objects

HTML or Microsoft Word must support the custom attributes of this document element.

`FirstLineIndent` — Indentation amount for first line of paragraph

string

Amount by which to indent the first line of this paragraph relative to succeeding lines.

To create a hanging indent, in which all the lines are indented except for the first line, use a negative number.

The string has the format `valueUnits`, where `Units` is an abbreviation for the units in which the indentation is expressed. Use one of these abbreviations for the units for indentation.

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

`FontFamilyName` — Name of font family for paragraph text

string

The name of a font family.

To specify substitutions for this font, do not set this property. Instead create and add a `mlreportgen.dom.FontFamily` object to the `Style` property of this document element.

Setting the `FontFamilyName` property adds a corresponding `mlreportGen.dom.FontFamily` format object to the `Style` property for this document element. Removing the `FontFamilyName` property setting removes the object.

`FontSize` — Font size for paragraph text

string

Setting the `FontSize` property adds a corresponding `mlreportGen.dom.FontSize` format object to the `Style` property for this document element. Removing the `FontSize` property setting removes the object.

The string has the format `valueUnits`, where `Units` is an abbreviation for the units in which the indentation is expressed. Use one of these abbreviations for the units for indentation.

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

`HAlign` — Horizontal alignment of this paragraph

string

Horizontal alignment for a paragraph, relative to page margins or table cell borders, specified as a string.

String	Description	Supported Output Types
`center`	Center the paragraph	Word and HTML
`distribute`	Distribute all characters equally	Word

String	Description	Supported Output Types
`justify`	Align left side of paragraph on left side of page, and right side of paragraph on the right side of the page	HTML
`KashidaHigh`	Use widest Kashida length	Word
`KashidaLow`	Use lowest Kashida length	Word
`KashidaMedium`	Use medium Kashida length	Word
`left`	Align paragraph left	Word and HTML
`right`	Align paragraph right	Word and HTML
`ThaiDistribute`	Thai language justification	Word

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Italic` — Option to use italics for text

[ ] (default) | logical value

To use italics for text, set this property to `true`. If this property is empty and the `StyleName` property for this document element specifies a style sheet style, the slant of the text is determined by that style. Setting the `Italic` property adds a corresponding `mlreportGen.dom.Italic` format object to the `Style` property of this document element. Removing the `Italic` property setting removes the object.

Data Types: `logical`

`OuterLeftMargin` — Left indentation for paragraph

string

Space between the left outer boundary of this paragraph and the left inner boundary of its container. This is equivalent to the left indentation property of a Microsoft Word paragraph.

To indent a paragraph from both the left and right margin of a page, do not set this property. Instead, add to the `Style` property of this paragraph a `mlreportgen.dom.OuterMargin` object specifying the left and right indentations.

Setting the `OuterLeftMargin` property adds a corresponding `mlreportGen.dom.OuterMargin` format object to the `Style` property for this document element. Removing the `OuterLeftMargin` property setting removes the object.

The string has the format `valueUnits`, where `Units` is an abbreviation for the units in which the indentation is expressed. Use one of these abbreviations for the units for indentation.

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

`OutlineLevel` — Outline level of this paragraph

[ ] (default) | numeric value

Setting the `OutlineLevel` property causes this paragraph to be included in automatically generated outlines, such as a table of contents. The value specifies the level of the paragraph in the table of contents. For example, to make a paragraph appear as a `Heading 1` (Word) or `h1` (HTML), set `OutlineLevel` to `1`.

Data Types: `int32`

`Parent` — Parent of document element

a DOM object

This read-only property lists the parent of this document element.

`Strike` — Text strikethrough

string

The default for this property is []. You can set it to one of these values:

- `none` — Do not use strikethrough for Word and HTML documents
- `single` — Use a single line for strikethrough for Word and HTML documents

- `double` — Use a double line for strikethrough for Word documents

Setting the `Strike` property adds a corresponding `mlreportGen.dom.Strike` format object to the `Style` property for this document element. Removing the `Strike` property setting removes the object.

`Style` — Paragraph formatting

cell array of format objects

A cell array of DOM format objects that specifies the formats for this paragraph style.

`styleName` — Paragraph style name

string

The style specified by styleName must be defined in the template used to create the document element to which this paragraph is appended.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Underline` — Type of underline, if any, for text

[ ] (default) | string

You can specify one of the following types of underlines.

Border String	Description	Supported Output Types
`dash`	Dashed underline	Word
`dashedHeavy`	Line with heavy dashes	Word
`dashLong`	Line with long dashes	Word
`dashLongHeavy`	Line with heavy long dashes	Word

Border String	Description	Supported Output Types
`dashDotDotHeavy`	Line with heavy dashes with two dots between the dashes	Word
`dashDotHeavy`	Heavy dash-dot line	Word
`dotted`	Dotted line	Word
`dottedHeavy`	Thick dotted line	Word
`dotDash`	Dot-dash line	Word
`dotDotDash`	Dot-dot-dash line	Word
`dashDotHeavy`	Heavy dot-dash line	Word
`double`	Double line	Word
`none`	Do not use underlining	HTML and Word
`single`	Single line	HTML and Word
`thick`	Thick line	Word
`wave`	Wavy line	Word
`waveyDouble`	Double wavy line	Word
`waveyHeavy`	Heavy wavy	Word
`words`	Underline non-space characters only	Word

If this property is empty and `StyleName` property of this document element specifies a style sheet style, the type of underline is determined by that style.

To specify the color as well as the type of the underline, do not set the `Underline` property. Instead, set the `Style` property of this document element to include an `mlreportgen.dom.Underline` format object that specifies the desired underline type and color.

Setting the `Underline` property adds a corresponding `mlreportGen.dom.Underline` format object to the `Style` property for this document element. Removing the `Underline` property setting removes the object.

`WhiteSpace` — White space and line breaks in text

[ ] (default) | string

To specify how to handle white space, use one of the following strings.

Border String	Description	Supported Output Types
`normal`	Does not preserve white space and line breaks	Word and HTML
`nowrap`	Sequences of white space collapse into a single white space. Text never wraps to the next line.	HTML
`preserve`	Preserves white space. Text wraps only on line breaks. Acts like the `<pre>` tag in HTML.	Word and HTML See below for details.
`pre`	Preserves white space. Text wraps only on line breaks. Acts like the `<pre>` tag in HTML.	HTML
`pre-line`	Sequences of white space collapse into a single white space. Text wraps.	HTML
`pre-wrap`	Preserves white space. Text wraps when necessary and on line breaks	HTML

If you want to view HTML output in the MATLAB browser and you want to preserve white space and wrap text only on line breaks, use the `preserve` setting rather than the `pre` setting.

Setting the `WhiteSpace` property adds a corresponding `WhiteSpace` format object to `Style` property. Removing the `WhiteSpace` property setting removes the `WhiteSpace` object.

Methods

Method	Purpose
`append`	Append text, images, links, link targets, or custom elements to paragraph.

Method	Purpose
clone	Copy paragraph.

Examples

Add Paragraphs

Add a paragraph with text and another with an external link.

```
import mlreportgen.dom.*
doc = Document('mydoc','html');

p1 = Paragraph('This will be bold text');
p1.Bold = true;
link = ExternalLink('http://www.mathworks.com/', 'MathWorks');
p2 = Paragraph(link);
p2.BackgroundColor = 'yellow';
append(doc,p1);
append(doc,p2);

close(doc);
rptview('mydoc','html');
```

- “Add Content to a Report”

See Also

`mlreportgen.dom.LineSpacing` | `mlreportgen.dom.Text`

More About

- “Report Formatting Approaches”

mlreportgen.dom.ProgressMessage class

Package: mlreportgen.dom

Progress message

Description

Create a progress message with the specified text originating from the specified source object.

Construction

`progressMsgObj = ProgressMessage(text,sourceDOMObject)` creates a progress message with the specified text, originating from the specified source object.

Input Arguments

`text` — Message text
string

The text to display for the message.

`source` — DOM object to from which message originates
a DOM object

The DOM object from which the message originates.

Output Arguments

`progressMsgObj` — Progress message
`mlreportgen.dom.ProgressMessage` object

Progress message, represented by an `mlreportgen.dom.ProgressMessage` object.

Properties

`Id` — ID for document element
string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Source` — Source DOM object message originates from
a DOM object

Source DOM object from which the message originates.

`Tag` — Tag for document element
string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Text` — Text of message
string

Message text, specified as a string.

Methods

Method	Purpose
`formatAsHTML`	Wrap message in HTML tags.
`formatAsText`	Format message as text.
`passesFilter`	Determine if message passes filter.

Examples

Create a Progress Message

Create the report document.

```
import mlreportgen.dom.*;
d = Document('test','html');
```

Create a message dispatcher.

```
dispatcher = MessageDispatcher.getTheDispatcher;
l = addlistener(dispatcher,'Message', ...
      @(src, evtdata) disp(evtdata.Message.formatAsText));
```

Dispatch the message.

```
open(d);
dispatch(dispatcher,ProgressMessage('starting chapter',d));
```

Add report content.

```
p = Paragraph('Chapter ');
p.Tag = 'chapter title';
p.Style = { CounterInc('chapter'),...
    CounterReset('table'),WhiteSpace('pre') };
append(p, AutoNumber('chapter'));
append(d,p);
```

Run report and delete the listener.

```
close(d);
rptview('test','html');

delete(l);
```

- “Display Report Generation Messages”

See Also

`mlreportgen.dom.MessageDispatcher.dispatch`

mlreportgen.dom.RawText class

Package: mlreportgen.dom

Word XML or HTML markup to insert in document

Description

Word XML or HTML markup to insert in a document.

Construction

`text = RawText()` creates an empty `RawText` object.

You can append a `RawText` object only to a `Document` object. For a Word document, the markup specified by the `DOCXText` property is included in the document. For an HTML document, the value of the `HTMLText` property is included. In either case, the markup must be valid Word XML or HTML markup, respectively, that can be validly inserted in the body element of the output document. If you insert invalid markup in a Microsoft Word document, Word may be unable to open the document.

`text = RawText(htmlMarkup)` creates a `RawText` object containing the specified HTML markup.

`text = RawText(markup,doctype)` creates a `RawText` object containing markup of the specified document type (HTML or Word).

Input Arguments

`htmlMarkup` — HTML markup code

string

HTML markup, specified as a string. To improve the readability of your report document, consider assigning the markup to a variable. Then use the variable as an input argument, as shown in the example below.

`markup` — Word XML or HTML markup code

string

Word XML markup or HTML markup, specified as a string. For a Word document, the markup must be valid Word XML markup that can be inserted into the `w:body` element. To improve the readability of your report document, consider assigning the markup to a variable. Then use the variable as an input argument, as shown in the example below.

`doctype` — Type of markup to use

`'html' | 'docx'`

Type of markup to use, specified as a string.

Output Arguments

`rawText` — Word XML or HTML markup to insert in document

`mlreportgen.dom.RawText` object

Word XML or HTML markup to insert in document, represented by an `mlreportgen.dom.RawText` object.

Properties

`DOCXText` — Text to output to Word document

string

Word XML markup, specified as a string. The value of this property is included in a Word document. The markup must be valid Word XML markup that can be inserted into the `w:body` element of a Word document.

`HTMLText` — Text to output to HTML document

string

HTML markup, specified as a string. The value of this property is included in an HTML document. The text must be valid HTML markup that can be inserted into the `body` element of an HTML document.

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Parent` — Parent of document element

a DOM object

This read-only property lists the parent of this document element.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

Examples

Add HTML Markup

Assign HTML markup to a variable and use that variable to create a `RawText` object to append to a document.

```
import mlreportgen.dom.*;
d = Document('test','html');

script = [ ...
   '<script>' ...
   'document.write("Hello World!")' ...
   '</script>' ...
   ];
append(d,RawText(script));

close(d);
rptview('test','html');
```

- “Add Content to a Report”

See Also

`mlreportgen.dom.CustomAttribute`

mlreportgen.dom.RepeatAsHeaderRow class

Package: mlreportgen.dom

Repeat table row

Description

Specifies to repeat a table row on each new page when a table flows across multiple pages. This format applies only to Microsoft Word documents.

Construction

`repeatAsHeaderRowObj = RepeatAsHeaderRow()` repeats table row on each new page when a table flows across multiple pages.

`repeatAsHeaderRowObj = RepeatAsHeaderRow(onOff)` repeats table row on each new page if `onOff` is `true`.

Input Arguments

`onOff` — Controls table row repeating on each new page
`true` (default)

Specify one of the following logical values:

- `true` or `1` — Table row repeats on each new page when a table flows across multiple pages.
- `false` or `0` — Table row does not repeat on each new page when a table flows across multiple pages.

Data Types: `logical`

Output Arguments

`repeatAsHeaderRowObj` — Repeat table row
`mlreportgen.dom.RepeatAsHeaderRow` object

Repeat table row, represented by an `mlreportgen.dom.RepeatAsHeaderRow` object.

Properties

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Value` — Repeat table row on each new page

`true` (default)

Possible logical values are:

- `true` or `1` — Table row repeats on each new page when a table flows across multiple pages.
- `false` or `0` — Table row does not repeat on each new page when a table flows across multiple pages.

Data Types: `logical`

Examples

Repeat Table Row

Create a table with nor repeating row.

```
import mlreportgen.dom.*;
doctype = 'docx';
d = Document('repeatHeader',doctype);

append(d,'Table 1');
table = Table(ones(15, 2));
table.Style = {Border('solid'),RowSep('solid')};
append(d,table);
```

Create a second table with repeated row with a table row that cannot break across pages.

```
append(d,'Table 2');
table = Table(ones(15,2));
table.entry(1,1).Children(1).Content = 'Header A';
table.entry(1,2).Children(1).Content = 'Header B';
table.row(1).Style = {RepeatAsHeaderRow(true)};
table.Style = {Border('solid'),RowSep('solid')};
append(d, table);
table.row(6).Style = {AllowBreakAcrossPages(false)};
table.entry(6,1).Children(1).Content = ...
     'Start this row on new page if it does not fit on current page';
for i=2:10
     table.entry(6,1).append(Paragraph(Text(i)));
end

close(d);
rptview(d.OutputPath,doctype);
```

Generate the report.

```
close(d);
rptview(d.OutputPath,doctype);
```

- “Create and Format Tables”

See Also

`mlreportgen.dom.AllowBreakAcrossPages` | `mlreportgen.dom.TableHeader`

More About

- “Report Formatting Approaches”

mlreportgen.dom.ResizeToFitContents class

Package: mlreportgen.dom

Allow table to resize its columns

Description

Specifies whether a table can resize its columns to fit content.

Construction

`resizeToFitContentsObj = ResizeToFitContents()` allows a table to resize its columns to fit their contents.

`resizeToFitContentsObj = ResizeToFitContents(tf)` allows a table to resize its columns to fit their contents, if `tf` is `true`.

Input Arguments

`value` — Allow table to resize its columns

logical value

A setting of `true` (or `1`) allows a table to resize its columns to fit their contents. A setting of `false` (or `0`) causes the content to wrap.

Data Types: `logical`

Output Arguments

`resizeToFitContentsObj` — Allow table to resize its columns

`mlreportgen.dom.ResizeToFitContents` object

Specification of whether a table resizes its columns to fit content or wraps content, represented by an `mlreportgen.dom.ResizeToFitContents` object.

Properties

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Value` — Allow table to resize its columns

logical value

A setting of `true` (or `1`) allows a table to resize its columns to fit their contents. A setting of `false` (or `0`) causes the content to wrap.

Data Types: `logical`

Examples

Create paragraph that whose text is italic by default

```
import mlreportgen.dom.*;
doctype = 'html';
d = Document('test',doctype);

append(d, Heading(1,'Table 1'));
table = Table(ones(4,4));
table.entry(1,2).Children(1).Content = 'MathWorks';

table.Style = {ResizeToFitContents(true),Width('1in'), ...
```

```
    Border('solid'),RowSep('solid'),ColSep('solid')};

table.TableEntriesStyle = {Width('0.25in')};
append(d,table);

append(d, Heading(1,'Table 2'));
table = Table(ones(4, 4));
table.entry(1,2).Children(1).Content = 'MathWorks';

table.Style = {ResizeToFitContents(false),Width('1in'), ...
    Border('solid'), RowSep('solid'),ColSep('solid')};

table.TableEntriesStyle = {Width('0.25in')};
append(d,table);

close(d);
rptview(d.OutputPath,doctype);
```

See Also

`mlreportgen.dom.FormalTable` | `mlreportgen.dom.Table` | `mlreportgen.dom.TableColSpec` | `mlreportgen.dom.TableColSpecGroup`

More About

- "Report Formatting Approaches"

mlreportgen.dom.RowHeight class

Package: mlreportgen.dom

Height of table row

Description

Specifies the height of a table row.

Construction

`rowHeightObj = RowHeight()` specifies row height to be 1 inch.

`rowHeightObj = RowHeight(height)` sets a row to the specified height.

`rowHeightObj = RowHeight(height,heightType)` sets a row to be *exactly* the specified height or *at least* the specified height. Applies only to Microsoft Word documents.

Input Arguments

`height` — Height of table row

`'1in'` (default)

String having the format `valueUnits`, where `Units` is an abbreviation for the units in which the height is expressed. The following abbreviations are valid:

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

`heightType` — Use specified height or height that is at least specified height

`'exact' | 'atleast'`

String that defines a row to be exactly the specified height or to be the specified height or taller.

Output Arguments

`rowHeightObj` — Height of table row

`mlreportgen.dom.RowHeight` object

Row height, represented by an `mlreportgen.dom.RowHeight` object.

Properties

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Type` — Use specified height or height that is at least specified height

`'exact' | 'atleast'`

String that defines a row to be exactly the specified height or to be the specified height or taller.

`Value` — Height of table row

`'1in'` (default)

String having the format `valueUnits`, where `Units` is an abbreviation for the units in which the height is expressed. The following abbreviations are valid:

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

Examples

Specify Table Row Heights

Create a table with two rows. The first row has a variable height and the second has a fixed maximum height.

```
import mlreportgen.dom.*;
d = Document('myTableDoc','docx');

t = Table(2);
t.Style = {Border('solid'),RowSep('solid'),ColSep('solid')};
t.Width = '1in';
r1 = TableRow();
r1.Style = {RowHeight('.25in','atleast')};
append(r1,TableEntry(...
    'This row can expand beyond .25 inches'));
append(r1,TableEntry('x'));

r2 = TableRow();
r2.Style = {RowHeight('.25in','exact')};
append(r2,TableEntry...
    ('Truncated text because height is fixed'));
append(r2,TableEntry('x'));

append(t,r1);
append(t,r2);
append(d,t);
```

```
close(d);
rptview('myTableDoc','docx');
```

- “Create and Format Tables”

See Also

`mlreportgen.dom.TableRow`

mlreportgen.dom.RowSep class

Package: mlreportgen.dom

Draw lines between table rows

Description

Draw lines (separators) between table rows.

Construction

`rowSepObj = RowSep()` creates unspecified row separators.

`rowSepObj = RowSep(style)` creates a row separator of the specified style.

`rowSepObj = RowSep(style,color)` creates a row separator having the specified style and color.

`rowSepObj = RowSep(style,color,width)` creates a row separator having the specified style, color, and width.

Input Arguments

`style` — Line style of table row separator

string

Line style of the table row separator, specified as a string.

String	Applies To	
	Word	HTML
`'dashed'`	X	X
`'dashdotstroked'`	X	
`'dashsmallgap'`	X	
`'dotted'`	X	X

String	Applies To	
	Word	HTML
'dotdash'	X	
'dotdotdash'	X	
'double'	X	X
'doublewave'	X	
'inset'	X	X
'none'	X	X
'outset'	X	X
'single'	X	
'solid'		X
'thick'	X	
'thickthinlargegap'	X	
'thickthinmediumgap'	X	
'thickthinsmallgap'	X	
'thinthicklargegap'	X	
'thinthickmediumgap'	X	
'thinthicksmallgap'	X	
'thinthickthinlargegap'	X	
'thinthickthinmediumgap'	X	
'thinthickthinsmallgap'	X	
'threedemboss'	X	
'threedengrave'	X	
'triple'	X	
'wave'	X	

`color` — Color of table row separator

string

String specifying the color of the table row separator. String can be a color, such as `'red'` or a hexadecimal RGB value, such as `'#0000ff'`.

`width` — Width of table row separator

string

String specifying the color of the table row separator. String must have the format `valueUnits` where `Units` is an abbreviation for the units in which the width size is expressed. Valid abbreviations are:

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

Output Arguments

`rowSepObj` — Draw lines between table rows

`mlreportgen.dom.RowSep` object

Table rows separator lines, represented by an `mlreportgen.dom.RowSep` object.

Properties

`Color` — Text color

string

Specify one of these as a string:

- The name of a color. The name must be a CSS color name. See http://www.crockford.com/wrrrld/color.html.
- A hexadecimal RGB (truecolor) value as `#RRGGBB`. For example, `#0000ff` is a shade of blue.

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Style` — Line style of table row separator

string

Line style for the row separator. See the description of the `style` input argument for a list of possible values.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Width` — Table row separator width

string

String specifying the width of the table row separator. String must have the format `valueUnits` where `Units` is an abbreviation for the units in which the width size is expressed. Valid abbreviations are:

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

Examples

Use Table Row Separators

Define the row separator as part of the `Style` property definition for the table.

```
import mlreportgen.dom.*;
doctype = 'html';
d = Document('test',doctype);

t = Table(magic(5));
t.Style = {Border('inset','crimson','6pt'), ...
   ColSep('double','DarkGreen','3pt'), ...
   RowSep('double','Gold','3pt'), ...
   Width('50%')};

t.TableEntriesInnerMargin = '6pt';
t.TableEntriesHAlign = 'center';
t.TableEntriesVAlign = 'middle';
append(d,t);

close(d);
rptview('test',doctype);
```

- “Create and Format Tables”

See Also

`mlreportgen.dom.Border` | `mlreportgen.dom.ColSep` | `mlreportgen.dom.TableEntry` | `mlreportgen.dom.TableRow`

mlreportgen.dom.ScaleToFit class

Package: mlreportgen.dom

Scale image to fit page

Description

Specifies whether to scale an image to fit a page.

Construction

`scaleToFitObj = ScaleToFit()` scales an image to fit between the margins of a Microsoft Word page.

`scaleToFitObj = ScaleToFit(value)` scales an image if value is `true`.

Input Arguments

`value` — Scale image to fit page

[ ] (default) | logical value

A setting of `false` (or `0`) does not scale the image. A setting of `true` (or `1`) scales the image to fit between the margins of a Microsoft Word page.

Data Types: `logical`

Output Arguments

`scaleToFitObj` — Scale image to fit page

`mlreportgen.dom.ScaleToFit` object

Scale image to fit page, represented by an `mlreportgen.dom.ScaleToFit` object.

Properties

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Value` — Scale image to fit page

[ ] (default) | logical value

The possible values are:

- `false` or `0` — Do not scale image.
- `true` or `1`— Scale image to fit between the margins of a Word page.

Data Types: `logical`

See Also

`mlreportgen.dom.Height` | `mlreportgen.dom.Image` | `mlreportgen.dom.Width`

Related Examples

- “Create and Format Images”

mlreportgen.dom.Strike class

Package: mlreportgen.dom

Strike through text

Description

Specifies whether to use a strikethrough line for a text object. Strike appears as a single, horizontal line drawn through the text.

Construction

`strikeObj = Strike()` draws a single, horizontal line through text.

`strikeObj = Strike(type)` draws a line of the specified type through text.

Input Arguments

`type` — Specifies strike type

string

String specifying the strike type. Choices are:

- `'single'` — Single horizontal line (default)
- `'none'` — No strikethrough line
- `'double'` — Double horizontal line

Output Arguments

`strike` — Strike through text

`mlreportgen.dom.Strike` object

An `mlreportgen.dom.Strike` object representing strikethrough text.

Properties

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Value` — Specifies strike type

string

String specifying the strike type. Choices are:

- `'single'` — Single horizontal line (default)
- `'none'` — No strikethrough line
- `'double'` — Double horizontal line

See Also

`mlreportgen.dom.Underline`

More About

- "Report Formatting Approaches"

mlreportgen.dom.Table class

Package: mlreportgen.dom

Create table

Description

Use an `mlreportgen.dom.Table` object to define a table. Append rows and table entries to add content to the table. You can define column properties.

Construction

`tableObj = Table(ncols)` creates an empty table having the specified number of columns. Use this constructor as the starting point for creating a table from scratch.

`tableObj = Table(array)` returns a table whose content is specified by a two-dimensional numeric array or a two-dimensional cell array of MATLAB data types and DOM objects. The constructor converts basic MATLAB types to corresponding DOM types, e.g., strings to Text objects.

`tableObj = Table(array,'StyleName')` creates a table having the specified style. The style specified by StyleName must be defined in the template used to create the document to which this table is appended.

Input Arguments

`ncols` — Number of columns in the table

double, specifying the number of columns in the table

Data Types: `double`

`body` — Array of values to include in a table

two-dimensional numeric array | two-dimensional cell array of MATLAB or DOM objects

The valid DOM objects are:

- `mlreportgen.dom.Paragraph`
- `mlreportgen.dom.Text` (`CharEntity` included)
- `mlreportgen.dom.Image`
- `mlreportgen.dom.Table`
- `mlreportgen.dom.OrderedList`
- `mlreportgen.dom.UnorderedList`

`styleName` — Style for table
a style

The style specified by styleName must be defined in the template of the document to which this table is appended.

Data Types: `char`

Output Arguments

`tableObj` — Table
`mlreportgen.dom.Table` object

Table, represented by an `mlreportgen.dom.Table` object.

Properties

`BackgroundColor` — Background color
string

Specify one of these as a string:

- The name of a color. The name must be a CSS color name. See http://www.crockford.com/wrrrld/color.html.
- A hexadecimal RGB (truecolor) value as `#RRGGBB`. For example, `#0000ff` is a shade of blue.

`Border` — Type of border to draw
string

Specify one of the following as a string.

Border String	Description	Supported Output Types
`dashed`	Dashed line	Word and HTML
`dashdotstroked`	Line with alternating diagonal dashes and dot	Word
`dashsmallgap`	Dashed line with a small gap between dashes	Word
`dotted`	Dotted line	Word and HTML
`dotdash`	Line with alternating dots and dashes	Word
`dotdotdash`	Line with alternating double dots and a dash	Word
`double`	Double line	Word and HTML
`doublewave`	Double wavy line	Word
`groove`	3-D effect grooved line	HTML
`hidden`	No line See discussion below this table.	HTML
`inset`	3-D effect line	Word and HTML
`none`	No line See discussion below this table.	Word and HTML
`outset`	3-D effect line	Word and HTML
`ridge`	3-D effect ridged line	HTML
`single`	Single line	Word
`solid`	Single line	HTML
`thick`	Thick line	Word
`thickthinlargegap`	Dashed line with alternating thick and thin dashes with a large gap	Word

Border String	Description	Supported Output Types
`thickthinmediumgap`	Dashed line with alternating thick and thin dashes with a medium gap	Word
`thickthinsmallgap`	Dashed line with alternating thick and thin dashes with a small gap	Word
`thinthicklargegap`	Dashed line with alternating thin and thick dashes with a medium gap	Word
`thinthickmediumgap`	Dashed line with alternating thin and thick dashes, with a medium gap	Word
`thinthicksmallgap`	Dashed line with alternating thin and thick dashes with a small gap	Word
`thinthickthinlargegap`	Dashed line with alternating thin and thick dashes with a large gap	Word
`thinthickthinmediumgap`	Dashed line with alternating thin and thick dashes with a medium gap	Word
`thinthickthinsmallgap`	Dashed line with alternating thin and thick dashes with a small gap	Word
`threedemboss`	Embossed effect line	Word
`threedengrave`	Engraved effect line	Word
`triple`	Triple line	Word
`wave`	Wavy line	Word

`BorderCollapse` — Collapse borders of adjacent cells into single border (HTML only)

string

A value of `'on'` collapses borders of adjacent cells into a single border. A value of `'off'` keeps borders of adjacent cells.

`BorderColor` — Border color

string

You can specify:

- Name of a color. The name must be a CSS color name. See http://www.crockford.com/wrrrld/color.html.
- A hexadecimal RGB (truecolor) value as `#RRGGBB`. For example, `#0000ff` is a shade of blue.

`BorderWidth` — Table border width

string

String specifying the width of the border. The string must have the format `valueUnits` where `Units` is an abbreviation for the units in which the width size is expressed. Valid abbreviations are:

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

`Children` — Children of this document

cell array of `mlreportgen.dom.Element` objects

This read-only property lists child elements that the document element contains.

`ColSep` — Style of line separating columns

string

The style the line separating the columns of a table or table section (header, body, footer), as specified by a `mlreportgen.dom.ColSep` object.

See the description of the `Border` property for a description of the possible values.

`ColSepColor` — Color of line separating columns

string

You can specify:

- Name of a color. The name must be a CSS color name. See http://www.crockford.com/wrrrld/color.html.
- A hexadecimal RGB (truecolor) value as `#RRGGBB`. For example, `#0000ff` is a shade of blue.

`ColSepWidth` — Width of line separating table columns

string

String having the format `valueUnits`, where `Units` is an abbreviation for the units in which the width is expressed. Use one of these abbreviations for the units of a width.

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

For example, for a three pica wide column separator, set the `ColSepWidth` property to `3pi`.

`ColSpecGroups` — Properties of group of columns in table

array of `mlreportgen.dom.TableColSpecGroups` objects

An array of `mlreportgen.dom.TableColSpecGroups` objects that specifies the width, alignment, and other properties of a group of columns. The first object applies to the first group of columns, the second object to the second group, etc. Specify the number of columns belonging to each group using the `Span` property of the `TableColSpecGroups` object. For example, if the first object has a span of 2, it applies to the first two columns. If the second group has a span of 3, it applies to the next three columns, etc.

`CustomAttributes` — Custom attributes for document element

array of `mlreportgen.doc.CustomAttribute` objects

The custom attributes must be supported by the output type of the document to which this document element is appended.

`FlowDirection` — Text flow direction

string

String specifying the direction for text to flow.

- `'ltr'` — flow from left to right
- `'rtl'` — flow from right to left

`HAlign` — Horizontal alignment of this table

string

Possible values are:

- `center`
- `left`
- `right`

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`OuterLeftMargin` — Left margin (indentation) of document element

string

String specifying the left indentation. The string must have the format `valueUnits` where `Units` is an abbreviation for the units in which the width size is expressed. Valid abbreviations are:

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

`Parent` — Parent of document element

a DOM object

This read-only property lists the parent of this document element.

`RowSep` — Style of lines separating rows

string

The style of a line separating the rows of a table or table section (header, body, or footer).

See the description of the `Border` property for a description of the possible values.

`RowSepColor` — Color of lines separating table rows

string

String specifying one of these values:

- The name of a color. See the `mlreportGen.dom.Color` class reference page for a list of supported colors.
- A hexadecimal RGB (truecolor) value as `#RRGGBB`. For example, `#0000ff` is a shade of blue.

`RowSepWidth` — Width of lines separating table rows

string

The string has the format `valueUnits`, where `Units` is an abbreviation for the units in which the width is expressed. Use one of these abbreviations for the units of a width.

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

`Style` — Format for table

array of format objects

Array of format objects (such as `Bold` objects) that specify the format for this table.

This property overrides corresponding formats defined by the stylesheet style specified by the `StyleName` property.

`StyleName` — Style in document or document part stylesheet

string

Name of a style specified in the stylesheet of the document or document part to which this table is appended

The style that specifies the appearance of this table in the output document, for formats not specified by `Style` property.

`TableEntriesHAlign` — Horizontal alignment of table entries

`center` (default) | `left` | `right`

Data Types: `char`

`TableEntriesVAlign` — Vertical alignment of table cell content

string

Possible values are:

- `top`
- `middle`
- `bottom`

`TableEntriesInnerMargin` — Inner margin for table entries

string

The inner margin is the margin between table cell content and the cell borders.

The string must have the format `valueUnits` where `Units` is an abbreviation for the units in which the width size is expressed. Valid abbreviations are:

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

`TableEntriesStyle` — Style to use for table entries

cell array

Cell array of format objects that specify the format for table entries.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Width` — Table width

string

String representing a percentage (for example, `'100%'`) of the page width (minus margins for Word reports) or a number of units of measurement, having the format `valueUnits`, where `Units` is an abbreviation for the units in which the width is expressed.

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

Methods

Method	Purpose
`append`	Append a content to a table.
`clone`	Clone this table.
`entry`	Get a table entry.

Method	Purpose
row	Create a table row.

Examples

Create a Table

```
import mlreportgen.dom.*;
d = Document('myreport', 'html');
open(d);
t = Table(magic(5));
t.Style = {RowHeight('1in')};
t.Border = 'solid';
t.BorderWidth = 'thin';
t.ColSep = 'solid';
t.ColSepWidth = '1';
t.RowSep = 'solid';
t.RowSepWidth = '1';
```

- “Create and Format Tables”

See Also

mlreportgen.dom.FormalTable | mlreportgen.dom.TableBody | mlreportgen.dom.TableEntry | mlreportgen.dom.TableFooter | mlreportgen.dom.TableHeader | mlreportgen.dom.TableHeaderEntry | mlreportgen.dom.TableRow

mlreportgen.dom.TableBody class

Package: mlreportgen.dom

Body of formal table

Description

Specifies the body of a formal table

Construction

`tableBodyObj = TableBody()` creates an empty table body.

Output Arguments

`tableBodyObj` — Formal table body

`mlreportgen.dom.TableBody` object

Formal table body, represented by an `mlreportgen.dom.TableBody` object.

Properties

`Children` — Children of this document

cell array of `mlreportgen.dom.Element` objects

This read-only property lists child elements that the document element contains.

`ColSep` — Style of line separating columns

string

The style the line separating the columns of a table or table section (header, body, footer), as specified by a `mlreportgen.dom.ColSep` object.

See the description of the `Border` property for a description of the possible values.

`ColSepColor` — Color of line separating columns

string

You can specify:

- Name of a color. The name must be a CSS color name. See http://www.crockford.com/wrrrld/color.html.
- A hexadecimal RGB (truecolor) value as `#RRGGBB`. For example, `#0000ff` is a shade of blue.

`ColSepWidth` — Width of line separating table columns

string

String having the format `valueUnits`, where `Units` is an abbreviation for the units in which the width is expressed. Use one of these abbreviations for the units of a width.

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

For example, for a three pica wide column separator, set the `ColSepWidth` property to `3pi`.

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`RowSep` — Style of lines separating rows

string

The style of a line separating the rows of a table or table section (header, body, or footer).

See the description of the `Border` property for a description of the possible values.

`RowSepColor` — Color of lines separating table rows

string

String specifying one of these values:

- The name of a color. See the `mlreportGen.dom.Color` class reference page for a list of supported colors.
- A hexadecimal RGB (truecolor) value as `#RRGGBB`. For example, `#0000ff` is a shade of blue.

`Parent` — Parent of document element

a DOM object

This read-only property lists the parent of this document element.

`Style` — Format specification

array of format objects

Format objects that specify the format of a document element.

`StyleName` — This property is ignored

string

This property is ignored.

`TableEntriesHAlign` — Horizontal alignment of table entries

`center` (default) | `left` | `right`

Data Types: `char`

`TableEntriesVAlign` — Vertical alignment of table cell content

string

Possible values are:

- `top`
- `middle`
- `bottom`

`TableEntriesInnerMargin` — Inner margin for table entries

string

The inner margin is the margin between table cell content and the cell borders.

The string must have the format `valueUnits` where `Units` is an abbreviation for the units in which the width size is expressed. Valid abbreviations are:

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

`TableEntriesStyle` — Style to use for table entries

cell array

Cell array of format objects that specify the format for table entries.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

Methods

Method	Purpose
`append`	Appends content to a table body.
`entry`	Get a table entry.
`row`	Create a table row.

See Also

`mlreportgen.dom.FormalTable` | `mlreportgen.dom.Table` | `mlreportgen.dom.TableEntry` | `mlreportgen.dom.TableFooter` | `mlreportgen.dom.TableHeader` | `mlreportgen.dom.TableHeaderEntry` | `mlreportgen.dom.TableRow`

Related Examples

- “Create and Format Tables”

mlreportgen.dom.TableColSpec class

Package: mlreportgen.dom

Formatting for one or more adjacent table columns

Description

Define the formatting for one or more adjacent table columns. Use a `TableColSpec` object to override formats specified by a `TableColSpecGroup` object.

Construction

`colSpecObj = TableColSpec()` creates a column specification having a span of 1.

Output Arguments

`colSpecObj` — Formatting for one or more adjacent table columns
`mlreportgen.dom.TableColSpec` object

Formatting for one or more adjacent table columns, represented by an `mlreportgen.dom.TableColSpec` object.

Properties

`CustomAttributes` — Custom attributes of document element
array of `mlreportgen.dom.CustomAttribute` objects

HTML or Microsoft Word must support the custom attributes of this document element.

`Id` — ID for document element
string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Span` — Number of adjacent table columns to which this document element applies

number of adjacent table columns

If this property is not specified (its value is `[]`), the value is assumed to be 1.

Data Types: `double`

`Style` — Style of adjacent table columns

array of format objects

Format objects that specify the style of the columns governed by this specification.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

See Also

`mlreportgen.dom.FormalTable` | `mlreportgen.dom.ResizeToFitContents` | `mlreportgen.dom.Table` | `mlreportgen.dom.TableColSpecGroup`

Related Examples

- “Create and Format Tables”

mlreportgen.dom.TableColSpecGroup class

Package: mlreportgen.dom

Define style for group of table columns

Description

Define the style for a group of table columns. Use a `TableColSpec` object to override formats specified by a `TableColSpecGroup` object.

Construction

`colSpecGroupObj = TableColSpecGroup()` creates a column specification that spans an entire table.

Output Arguments

`colSpecGroupObj` — Table column specification
`mlreportgen.dom.TableColSpecGroup` object

Specification of formats for a group of table columns, represented by an `mlreportgen.dom.TableColSpecGroup` object.

Properties

`ColSpec` — Type of line to draw between columns of this table
this property accepts the same set of values as the `Border` property

Data Types: `char`

`CustomAttributes` — Custom attributes of document element
array of `mlreportgen.dom.CustomAttribute` objects

HTML or Microsoft Word must support the custom attributes of this document element.

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Span` — Number of adjacent table columns to which this document element applies

number of adjacent table columns

If this property is not specified (its value is `[ ]`), the value is assumed to be 1.

Data Types: `double`

`Style` — Format specification

array of format objects

Format objects that specify the format of a document element.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

Examples

Make the First Column Green and Remaining Columns Red

```
import mlreportgen.dom.*
doc = Document('mydoc', 'docx');
append(doc, 'Table');
grps(1) = TableColSpecGroup;
grps(1).Style = {Color('red')};
specs(1) = TableColSpec;
specs(1).Style = {Color('green')};
grps(1).ColSpecs = specs;
```

```
table = Table(magic(5));
table.ColSpecGroups = grps;
close(doc);
rptview(doc.OutputPath);
```

- “Create and Format Tables”

See Also

`mlreportgen.dom.FormalTable` | `mlreportgen.dom.ResizeToFitContents` | `mlreportgen.dom.Table` | `mlreportgen.dom.TableColSpec`

mlreportgen.dom.TableEntry class

Package: mlreportgen.dom

Table entry

Description

Specifies the content and style of a table entry.

Construction

`entryObj = TableEntry()` creates an empty table entry.

`entryObj = TableEntry(text)` creates a table entry using the text included in the specified `mlreportgen.dom.Text` object.

`entryObj = TableEntry(text,styleName)` creates a table entry containing specified text using the specified style.

`entryObj = TableEntry(domObj)` creates a table entry containing domObj, where domObj is a DOM object such as a `mlreportgen.dom.Paragraph` object.

Input Arguments

`text` — Table entry text

string

String containing the text for the table entry.

`textObj` — Text object containing the text for the table entry

`mlreportgen.dom.Text` object

Text for the table entry, specified as an `mlreportgen.dom.Text` object.

`styleName` — Style for the table

string

The style specified by styleName must be defined in the template of the document to which this table is appended.

`domObject` — Array of values to include in table

two-dimensional numeric array | two-dimensional cell array of MATLAB or DOM objects

The valid DOM objects are:

- `mlreportgen.dom.Paragraph`
- `mlreportgen.dom.Text` (`CharEntity` included)
- `mlreportgen.dom.Image`
- `mlreportgen.dom.Table`
- `mlreportgen.dom.OrderedList`
- `mlreportgen.dom.UnorderedList`
- `mlreportgen.dom.CustomElement`

Output Arguments

`entryObj` — Table entry

`mlreportgen.dom.TableEntry` object

Table entry, represented by an `mlreportgen.dom.TableEntry` object

Properties

`Border` — Type of border to draw

string

Specify one of the following as a string.

Border String	Description	Supported Output Types
`dashed`	Dashed line	Word and HTML
`dashdotstroked`	Line with alternating diagonal dashes and dot	Word
`dashsmallgap`	Dashed line with a small gap between dashes	Word
`dotted`	Dotted line	Word and HTML
`dotdash`	Line with alternating dots and dashes	Word

Border String	Description	Supported Output Types
`dotdotdash`	Line with alternating double dots and a dash	Word
`double`	Double line	Word and HTML
`doublewave`	Double wavy line	Word
`groove`	3-D effect grooved line	HTML
`hidden`	No line See discussion below this table.	HTML
`inset`	3-D effect line	Word and HTML
`none`	No line See discussion below this table.	Word and HTML
`outset`	3-D effect line	Word and HTML
`ridge`	3-D effect ridged line	HTML
`single`	Single line	Word
`solid`	Single line	HTML
`thick`	Thick line	Word
`thickthinlargegap`	Dashed line with alternating thick and thin dashes with a large gap	Word
`thickthinmediumgap`	Dashed line with alternating thick and thin dashes with a medium gap	Word
`thickthinsmallgap`	Dashed line with alternating thick and thin dashes with a small gap	Word
`thinthicklargegap`	Dashed line with alternating thin and thick dashes with a medium gap	Word

Border String	Description	Supported Output Types
`thinthickmediumgap`	Dashed line with alternating thin and thick dashes, with a medium gap	Word
`thinthicksmallgap`	Dashed line with alternating thin and thick dashes with a small gap	Word
`thinthickthinlargegap`	Dashed line with alternating thin and thick dashes with a large gap	Word
`thinthickthinmediumgap`	Dashed line with alternating thin and thick dashes with a medium gap	Word
`thinthickthinsmallgap`	Dashed line with alternating thin and thick dashes with a small gap	Word
`threedemboss`	Embossed effect line	Word
`threedengrave`	Engraved effect line	Word
`triple`	Triple line	Word
`wave`	Wavy line	Word

`BorderColor` — Border color

string

You can specify:

- Name of a color. The name must be a CSS color name. See http://www.crockford.com/wrrrld/color.html.
- A hexadecimal RGB (truecolor) value as `#RRGGBB`. For example, `#0000ff` is a shade of blue.

`BorderWidth` — Table border width

string

String specifying the width of the border. The string must have the format `valueUnits` where `Units` is an abbreviation for the units in which the width size is expressed. Valid abbreviations are:

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

`ColSpan` — Number of table columns spanned by table entry

double

Number of table columns spanned by the table entry, specified as a double.

Data Types: `double`

`CustomAttributes` — Custom attributes for document element

array of `mlreportgen.doc.CustomAttribute` objects

The custom attributes must be supported by the output type of the document to which this document element is appended.

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`InnerMargin` — Inner margin (padding) around entry

string

String specifying the inner margin. String must have the format `valueUnits` where `Units` is an abbreviation for the units in which the width size is expressed. Valid abbreviations are:

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas

- `pt` — points
- `px` — pixels

`RowSpan` — Number of table rows spanned by table entry

double

Number of table rows spanned by the table entry, specified as a double.

Data Types: `double`

`Style` — Format for table

array of format objects

Array of format objects (such as `Bold` objects) that specify the format for this table.

This property overrides corresponding formats defined by the stylesheet style specified by the `StyleName` property.

`StyleName` — Style in document or document part stylesheet

string

Name of a style specified in the stylesheet of the document or document part to which this table is appended

The style that specifies the appearance of this table in the output document, for formats not specified by `Style` property.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`VAlign` — Vertical alignment table cell content

string

Possible values are:

- `top`
- `bottom`
- `middle`

Methods

Use `TableEntry.append` and `TableEntry.clone` methods the same way you use `Paragraph.append` and `Paragraph.clone`.

Method	Purpose
`append`	Append text, paragraphs, images, tables, and other elements to this table entry.
`clone`	Clone this table entry.

See Also

`mlreportgen.dom.FormalTable` | `mlreportgen.dom.TableBody` | `mlreportgen.dom.TableFooter` | `mlreportgen.dom.TableHeader` | `mlreportgen.dom.TableHeaderEntry` | `mlreportgen.dom.TableRow`

Related Examples

- "Create and Format Tables"

mlreportgen.dom.TableFooter class

Package: mlreportgen.dom

Formal table footer

Description

Specifies the content and format of a formal table footer.

Construction

`tableFooterObj = TableFooter()` creates an empty table footer.

Output Arguments

`tableFooterObj` — Table footer
`mlreportgen.dom.TableFooter` object

Table footer, represented by an `mlreportgen.dom.TableFooter` object.

Properties

`Children` — Children of this document
cell array of `mlreportgen.dom.Element` objects

This read-only property lists child elements that the document element contains.

`ColSep` — Style of line separating columns
string

The style the line separating the columns of a table or table section (header, body, footer), as specified by a `mlreportgen.dom.ColSep` object.

See the description of the `Border` property for a description of the possible values.

`ColSepColor` — Color of line separating columns

string

You can specify:

- Name of a color. The name must be a CSS color name. See http://www.crockford.com/wrrrld/color.html.
- A hexadecimal RGB (truecolor) value as `#RRGGBB`. For example, `#0000ff` is a shade of blue.

`ColSepWidth` — Width of line separating table columns

string

String having the format `valueUnits`, where `Units` is an abbreviation for the units in which the width is expressed. Use one of these abbreviations for the units of a width.

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

For example, for a three pica wide column separator, set the `ColSepWidth` property to `3pi`.

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Parent` — Parent of document element

a DOM object

This read-only property lists the parent of this document element.

`RowSep` — Style of lines separating rows

string

The style of a line separating the rows of a table or table section (header, body, or footer).

See the description of the `Border` property for a description of the possible values.

`RowSepColor` — Color of lines separating table rows

string

String specifying one of these values:

- The name of a color. See the `mlreportGen.dom.Color` class reference page for a list of supported colors.
- A hexadecimal RGB (truecolor) value as `#RRGGBB`. For example, `#0000ff` is a shade of blue.

`RowSepWidth` — Width of lines separating table rows

string

The string has the format `valueUnits`, where `Units` is an abbreviation for the units in which the width is expressed. Use one of these abbreviations for the units of a width.

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

`Style` — Format for the table footer

array of format objects

Array of format objects (such as `Bold` objects) that specify the format for the table footer.

This property overrides corresponding formats defined by the stylesheet style specified by the `StyleName` property.

`StyleName` — Style in the document or document part stylesheet

string

Name of a style specified in the stylesheet of the document or document part to which the table footer is appended

Data Types: `char`

`TableEntriesHAlign` — Horizontal alignment of table entries

`center` (default) | `left` | `right`

Data Types: `char`

`TableEntriesInnerMargin` — Inner margin for table entries

string

The inner margin is the margin between table cell content and the cell borders.

The string must have the format `valueUnits` where `Units` is an abbreviation for the units in which the width size is expressed. Valid abbreviations are:

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

`TableEntriesStyle` — Style to use for table entries

cell array

Cell array of format objects that specify the format for table entries.

`TableEntriesVAlign` — Vertical alignment of table cell content

string

Possible values are:

- `top`
- `middle`
- `bottom`

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

Methods

Method	Purpose
`append`	Appends a row of table entries to this table footer.
`entry`	Get a footer entry
`row`	Get a footer row

See Also

`mlreportgen.dom.FormalTable` | `mlreportgen.dom.TableBody` | `mlreportgen.dom.TableEntry` | `mlreportgen.dom.TableHeader` | `mlreportgen.dom.TableHeaderEntry` | `mlreportgen.dom.TableRow`

Related Examples

- “Create and Format Tables”

mlreportgen.dom.TableHeader class

Package: mlreportgen.dom

Table header

Description

Table header for labeling columns.

Construction

`tableHeaderObj = TableHeader()` creates an empty table header.

Output Arguments

`tableHeaderObj` — Table header
`mlreportgen.dom.TableHeader` object

Table header, represented by an `mlreportgen.dom.TableHeader` object.

Properties

`Children` — Children of this document
cell array of `mlreportgen.dom.Element` objects

This read-only property lists child elements that the document element contains.

`ColSep` — Style of line separating columns
string

The style the line separating the columns of a table or table section (header, body, footer), as specified by a `mlreportgen.dom.ColSep` object.

See the description of the `Border` property for a description of the possible values.

`ColSepColor` — Color of line separating columns

string

You can specify:

- Name of a color. The name must be a CSS color name. See http://www.crockford.com/wrrrld/color.html.
- A hexadecimal RGB (truecolor) value as `#RRGGBB`. For example, `#0000ff` is a shade of blue.

`ColSepWidth` — Width of line separating table columns

string

String having the format `valueUnits`, where `Units` is an abbreviation for the units in which the width is expressed. Use one of these abbreviations for the units of a width.

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

For example, for a three pica wide column separator, set the `ColSepWidth` property to `3pi`.

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`RowSep` — Style of lines separating rows

string

The style of a line separating the rows of a table or table section (header, body, or footer).

See the description of the `Border` property for a description of the possible values.

`RowSepColor` — Color of lines separating table rows

string

String specifying one of these values:

- The name of a color. See the `mlreportGen.dom.Color` class reference page for a list of supported colors.
- A hexadecimal RGB (truecolor) value as `#RRGGBB`. For example, `#0000ff` is a shade of blue.

`RowSepWidth` — Width of lines separating table rows

string

The string has the format `valueUnits`, where `Units` is an abbreviation for the units in which the width is expressed. Use one of these abbreviations for the units of a width.

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

`Parent` — Parent of document element

a DOM object

This read-only property lists the parent of this document element.

`Style` — Format for the table header

array of format objects

Array of format objects (such as `Bold` objects) that specify the format for the table header.

This property overrides corresponding formats defined by the stylesheet style specified by the `StyleName` property.

`StyleName` — Style in the document or document part stylesheet

string

Name of a style specified in the stylesheet of the document or document part to which the table header is appended

The style that specifies the appearance of the table header in the output document, for formats not specified by `Style` property.

`TableEntriesHAlign` — Horizontal alignment of table entries

`center` (default) | `left` | `right`

Data Types: `char`

`TableEntriesInnerMargin` — Inner margin for table entries

string

The inner margin is the margin between table cell content and the cell borders.

The string must have the format `valueUnits` where `Units` is an abbreviation for the units in which the width size is expressed. Valid abbreviations are:

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

`TableEntriesStyle` — Style to use for table entries

cell array

Cell array of format objects that specify the format for table entries.

`TableEntriesVAlign` — Vertical alignment of table cell content

string

Possible values are:

- `top`
- `middle`
- `bottom`

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

Methods

Method	Purpose
`append`	Appends a row of table entries to this table header.
`entry`	Get a header entry.
`row`	Get a header row.

See Also

`mlreportgen.dom.FormalTable` | `mlreportgen.dom.TableBody` | `mlreportgen.dom.TableEntry` | `mlreportgen.dom.TableFooter` | `mlreportgen.dom.TableHeaderEntry` | `mlreportgen.dom.TableRow`

Related Examples

- “Create and Format Tables”

mlreportgen.dom.TableHeaderEntry class

Package: mlreportgen.dom

Entry in table header

Description

Specifies a table header entry.

This class is intended primarily to support HTML table creation. It is rendered in an HTML document as a `th` (table header cell) element. Use this element to eliminate the need to format a table header entry explicitly. `TableHeaderEntry` objects rely on the browser to render the header entry appropriately. For Microsoft Word output, the DOM interface simulates HTML behavior by rendering a table header entry as bold text.

Construction

`entryObj = TableHeaderEntry()` creates an empty table header entry.

Output Arguments

`entryObj` — Table header entry

`mlreportgen.dom.TableHeaderEntry` object

Table header entry, represented by an `mlreportgen.dom.TableHeaderEntry` object.

Properties

`Border` — Type of border to draw

string

Specify one of the following as a string.

Border String	Description	Supported Output Types
`dashed`	Dashed line	Word and HTML

Border String	Description	Supported Output Types
`dashdotstroked`	Line with alternating diagonal dashes and dot	Word
`dashsmallgap`	Dashed line with a small gap between dashes	Word
`dotted`	Dotted line	Word and HTML
`dotdash`	Line with alternating dots and dashes	Word
`dotdotdash`	Line with alternating double dots and a dash	Word
`double`	Double line	Word and HTML
`doublewave`	Double wavy line	Word
`groove`	3-D effect grooved line	HTML
`hidden`	No line See discussion below this table.	HTML
`inset`	3-D effect line	Word and HTML
`none`	No line See discussion below this table.	Word and HTML
`outset`	3-D effect line	Word and HTML
`ridge`	3-D effect ridged line	HTML
`single`	Single line	Word
`solid`	Single line	HTML
`thick`	Thick line	Word
`thickthinlargegap`	Dashed line with alternating thick and thin dashes with a large gap	Word
`thickthinmediumgap`	Dashed line with alternating thick and thin dashes with a medium gap	Word

Border String	Description	Supported Output Types
`thickthinsmallgap`	Dashed line with alternating thick and thin dashes with a small gap	Word
`thinthicklargegap`	Dashed line with alternating thin and thick dashes with a medium gap	Word
`thinthickmediumgap`	Dashed line with alternating thin and thick dashes, with a medium gap	Word
`thinthicksmallgap`	Dashed line with alternating thin and thick dashes with a small gap	Word
`thinthickthinlargegap`	Dashed line with alternating thin and thick dashes with a large gap	Word
`thinthickthinmediumgap`	Dashed line with alternating thin and thick dashes with a medium gap	Word
`thinthickthinsmallgap`	Dashed line with alternating thin and thick dashes with a small gap	Word
`threedemboss`	Embossed effect line	Word
`threedengrave`	Engraved effect line	Word
`triple`	Triple line	Word
`wave`	Wavy line	Word

`BorderColor` — Border color

string

You can specify:

- Name of a color. The name must be a CSS color name. See http://www.crockford.com/wrrrld/color.html.
- A hexadecimal RGB (truecolor) value as `#RRGGBB`. For example, `#0000ff` is a shade of blue.

`BorderWidth` — Table border width

string

String specifying the width of the border. The string must have the format `valueUnits` where `Units` is an abbreviation for the units in which the width size is expressed. Valid abbreviations are:

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

`ColSpan` — Number of table columns spanned by table entry

double

Number of table columns spanned by the table entry, specified as a double.

Data Types: `double`

`CustomAttributes` — Custom attributes for document element

array of `mlreportgen.doc.CustomAttribute` objects

The custom attributes must be supported by the output type of the document to which this document element is appended.

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`InnerMargin` — Inner margin (padding) around entry

string

String specifying the inner margin. String must have the format `valueUnits` where `Units` is an abbreviation for the units in which the width size is expressed. Valid abbreviations are:

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

`RowSpan` — Number of table rows spanned by table entry

double

Number of table rows spanned by the table entry, specified as a double.

Data Types: `double`

`Style` — Format for table

array of format objects

Array of format objects (such as `Bold` objects) that specify the format for this table.

This property overrides corresponding formats defined by the stylesheet style specified by the `StyleName` property.

`StyleName` — Style in document or document part stylesheet

string

Name of a style specified in the stylesheet of the document or document part to which this table is appended

The style that specifies the appearance of this table in the output document, for formats not specified by `Style` property.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`VAlign` — Vertical alignment table cell content

string

Possible values are:

- `top`
- `bottom`
- `middle`

Methods

Use `TableHeaderEntry.append` and `TableHeaderEntry.clone` methods the same way you use `Paragraph.append` and `Paragraph.clone`.

Method	Purpose
`append`	Append text, paragraphs, images, tables, and other elements to this entry.
`clone`	Clone this table header entry.

See Also

`mlreportgen.dom.FormalTable` | `mlreportgen.dom.TableBody` | `mlreportgen.dom.TableFooter` | `mlreportgen.dom.TableHeader` | `mlreportgen.dom.TableRow`

Related Examples

- “Create and Format Tables”

mlreportgen.dom.TableRow class

Package: mlreportgen.dom

Table row

Description

Creates a table row.

Construction

`tableRowObj = TableRow()` creates an empty table row.

Output Arguments

`tableRowObj` — Table row
`mlreportgen.dom.TableRow` object

Table row, represented by an `mlreportgen.dom.TableRow` object.

Properties

`CustomAttributes` — Custom attributes for document element
array of `mlreportgen.doc.CustomAttribute` objects

The custom attributes must be supported by the output type of the document to which this document element is appended.

`Entries` — Table entries in this row
array of `mlreportgen.dom.TableEntry` objects

Table entries in this row.

`Height` — Height of table row
string

String having the format `valueUnits`, where `Units` is an abbreviation for the units in which the height is expressed. The following abbreviations are valid:

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels

Alternatively, you can specify the table row height using the `TableRow.Style` property. For example:

```
TableRow.Style = {RowHeight('.5in')};
```

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Style` — Style of table row

array of format objects

Array of format objects (such as `Bold` objects) that specify the style of the table row.

`StyleName` — Style of table row

string

Name of a style specified in the stylesheet of the HTML document or document part containing this row. This property is ignored for Word output.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

Methods

Method	Purpose
`append`	Append entries to this row.
`clone`	Clone this row.

See Also

`mlreportgen.dom.FormalTable` | `mlreportgen.dom.Table` | `mlreportgen.dom.TableBody` | `mlreportgen.dom.TableEntry` | `mlreportgen.dom.TableFooter` | `mlreportgen.dom.TableHeader`

Related Examples

- “Create and Format Tables”

mlreportgen.dom.Template class

Package: mlreportgen.dom

Create document template

Description

Create a template for a document.

Construction

`templateObj = Template()` creates an HTML template named `Untitleld.htmtx` in the current folder, using the DOM default HTML template.

`templateObj = Template(templatePath)` creates a default HTML template at the specified location.

`templateObj = Template(templatePath,type)` creates a template of the specified type (Microsoft Word or HTML).

`templateObj = Template(templatePath,type,sourceTemplate)` creates a copy of the template at the specified location, based on the specified template type.

Input Arguments

`templatePath` — Path and name for the template

string

Full path of output file or folder for the template.

`type` — Type of template

`docx` | `html`

The type of template to create. For a Word template, specify `'docx'`. For an HTML template, specify `'html'`.

`sourceTemplatePath` — Location of template to copy
string

The location of the template to copy. The source template used is based on the type of template specified in the `type` input argument.

Output Arguments

`templateObj` — Template for document
`mlreportgen.dom.Template` object

Template, represented by an `mlreportgen.dom.Template` object.

Properties

`Children` — Children of this document
cell array of `mlreportgen.dom.Element` objects

This read-only property lists child elements that the document element contains.

`CurrentHoleId` — Hole ID of current hole in document
string

This read-only property is the hole ID of the current hole in this document.

`CurrentHoleType` — Type of current hole
string

This read-only property is the type (inline or block) of the current template hole.

- An inline hole is for document elements that a paragraph element can contain: `Text`, `Image`, `LinkTarget`, `ExternalLink`, `InternalLink`, `CharEntity`, `AutoNumber`.
- A block hole can contain a `Paragraph`, `Table`, `OrderedList`, `UnorderedList`, `DocumentPart`, and `Group`.

`CurrrentDOCXSection` — The current section of Word document
`mlreportgen.dom.DOCXSection` object

This read-only property for a Word document is a `mlreportgen.dom.DOCXSection` object that specifies the properties, as well as the headers and footers, of the current document section. In HTML documents, the value of this property is always `[]`.

`ForceOverwrite` — Overwrite existing output file

`[ ]` (default) | logical value

Set this property to `true` to overwrite an existing output file of the same name for a report from this document. If this property is `false`, or if the existing output file is read-only, then generating an output file using the same path as an existing output file causes an error.

Data Types: `logical`

`HTMLHeadExt` — Custom content for HTML header

string

Data Types: `char`

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`OutputPath` — Path of output file or folder for this document

string

Before setting this property, close the document.

Path of output file for this document. If you do not specify a file extension, the extension is based on the output type (for example, `.docx` for Word).

For zipped output packaging, the default is the current folder.

For unzipped output packaging, the path specifies the folder for the output files. The default is the current folder.

`PackageType` — Packaging for files generated from document

`'zipped'` (default) | `'unzipped'` | `'both'`

Specifies how to package the output files generated from this document.

For zipped packaging, the document output is a zip file located at the location specified by the `OutputPath` property. The zip file has the extension that matches the document type: `docx` (for Word output) or `htmx` (for HTML output). For example, if the document

type is `docx` and `OutputPath` is `s:\docs\MyDoc`, the output is packaged in a zip file named `s:\docs\MyDoc.docx`.

For unzipped packaging, the document output is stored in a folder having the root file name of the `OutputPath` property. For example, if the `OutputPath` is `s:\docs\MyDoc`, the output folder is `s:\docs\MyDoc`.

If you set `PackageType` to `both`, generating the report produces zipped and unzipped output.

Data Types: `char`

`StreamOutput` — Option to stream output to disk

`false` (default) | logical value

By default, document elements are stored in memory until the document is closed. Set this property to `true` to write document elements to disk as the elements are appended to the document.

Data Types: `logical`

`Tag` — Tag for this document

session-unique tag when the document is generated (default) | string

String that identifies this document. The tag has the form `CLASS:ID`, where `CLASS` is the document class and `ID` is the value of the `Id` property of the object.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`TemplatePath` — Path of the template used for this document element

string

The full path to the HTML or Word template to use for this document element.

`TitleBarText` — Title for HTML browser title bar

string

For HTML documents, this property specifies the text for the title bar of the browser. Word documents ignore this property.

Set this property before opening the document for output.

`type` — Type of output

string

The format for the output. Use one of these values:

- `html`
- `docx`
- `pdf`

If you specify a template using the masterTemplatePath input argument, the value for type must be consistent with that type of template. If you set type to `pdf`, then set masterTemplatePath to a Word template.

Methods

Use the `Template` methods the same way you use the corresponding Document methods.

Method	Purpose
`append`	Append document element to the document.
`close`	Close this document.
`createTemplate`	Create default template.
`fill`	Fill document hole.
`getCoreProperties`	Get core properties of document.
`getImageDirectory`	Get image directory for the document.
`getImagePrefix`	Get generated image name prefix for the document.
`getMainPartPath`	Get relative path of main part of output document.
`getOPCMainPart`	Get full path of main part of output document.
`moveToNextHole`	Move to next template hole.
`open`	Open this document.
`package`	Append file to OPC package of document.

Method	Purpose
setCoreProperties	Set core properties of document element.

Examples

Create a Template and Use it in a Report

```
import mlreportgen.dom.*;
t = Template('mytemplate');

p = Paragraph('My Company');
p.FontSize = '24';
p.Color = 'DeepSkyBlue';
p.Bold = true;
p.HAlign = 'center';
append(t,p);

p = Paragraph;
p.FontFamilyName = 'Arial';
p.FontSize = '18pt';
p.Bold = true;
p.HAlign = 'center';
append(p,TemplateHole('ReportTitle','Report Title'));
append(t,p);

close(t);
rptview('mytemplate.htmtx');
```

- “Create a Microsoft Word Template”
- “Create an HTML Template”
- “Use Style Sheets”

See Also

mlreportgen.dom.Document.createTemplate | mlreportgen.dom.TemplateHole | rptview

mlreportgen.dom.TemplateHole class

Package: mlreportgen.dom

Hole to append to template

Description

Hole to append to a document template.

You can append a template hole to these kinds of DOM objects:

- `Paragraph`
- `TableEntry`
- `Group`
- `Template`

Construction

`templateHoleObj = TemplateHole()` creates a hole with empty properties.

`templateHoleObj = TemplateHole(id)` creates a hole having the specified id.

`templateHoleObj = TemplateHole(id,description)` creates a hole having the specified id and description.

Input Arguments

`id` — ID for template hole

string

The ID for the template hole, specified by a string.

`description` — Description for template hole

string

Description for the template hole, specified as a string. The value of this argument becomes the content of the hole in the template to which it is assigned to allow you to

determine the purpose of the hole when viewing the template in Microsoft Word (for Word templates) or in a Web browser (for HTML templates). The description is replaced by appended hole content in a report generated from the template.

Output Arguments

`templateHoleObj` — Hole to append to template

`mlreportgen.dom.TemplateHole` object

Hole to append to template, represented by an `mlreportgen.dom.TemplateHole` object.

Properties

`DefaultHoleStyleName` — Name of default style for hole content

string

Name of default style for hole content. This style name is assigned to hole content that does not specify a style name. For example, suppose you append a `Text` object to this hole and the `Text` object does not specify a style name. Then the value of this property is assigned to the text object as its style name. This property allows a template to specify the appearance of appended content.

`Description` — Description of this hole

string

Description for the template hole, specified as a string. The value of this property becomes the content of the hole in the template to which it is assigned to allow you to determine the purpose of the hole when viewing the template in Microsoft Word (for Word templates) or in a Web browser (for HTML templates). The description is replaced by appended hole content in a report generated from the template.

`HoleId` — ID of this hole

string

ID of this template hole.

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

Methods

Method	Purpose
`clone` Use `TemplateHole.clone` in a similar way to how you use `Paragraph.clone`.	Clone this hole object.

See Also

`mlreportgen.dom.Document.createTemplate` | `mlreportgen.dom.Template` | `rptview`

Related Examples

- “Create a Microsoft Word Template”
- “Create an HTML Template”
- “Use Style Sheets”

mlreportgen.dom.Text class

Package: mlreportgen.dom

Text object

Description

Text string to include in a document element

Construction

`textObj = Text()` creates an empty text object.

`textObj = Text(text)` creates a text object containing the specified text string.

`textObj = Text(text,styleName)` creates a text object containing the specified text string using the specified style. The style must be defined in the style sheet of the template of the document to which this text object is appended.

Input Arguments

`text` — Text string

array of chars

Array of chars containing the text

Data Types: `char`

`styleName` — Style for the text

`mlreportgen.dom.StyleName` object

The style specified by styleName must be defined in the template used to create the document to which this text is appended.

Data Types: `char`

Output Arguments

`textObj` — Text string

`mlreportgen.dom.Text` object

Text string, represented by an `mlreportgen.dom.Text` object.

Properties

`BackgroundColor` — Background color

string

Specify one of these as a string:

- The name of a color. The name must be a CSS color name. See http://www.crockford.com/wrrrld/color.html.
- A hexadecimal RGB (truecolor) value as `#RRGGBB`. For example, `#0000ff` is a shade of blue.

`Bold` — Option to use bold for text

`[ ]` (default) | logical value

To make text bold, set this property to `true` or `1`. If this property is empty and the `StyleName` property for this document element specifies a style sheet style, the weight of the text is determined by that style. Setting the `Bold` property adds a corresponding `mlreportGen.dom.Bold` format object to the `Style` property of this document element. Removing the `Bold` property setting removes the object.

Data Types: `logical`

`Color` — Text color

string

Specify one of these as a string:

- The name of a color. The name must be a CSS color name. See http://www.crockford.com/wrrrld/color.html.
- A hexadecimal RGB (truecolor) value as `#RRGGBB`. For example, `#0000ff` is a shade of blue.

`Content` — Text string contained by this document element

string

Text string contained by this document element.

`CustomAttributes` — Custom attributes of document element

array of `mlreportgen.dom.CustomAttribute` objects

HTML or Microsoft Word must support the custom attributes of this document element.

`FontFamilyName` — Name of font family for text

string

The name of a font family.

To specify substitutions for this font, do not set this property. Instead create and add a `mlreportgen.dom.FontFamily` object to the `Style` property of this document element.

Setting the `FontFamilyName` property adds a corresponding `mlreportGen.dom.FontFamily` format object to the `Style` property for this document element. Removing the `FontFamilyName` property setting removes the object.

`FontSize` — Font size for text

string

If you need to specify substitutions for this font, do not set this property. Instead create and add a `mlreportgen.dom.FontFamily` object to the `Style` property of this document element.

Setting the `FontSize` property adds a corresponding `mlreportGen.dom.FontSize` format object to the `Style` property for this document element. Removing the `FontSize` property setting removes the object.

String having the format `valueUnits`, where `Units` is an abbreviation for the units in which the font size is expressed. Use one of these abbreviations for the units for the font size.

- no abbreviation — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters

- `pi` — picas
- `pt` — points
- `px` — pixels

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Italic` — Option to use italics for text

[ ] (default) | logical value

To use italics for text, set this property to `true`. If this property is empty and the `StyleName` property for this document element specifies a style sheet style, the slant of the text is determined by that style. Setting the `Italic` property adds a corresponding `mlreportGen.dom.Italic` format object to the `Style` property of this document element. Removing the `Italic` property setting removes the object.

Data Types: `logical`

`Strike` — Text strikethrough

string

The default for this property is []. You can set it to one of these values:

- `none` — Do not use strikethrough for Word and HTML documents
- `single` — Use a single line for strikethrough for Word and HTML documents
- `double` — Use a double line for strikethrough for Word documents

Setting the `Strike` property adds a corresponding `mlreportGen.dom.Strike` format object to the `Style` property for this document element. Removing the `Strike` property setting removes the object.

`Style` — Text formatting

array of `mlreportgen.dom.DOCXSection` objects

An array of `mlreportgen.dom.DOCXSection` objects that specifies the format for the text.

`StyleName` — Style for the text

string

The style specified by styleName must be defined in the template used to create the document element to which this text is appended.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Underline` — Type of underline, if any, for text

[ ] (default) | string

You can specify one of the following types of underlines.

Border String	Description	Supported Output Types
`dash`	Dashed underline	Word
`dashedHeavy`	Line with heavy dashes	Word
`dashLong`	Line with long dashes	Word
`dashLongHeavy`	Line with heavy long dashes	Word
`dashDotDotHeavy`	Line with heavy dashes with two dots between the dashes	Word
`dashDotHeavy`	Heavy dash-dot line	Word
`dotted`	Dotted line	Word
`dottedHeavy`	Thick dotted line	Word
`dotDash`	Dot-dash line	Word
`dotDotDash`	Dot-dot-dash line	Word
`dashDotHeavy`	Heavy dot-dash line	Word
`double`	Double line	Word
`none`	Do not use underlining	HTML and Word

Border String	Description	Supported Output Types
`single`	Single line	HTML and Word
`thick`	Thick line	Word
`wave`	Wavy line	Word
`waveyDouble`	Double wavy line	Word
`waveyHeavy`	Heavy wavy	Word
`words`	Underline non-space characters only	Word

If this property is empty and `StyleName` property of this document element specifies a style sheet style, the type of underline is determined by that style.

To specify the color as well as the type of the underline, do not set the `Underline` property. Instead, set the `Style` property of this document element to include an `mlreportgen.dom.Underline` format object that specifies the desired underline type and color.

Setting the `Underline` property adds a corresponding `mlreportGen.dom.Underline` format object to the `Style` property for this document element. Removing the `Underline` property setting removes the object.

`WhiteSpace` — White space and line breaks in text

[ ] (default) | string

To specify how to handle white space, use one of the following strings.

Border String	Description	Supported Output Types
`normal`	Does not preserve white space and line breaks	Word and HTML
`nowrap`	Sequences of white space collapse into a single white space. Text never wraps to the next line.	HTML
`preserve`	Preserves white space. Text wraps only on line breaks. Acts like the `<pre>` tag in HTML.	Word and HTML See below for details.

Border String	Description	Supported Output Types
`pre`	Preserves white space. Text wraps only on line breaks. Acts like the `<pre>` tag in HTML.	HTML
`pre-line`	Sequences of white space collapse into a single white space. Text wraps.	HTML
`pre-wrap`	Preserves white space. Text wraps when necessary and on line breaks	HTML

If you want to view HTML output in the MATLAB browser and you want to preserve white space and wrap text only on line breaks, use the `preserve` setting rather than the `pre` setting.

Setting the `WhiteSpace` property adds a corresponding `WhiteSpace` format object to `Style` property. Removing the `WhiteSpace` property setting removes the `WhiteSpace` object.

Methods

Use the `Text.append` and `Text.clone` methods the same way you use the `Paragraph.append` and `Paragraph.clone` methods.

Method	Purpose
`append`	Append a custom element to this text object.
`clone`	Clone this text object

See Also

`mlreportgen.dom.CharEntity` | `mlreportgen.dom.CustomText` | `mlreportgen.dom.Paragraph`

Related Examples

- “Add Content to a Report”

More About

- "Report Formatting Approaches"

mlreportgen.dom.Underline class

Package: mlreportgen.dom

Draw line under text

Description

Draw line under text

Construction

`underline = Underline()` draws a single line under text.

`underline = Underline(type)` draws a line of the specified type under the text.

`underline = Underline(type,color)` draws a line of the specified type and color under the text. The color parameter must be a `mlreportgen.dom.Color` object.

Input Arguments

`type` — Style of underline

string

String specifying the style of the underline. Valid strings are:

String	Description	Applies To	
		DOCX	HTML
`'single'`	Single underline	X	X
`'double'`	Double underline	X	
`'words'`	Words only underlined (not spaces)	X	
`'thick'`	Thick underline	X	
`'dotted'`	Dotted underline	X	
`'dottedHeavy'`	Thick, dotted underline	X	

String	Description	Applies To	
		DOCX	HTML
`'dashed'`	Dashed underline	X	
`'dashedHeavy'`	Thick, dashed underline	X	
`'dashLong'`	Long, dashed underline	X	
`'dashLongHeavy'`	Thick, long, dashed underline	X	
`'dotDash'`	Dot dash underline	X	
`'dotDotDash'`	Dash dot dot underline	X	
`'dashDotDotHeavy'`	Thick dash dot dot underline	X	
`'dashDotHeavy'`	Thick dash dot underline	X	
`'none'`	No underline	X	
`'wave'`	Wavy underline	X	
`'wavyDouble'`	Two wavy underlines	X	
`'wavyHeavy'`	Thick wavy underline	X	

`color` — Color of underline

`mlreportgen.dom.Color` object

Color of the underline, specified by an `mlreportgen.dom.Color` object.

Output Arguments

`underline` — Line under text

`mlreportgen.dom.Underline` object

Underline, represented by an `mlreportgen.dom.Underline` object.

Properties

`Type` — Underline style

string

Underline style. See the description of the `type` input argument for the constructor.

Data Types: `char`

`Color` — Color of underline

`mlreportgen.dom.Color` object

Color of the underline, specified by an `mlreportgen.dom.Color` object.

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

See Also

`mlreportgen.dom.Text`

More About

- "Report Formatting Approaches"

mlreportgen.dom.UnorderedList class

Package: mlreportgen.dom

Unordered (bulleted) list

Description

Specifies an unordered (bulleted) list.

Construction

`unorderedListObj = UnorderedList()` creates an empty unordered list.

`unorderedListObj = UnorderedList(items)` creates an unordered list from a cell array of strings specifying the list items.

Input Arguments

`items` — Content to include in each item in unordered list

cell array of strings

A one-dimensional cell array containing a string for each item in the unordered list.

The cell array can contain a combination of the following:

- A string
- A number
- A Boolean value
- One of the following DOM objects:
  - `mlreportgen.dom.Text`
  - `mlreportgen.dom.Paragraph`
  - `mlreportgen.dom.ExternalLink`
  - `mlreportgen.dom.InternalLink`

- `mlreportgen.dom.Table`
- `mlreportgen.dom.Image`
- `mlreportgen.dom.CustomElement`

- Horizontal one-dimensional array (for a sublist)

To append an ordered list, use an `OrderedList` DOM object instead of using the `listItems` argument.

Output Arguments

`unorderedListObj` — Content to include in each item in the unordered list
`mlreportgen.dom.UnorderedList` object

An `mlreportgen.dom.UnorderedList` object representing an unordered list of the specified list items.

Properties

`CustomAttributes` — Custom attributes of document element
array of `mlreportgen.dom.CustomAttribute` objects

HTML or Microsoft Word must support the custom attributes of this document element.

`Id` — ID for document element
string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Style` — Format specification
array of format objects

Format objects that specify the format of a document element.

`StyleName` — This property is ignored
string

This property is ignored.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

Methods

Method	Purpose
`append` Use the `UnorderedList.append` method similar to how you use `OrderedList.append`.	Append items to this list.
`clone` Use the `UnorderedList.clone` method similar to how you use `Paragraph.clone`.	Copy the list.

Examples

Create an Unordered List

```
import mlreportgen.dom.*;
d = Document('mydoc');

ul = UnorderedList({Text('a'),'b',1,{'c',Paragraph('d')}});
append(d,ul);

close(d):
rptview('mydoc','html');
```

- “Create and Format Lists”

See Also

`mlreportgen.dom.ListItem` | `mlreportgen.dom.OrderedList`

mlreportgen.dom.VAlign class

Package: mlreportgen.dom

Vertical alignment of document object

Description

Specifies vertical alignment of objects.

Construction

`vAlignObj = VAlign()` creates an alignment object having the value `'top'`.

`vAlignObj = VAlign(value)` creates an alignment object having the specified value.

Input Arguments

`value` — Specify vertical alignment

`'top'` (default) | `'bottom'` | `'middle'`

String that specifies the vertical alignment of a document element.

Output Arguments

`vAlignObj` — Vertical alignment of document object

`mlreportgen.dom.VAlign` object

Vertical alignment of document object, represented by an `mlreportgen.dom.VAlign` object.

Properties

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Value` — Specify vertical alignment

`'top'` (default) | `'bottom'` | `'middle'`

String that specifies the vertical alignment of an object. Choices are:

See Also

`mlreportgen.dom.HAlign`

More About

- "Report Formatting Approaches"

mlreportgen.dom.VerticalAlign class

Package: mlreportgen.dom

Vertical alignment of text

Description

Specifies vertical alignment of text.

Construction

`verticalAlignObj = VerticalAlign()` creates a superscript alignment.

`verticalAlignObj = VerticalAlign(align)` creates an alignment of the specified type.

Input Arguments

`align` — Vertical alignment of text relative to baseline

`'superscript'` (default) | `'subscript'` | `'baseline'`

String specifying the vertical alignment of text relative to the baseline.

Output Arguments

`verticalAlignObj` — Vertical alignment of text

`mlreportgen.dom.VerticalAlignment` object

Vertical alignment of text, represented by an `mlreportgen.dom.VerticalAlignment` object.

Properties

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Value` — Vertical alignment of text relative to baseline

`'superscript'` (default) | `'subscript'` | `'baseline'`

String specifying the vertical alignment of text relative to the baseline.

Examples

Use a Superscript

```
import mlreportgen.dom.*;
doctype = 'html';
d = Document('test',doctype);

p = Paragraph('e = mc');
t = Text('2');
t.Style = {VerticalAlign('superscript')};
append(p,t);
append(d,p);

close(d);
rptview('test',doctype);
```

See Also

`mlreportgen.dom.Text`

More About

- "Report Formatting Approaches"

mlreportgen.dom.WarningMessage class

Package: mlreportgen.dom

Warning message

Description

Create a warning message with the specified text originating from the specified source object.

Construction

`warningMsgObj = WarningMessage(text,source)` creates a warning message with the specified text originating from the specified source object.

Input Arguments

`text` — Message text
string

The text to display for the message.

`source` — DOM object from which message originates
a DOM object

The DOM object from which the message originates.

Output Arguments

`warningMsgObj` — Warning message
`mlreportgen.dom.WarningMessage` object

Warning message, represented by an `mlreportgen.dom.WarningMessage` object.

Properties

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Source` — Source DOM object from which message originates

a DOM object

Source DOM object from which the message originates.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Text` — Text of message

string

Message text, specified as a string.

Methods

Use `WarningMessage` methods similar to how you use `ProgressMessage` methods.

Method	Purpose
`formatAsHTML`	Wrap message in HTML tags.
`formatAsText`	Format message as text.
`passesFilter`	Determine if message passes filter.

Examples

Create a Warning Message

```
import mlreportgen.dom.*;
d = Document('test','html');

dispatcher = MessageDispatcher.getTheDispatcher;
l = addlistener(dispatcher,'Message', ...
      @(src, evtdata) disp(evtdata.Message.formatAsText));

open(d);
dispatch(dispatcher,WarningMessage('invalid chapter',d));
p = Paragraph('Chapter ');
p.Tag = 'chapter title';
p.Style = {CounterInc('chapter'),...
    CounterReset('table'),WhiteSpace('pre')};
append(p,AutoNumber('chapter'));
append(d,p);

close(d);
rptview('test','html');

delete(l);
```

- “Display Report Generation Messages”

See Also

`mlreportgen.dom.MessageDispatcher.dispatch`

mlreportgen.dom.WhiteSpace class

Package: mlreportgen.dom

White space type

Description

Preserves white space and line breaks in text.

Construction

`ws = WhiteSpace()` collapses white space.

`ws = WhiteSpace(option)` applies the specified white space option to white space in a `Text` object.

Input Arguments

`option` — White space type

string

String specifying the white space type.

String	Description
`'preserve'`	Preserves white space and line breaks. This is the only option that works in Microsoft Word and in the MATLAB browser.
`'normal'`	Sequences of white spaces collapse into a single white space. Text wraps when necessary. This is default.
`'nowrap'`	Sequences of white spaces collapse into a single white space. Text does not wrap to the next line. The text continues on the same line until a ` ` tag is encountered.

String	Description
`'pre'`	White space is preserved by the browser. Text wraps only on line breaks. Acts like the `<pre>` tag in HTML.
`'pre-line'`	Sequences of white spaces collapses into a single white space. Text wraps when necessary and on line breaks.
`'pre-wrap'`	White space is preserved by the browser. Text wraps when necessary and on line breaks.

Output Arguments

`ws` — White space type

`mlreportgen.dom.WhiteSpace` object

White space type, represented by an `mlreportgen.dom.WhiteSpace` object.

Properties

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Value` — White space type

string

String specifying the white space type.

String	Description
`'preserve'`	Preserves white space and line breaks. This is the only option that works in Microsoft Word and in the MATLAB browser.
`'normal'`	Sequences of white spaces collapse into a single white space. Text wraps when necessary. This is default.
`'nowrap'`	Sequences of white spaces collapse into a single white space. Text does not wrap to the next line. The text continues on the same line until a ` ` tag is encountered.
`'pre'`	White space is preserved by the browser. Text wraps only on line breaks. Acts like the `<pre>` tag in HTML.
`'pre-line'`	Sequences of white spaces collapses into a single white space. Text wraps when necessary and on line breaks.
`'pre-wrap'`	White space is preserved by the browser. Text wraps when necessary and on line breaks.

Examples

Include White Space Between Titles

```
import mlreportgen.dom.*;
doctype = 'html';
d = Document('test',doctype);

p = Paragraph('Chapter ');
p.Style = { CounterInc('chapter'),WhiteSpace('preserve') };
append(p, AutoNumber('chapter'));
append(d, p);

p = Paragraph('Chapter ');
p.Style = { CounterInc('chapter'),WhiteSpace('preserve') };
append(p,AutoNumber('chapter'));
append(d,p);
```

```
close(d);
rptview('test',doctype);
```

See Also

`mlreportgen.dom.Text`

More About

- “Report Formatting Approaches”

mlreportgen.dom.WidowOrphanControl class

Package: mlreportgen.dom

Widow and orphan handling

Description

Specifies whether to prevent widows and orphans. This format applies only to Microsoft Word documents.

Construction

`widowOrphanControlObj = WidowOrphanControl()` prevents a page break after the first line of a paragraph (orphan) or before the last line of a paragraph (widow).

`widowOrphanControlObj = WidowOrphanControl(tf)` prevents orphans and widows if tf is `true`.

Input Arguments

`tf` — Controls orphans and widows

`true` (default) | `false` | `1` | `0`

A setting of `true` (or `1`) prevents a page break after the first line of a paragraph (orphan) or before the last line of a paragraph (widow). A setting of `false` (or `0`) allows a page break after the first line of a paragraph (orphan) or before the last line of a paragraph (widow).

Data Types: `logical`

Output Arguments

`widowOrphanControlObj` — Widow and orphan handling

`mlreportgen.dom.WidowOrphanControl` object

Widow and orphan handling, represented by an `mlreportgen.dom.WidowOrphanControl` object.

Properties

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Value` — Control orphans and widows

`true` (default) | `false` | `1` | `0`

Possible values are:

- `true` or `1` — Prevents a page break after the first line of a paragraph (orphan) or before the last line of a paragraph (widow).
- `false` or `0` — Allows a page break after the first line of a paragraph (orphan) or before the last line of a paragraph (widow).

Data Types: `logical`

See Also

`mlreportgen.dom.Paragraph`

More About

- "Report Formatting Approaches"

mlreportgen.dom.Width class

Package: mlreportgen.dom

Object width

Description

Specifies the width of an object, such as an image or a table cell.

Construction

`widthObj = Width()` creates a format object that specifies a width of 1 inch.

`widthObj = Width(value)` creates a width object having the specified width.

Input Arguments

`value` — Width of object

string

Width of object, such as an image or a table cell, specified as a string. The string having the format `valueUnits`, where `Units` is an abbreviation for the units in which the width is expressed. The following abbreviations are valid:

- — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas
- `pt` — points
- `px` — pixels
- `%` — percent

Output Arguments

`widthObj` — Object width

`mlreportgen.dom.Width` object

Object width, represented by an `mlreportgen.dom.Width` object.

Properties

`Id` — ID for document element

string

A session-unique ID is generated as part of document element creation. You can specify an ID.

`Tag` — Tag for document element

string

String that identifies this document element.

A session-unique ID is generated as part of document element creation. The generated tag has the form `CLASS:ID`, where `CLASS` is the class of the element and `ID` is the value of the `Id` property of the object. You can specify a tag.

An example of a reason for specifying your own tag value is to make it easier to identify where an issue occurred during document generation.

`Value` — Width of object

string

Width of object, such as an image or a table cell, specified as a string. The string having the format `valueUnits`, where `Units` is an abbreviation for the units in which the width is expressed. The following abbreviations are valid:

- — pixels
- `cm` — centimeters
- `in` — inches
- `mm` — millimeters
- `pi` — picas

- `pt` — points
- `px` — pixels
- `%` — percent

Examples

Set Width and Other Formats for a Table

```
import mlreportgen.dom.*;
doctype = 'html';
d = Document('test',doctype);

t = Table(magic(5));
t.Style = {Border('inset','crimson','6pt'),...
     Width('50%')};

t.TableEntriesInnerMargin = '6pt';
t.TableEntriesHAlign = 'center';
t.TableEntriesVAlign = 'middle';
append(d,t);

close(d);
rptview('test',doctype);
```

See Also

`mlreportgen.dom.Height` | `mlreportgen.dom.Image` | `mlreportgen.dom.Table`

More About

- "Report Formatting Approaches"

Create a Report Program

Create a Report Program

The MATLAB Report Generator includes a set of functions, called the DOM (Document Object Model) API, that allows you to generate Word, HTML, and PDF reports programmatically. For example, the following MATLAB script uses the API to generate and display an HTML report displaying today's date.

```
import mlreportgen.dom.*;
report = Document('today');
append(report, ['Today is ', date, '.']);
close(report);
rptview(report.OutputPath);
```

To get started learning about creating reports with the DOM API, see "Document Object Model" on page 13-4.

More About

- "Document Object Model" on page 13-4

Document Object Model

The DOM API creates a representation of a report document in your system's memory. Such a representation is often referred to as a Document Object Model (DOM). Hence, the DOM API's name.

The DOM API's document object model consists of a hierarchical set of data structures, known as objects, that represent the document and its contents. At the top of the hierarchy is an object representing the document itself. The document object maintains a list of objects, called its children, that represent its contents (such as paragraphs, images, tables, lists, and so on). Each child object, in turn, maintains a list of its contents. For example, a table lists its rows, a row lists its table entries, a table entry lists its contents, and so on.

The DOM API contains functions that allow you to create and assemble DOM objects, such as paragraphs, images, and tables, into a model of a specific document. You can then use the API to write the model out to disk as an HTML or Microsoft Word document file.

DOM Object Help and Documentation

For a list of the DOM objects, type the following at the MATLAB prompt.

```
help mlreportgen.dom
```

To get help for a specific object, such as a `Paragraph`, use a `help` command such as this.

```
help mlreportgen.dom.Paragraph
```

To get a complete list of DOM API classes and functions in the MATLAB Report Generator documentation, open the **Functions** pane.

To see the documentation reference page for an object, search in documentation or in MATLAB use a `doc` command such as this.

```
doc mlreportgen.dom.Paragraph
```

Related Examples

- “Construct a DOM Object” on page 13-6
- “Get and Set DOM Object Properties” on page 13-8

- “Import the DOM API Package” on page 13-7

Construct a DOM Object

The DOM API includes a special set of MATLAB functions, called constructors, for creating DOM objects of various types, or classes.

The name of an object constructor is the name of the MATLAB class from which the DOM creates an object. For example, the name of the constructor for a DOM paragraph object is `mlreportgen.dom.Paragraph`. Some constructors do not require any arguments. Other constructors can take one or more arguments that typically specify its initial content and properties. For example, the following line creates a paragraph whose initial content is `Chapter 1.`

```
p = mlreportgen.dom.Paragraph('Chapter 1.');
```

A constructor returns a handle to the object it creates. Assigning the handle to a variable allows you to subsequently append content to the object or set its properties. For example, the following line appends content to the paragraph object `p` created in the previous example.

```
append(p,'In the Beginning');
```

Note that you can assign an object handle to multiple variables and hence access the same object via multiple variables.

Related Examples

- “Import the DOM API Package” on page 13-7
- “Get and Set DOM Object Properties” on page 13-8

More About

- “Document Object Model” on page 13-4

Import the DOM API Package

All DOM class names, and hence constructor names, include the prefix `mlreportgen.dom`. To avoid the need to include the prefix in your code, insert the following statement at the beginning of any script or function that uses the DOM API.

```
import mlreportgen.dom.*;
```

The documentation frequently refers to DOM API objects and functions without the `mlreportgen.dom` prefix, assuming that you have already imported the DOM API package.

Related Examples

- “Create a Report Program” on page 13-3

More About

- “Document Object Model” on page 13-4

Get and Set DOM Object Properties

To get or set the property of a document object, use dot notation, which involves appending a period to the name of a variable that references the object, followed by the property name. For example, the following line saves the current font family of a paragraph referenced by `p` and sets it to a new font family.

```
saveFont = p.FontFamily;
p.FontFamily = 'Arial';
```

Related Examples

- “Construct a DOM Object” on page 13-6
- “Use Format Properties” on page 13-24

More About

- “Document Object Model” on page 13-4

Create a Document Object to Hold Content

Every report program must create an `mlreportgen.dom.Document` object to hold report content. Use the `mlreportgen.dom.Document` constructor to create a `Document` object.

If you use the constructor with no arguments, the DOM API creates an HTML document named `Untitled.htmx` in the current folder.

You can specify the file system path of the report as the first argument of the constructor.

You can specify the type of report to be generated by using a second argument. You can specify the type to be `'html'`, `'docx'` (for Microsoft Word), or `'pdf'`. If you specify `'pdf'`, the DOM API generates the report as a Word document. You can then use the `rptview` function to convert it to PDF, or you can open the report in Word and save it as PDF.

This `Document` constructor creates an HTML report called `myReport`.

```
d = Document('myreport','html');
```

Using a third argument, you can specify the file system path of a Word or HTML template to be used as a basis for creating the report. You need to specify a template only if you are using template-based formatting (using style sheets) or form-based report generation. If you specify a template, it must be a Word template (`.dotx`) for Word or PDF reports or an HTML template (`.htmtx`) for HTML reports. For example, this `Document` constructor creates a Word report using the Word template `myWordTemplate.dotx`.

```
d = Document('myreport','dotx','myWordTemplate');
```

See Also

Functions

`rptview`

Classes

`mlreportgen.dom.Document`

Related Examples

- “Create a Report Program” on page 13-3

- "Use Style Sheets" on page 13-21
- "Construct a DOM Object" on page 13-6

More About

- "Form-Based Reporting" on page 13-26
- "Document Object Model" on page 13-4

Add Content to a Report

The DOM `append` function allows you to add content to documents, paragraphs, tables, and other DOM objects that serve as containers for report content. The `append` function takes two arguments. The first argument is the object to which the content is to be appended. The second is the content to be appended. In this example, the text `Hello World` is appended to the document.

```
d = Document('MyReport');
append(d,'Hello World');
```

The `append` function throws an error if the second argument (the content to be appended), is incompatible with the first argument (the object to which the content is to be appended). For example, the `append` method in the following script throws an error.

```
% This code throws an error
image = Image('membrane.png');
append(image,Paragraph('Hello World'));
```

This is because you cannot add a paragraph to an image. The reference documentation for classes lists the types of objects that you can append to instances of the classes. To get a complete list of DOM API classes and functions in the MATLAB Report Generator documentation, open the **Functions** pane. To see the documentation reference page for an object, search in documentation or in MATLAB use a `doc` command such as this.

```
doc mlreportgen.dom.Paragraph
```

As shown in the preceding examples, the `append` method, depending on the target object type, allows you to append strings, doubles, arrays, and other basic MATLAB data types, without first converting the data to DOM objects. The function converts the appended data to a DOM object before appending it to the target object. For example, the following script appends a two-dimensional array of strings to a document as a table.

```
d = Document('MyDoc');
tableArray = {'a','b';'c','d'};
append(d,tableArray);
```

Many constructors also allow you to specify basic MATLAB data types as the initial content of the object when you construct the object. This example is equivalent to the preceding example.

```
d = Document('MyDoc');
tableArray = {'a','b';'c','d'};
```

```
append(d,Table(tableArray));
```

See Also

Functions

`mlreportgen.dom.Paragraph.append`

Related Examples

- "Construct a DOM Object" on page 13-6
- "Clone a DOM Object" on page 13-13
- "Add Content as a Group" on page 13-14
- "Stream a Report" on page 13-16

More About

- "Document Object Model" on page 13-4

Clone a DOM Object

If you attempt to append an object more than once to the same object or to append an object to multiple objects, the `append` function throws an error. If you need to append an object multiple times, use the `clone` function to create copies of the object.

```
d = Document('MyDoc');
text = append(d,'Hello World');
text.Color = 'magenta';
text = clone(text);
text.Color = 'cyan';
append(d,text);
```

See Also

Functions

`mlreportgen.dom.Paragraph.clone`

Related Examples

- “Add Content to a Report” on page 13-11
- “Construct a DOM Object” on page 13-6

More About

- “Document Object Model” on page 13-4

Add Content as a Group

You can use a group to include the same content in different parts of a report. The DOM API clones the members of a group before appending them to another object.

This example shows the key code to include. After describing the steps involved in using a group, this example includes code for a complete report that uses a group.

1. Define the DOM objects that you want to include repeatedly in a report.

```
disclaimerHead = Heading(2,'Results May Vary');
disclaimerIntro = Paragraph('The following results assume:');
disclaimerList = UnorderedList(...
    {'Temperature between 30 and 70 degrees F',...
    'Wind less than 20 MPH','Dry road conditions'});
```

2. Define a `Group` object that includes the DOM objects for the group. For example:

```
disclaimer = Group();
append(disclaimer,disclaimerHead);
append(disclaimer,disclaimerIntro);
append(disclaimer,disclaimerList);
```

3. Append the `Group` object in the place in the report where you want to repeat the content. For example, if the document object is `doc`:

```
append(doc,disclaimer);
```

This code builds on the code shown above.

```
import mlreportgen.dom.*;
doc = Document('groupReport','html');
disclaimerHead = Heading(2,'Results May Vary');
disclaimerIntro = Paragraph('The following results assume:');
disclaimerList = UnorderedList(...
    {'Temperature between 30 and 70 degrees F',...
    'Wind less than 20 MPH','Dry road conditions'});
disclaimer = Group();
append(disclaimer,disclaimerHead);
append(disclaimer,disclaimerIntro);
append(disclaimer,disclaimerList);
append(doc,disclaimer);
p1 = Paragraph('First set of results...');
p1.Bold = true;
p2 = Paragraph('more report content...');
```

```
p2.Bold = true;
append(doc,p1);
append(doc,p2);
append(doc,disclaimer);
close(doc);
rptview('groupReport','html');
```

See Also

Functions

`mlreportgen.dom.Paragraph.append`

Classes

`mlreportgen.dom.Group`

Related Examples

- “Add Content to a Report” on page 13-11

Stream a Report

The DOM API supports two modes of appending content to a document:

- In-memory — Creates the document entirely in memory. In-memory is the default mode.
- Streaming — Streaming mode writes objects to disk as they are appended to a document. Streaming mode allows you to create large reports on systems with modest memory.

To enable streaming mode, set the `StreamOutput` property of the `Document` object for the report to `true`.

```
d = Document('MyDoc');
d.StreamOutput = true;
```

See Also

Classes

`mlreportgen.dom.Document`

Related Examples

- “Add Content to a Report” on page 13-11

Report Packages

A Microsoft Word document packages all of its contents, text, images, style sheets, and so on, in a single compressed file having a `.docx` extension.

For HTML documents, the DOM API defines an analogous packaging scheme, with an `.htmtx` compressed file extension. By default, the DOM API generates HTML reports as `.htmx` files. To generate an HTML report in unzipped format or both zipped and unzipped format, set the `PackageType` property of the `Document` object for a report to `'unzipped'` or `'both'`, respectively.

See Also

Functions

`unzipTemplate | zipTemplate`

Classes

`mlreportgen.dom.Document`

More About

- “Document Object Model” on page 13-4

Close a Report

The last step in creating a report with the DOM API is to close the report. Closing a report writes out any content that remains in memory and closes the report file. Use the `close` function.

```
d = Document('MyDoc');
append(d,'Hello World');
close(d);
```

See Also

Functions

`mlreportgen.dom.Document.close`

Related Examples

- “Create a Report Program” on page 13-3

More About

- “Document Object Model” on page 13-4

Display a Report

The DOM API `rptview` function allows you to display a generated report in a viewer appropriate to its document type: the Microsoft Word editor for Word documents, an HTML browser for HTML reports, and Adobe Acrobat for PDF reports.

The `rptview` function takes two arguments:

- The path of the report
- The output type: `'html'`, `'docx'`, or `'pdf'`

If you omit the second argument (the output type), `rptview` uses the output type from the report's extension.

If an HTML report is in zipped format, `rptview` creates a copy of the report in your temporary directory and displays the temporary copy. If you specify `'pdf'`, the function uses Word to convert the report to PDF format. It then displays the report in Adobe Acrobat.

See Also

Functions

`rptview`

Related Examples

- "Create a Report Program" on page 13-3

Report Formatting Approaches

The DOM API supports three approaches to formatting document objects in reports:

- Style sheets — Assign to a document object (such as a paragraph, table, or list) a style from a Microsoft Word or HTML template, using the `StyleName` property of a document object. A style is a collection of formats.
- Format objects — Use format objects, such as a `FontFamily` object, with the `Style` property of a document object.
- Format properties — Use format properties of a document object. For example, for a `Paragraph` object `p`, you can specify `p.Color = 'red'`.

Related Examples

- "Use Style Sheets" on page 13-21
- "Use Format Objects" on page 13-23
- "Use Format Properties" on page 13-24

More About

- "Format Inheritance" on page 13-25

Use Style Sheets

A style is a collection of formats that together define the appearance of a document object, such as a paragraph, table, or list. Microsoft Word allows you to define styles and then assign them to paragraphs, tables, and other documents by name. The assigned style then determines how Word renders the document object on the screen or printed page. Word stores the styles in a document as an object called a style sheet. HTML browsers support a similar capability.

DOM API objects that have a `StyleName` property allow you to leverage Word and HTML style sheets to format reports as follows.

1. Create a Word or HTML template, using the DOM API or a Word or HTML editor, depending on the report type.
2. Optionally, you can change a template style definition or add a new style. For details, see "Modify Styles in a Microsoft Word Template" on page 13-96 or "Modify Styles in an HTML Template" on page 13-104.
3. In a DOM report, create a `Document` object that uses the template.
4. Assign the names of styles defined in the style sheet to the `StyleName` property of objects that you want to have the specified style.

For example, the following script assigns a style named `Warning` to a paragraph object. It assumes that you have defined the `Warning` style previously in a Word template named `MyTemplate.dotx`.

```
d = Document('MyDoc','docx','MyTemplate');
p = Paragraph('Danger');
p.StyleName = 'Warning';
append(d,p);
close(d);
```

Assigning the `Warning` style to the DOM paragraph object causes Word to use the `Warning` style to render the generated paragraph when you open the generated report.

Tip Some document object constructors allow you to specify the value of the `StyleName` property as an argument. For example, this paragraph has the text `Danger` and uses a style defined for the template style named `Warning`.

```
p = Paragraph('Danger','Warning');
```

Related Examples

- “Create a Microsoft Word Template” on page 13-92
- “Modify Styles in a Microsoft Word Template” on page 13-96
- “Create an HTML Template” on page 13-101
- “Modify Styles in an HTML Template” on page 13-104

More About

- “Report Formatting Approaches” on page 13-20
- “Format Inheritance” on page 13-25

Use Format Objects

A format object is a MATLAB program entity that defines the properties and functions of a specific type of document format, such as a font family or font size. The DOM API provides a set of constructors for creating format objects corresponding to most of the formatting options available in HTML and Word documents. Most DOM document objects include a `Style` property that you can set to a cell array of format objects. Together, format objects and the document object `Style` property allow you to format a document object by creating an array of format objects that define the appearance (style), of the object and assigning this array to the `Style` property of the document object. For example, the following script uses format objects to specify the style of a warning paragraph.

```
p = Paragraph('Danger!');
p.Style = {Color('red'),FontFamily('Arial'),FontSize('18pt')};
```

You can assign the same array of format objects to more than one DOM document object. This allows you to create a programmatic equivalent of a template style sheet. For example:

```
warning = {Color('red'), FontFamily('Arial'), FontSize('18pt')};
p = Paragraph('Danger!');
p.Style = warning;
p = Paragraph('Caution!');
p.Style = warning;
```

The DOM API allows you to assign any format object to any document object, regardless of whether the format applies. If the format does not apply, it is ignored.

More About

- “Report Formatting Approaches” on page 13-20
- “Format Inheritance” on page 13-25

Use Format Properties

Most DOM objects have a set of properties corresponding to the format options most commonly used for an object of that class. You can use dot notation with format properties to specify formats for an object. For example, the following code sets the font and color of text in a paragraph, using the `Color`, `FontFamily`, and `FontSize` format properties of a `Paragraph` object.

```
p = Paragraph('Danger!');
p.Color = 'red';
p.FontFamily = 'Arial';
p.FontSize = '18pt';
```

Assigning a value to a format property causes the API to create an equivalent format object and assign it to the `Style` property of the document object. Similarly, assigning a format object to an object's `Style` property causes the API to assign an equivalent value to the corresponding format property if it exists. In this way, the API keeps format properties for an object in sync with the `Style` property of the object.

Note: When you change the value of a format property, the DOM API:

- Creates a clone of the corresponding format object
- Changes the value of the clone's corresponding format object property
- Replaces the original format object with the clone in the array of format objects assigned to the document object

In this way, the DOM prevents changing a format property in one object from changing a style originally assigned to other objects as well.

More About

- “Report Formatting Approaches” on page 13-20
- “Format Inheritance” on page 13-25

Format Inheritance

The DOM API allows you to use both template-based styles and format object-based styles (or equivalent format properties) to specify the appearance of an object. If you set both the `StyleName` and the `Style` property of an object, the formats in the `Style` property override corresponding formats specified by the template-based style of the `StyleName` property. Consider, for example, the following script.

```
d = Document('MyDoc','docx','MyTemplate');
p = Paragraph('Danger!');
p.StyleName = 'Warning';
p.Style = {Color('red')};
append(d,p);
close(d);
```

Suppose that the `Warning` style defines the color of a warning as yellow. In that case, this example overrides the color specified by the `Warning` style.

If a document object does not specify a `StyleName` (a template-based style), it inherits from its container any formats that it does not itself specify. The container itself inherits any formats that it does not specify from its container, and so on, all the way to the top of a container hierarchy. Format inheritance allows you to use a single statement to assign a format for all the objects contained by a container. For example, the following script uses a single `Style` property to assign a color to all the entries in a table.

```
d = Document('MyDoc');
tableArray = {'a', 'b'; 'c', 'd'};
table = append(d, tableArray);
table.Style = {Color('blue')};
append(d, table);
close(d);
```

Related Examples

- “Use Style Sheets” on page 13-21
- “Use Format Objects” on page 13-23

More About

- “Report Formatting Approaches” on page 13-20

Form-Based Reporting

The DOM API supports a form-based approach to report generation. You can use Microsoft Word or an HTML editor to create a template that defines the fixed content of the form, interspersed with holes (blanks), that your DOM report program fills with generated content.

Related Examples

- "Fill in the Blanks in a Report Form" on page 13-27
- "Use Subforms in a Report" on page 13-29
- "Create a Microsoft Word Template" on page 13-92
- "Add Holes in a Microsoft Word Template" on page 13-93
- "Create an HTML Template" on page 13-101
- "Add Holes in an HTML Template" on page 13-102

Fill in the Blanks in a Report Form

Navigate Holes in the Form

When you create a form template, you associate an ID with each hole in the template. This allows you to navigate the holes in a form, using the DOM `moveToNextHole` function. The first time you execute this function, the DOM API copies to the output document all of the text up to the first hole in the template. At this point, you can start adding content to the output document, using this DOM `append` function, thereby filling in the first hole. The next time you execute this function, the DOM API copies all the text between the first and second hole in the template to the output document. You can then fill in the second hole by appending content to the output document. In this way, you generate the output document by copying the content from the template and filling in all its holes.

For example, this function generates a report from a Word template that has three holes named `Title`, `Author`, and `Content`. The arguments `title`, `author`, and `content`, are assumed to be strings.

```
function makerpt(title,author,content,rptname,rpttemplate)
      import mlreportgen.dom.*
      rpt = Document(rptname,'docx',rpttemplate);

      while ~strcmp(rpt.CurrentHoleId,'#end#')
          switch rpt.CurrentHoleId
               case 'Title'
                   append(rpt,title);
               case 'Author'
                   append(rpt,author);
               case 'Content'
                   append(rpt,content);
               end
           end
           moveToNextHole(rpt);
       end

      close(rpt);
```

See Also

Functions

`mlreportgen.dom.Document.moveToNextHole`

Related Examples

- “Use Subforms in a Report” on page 13-29
- “Create a Microsoft Word Template” on page 13-92
- “Add Holes in a Microsoft Word Template” on page 13-93
- “Create an HTML Template” on page 13-101
- “Add Holes in an HTML Template” on page 13-102

More About

- “Form-Based Reporting” on page 13-26

Use Subforms in a Report

A document part is a form that you can add to a document or to another document part. Document parts simplify generation of sections of a report that have the same form, such as sections that report on the results of a series of tests or the performance of a series of financial portfolios. Use a similar approach as you do for main document forms.

1. Create a template that defines the form of the document part.
2. For each section:
   a. Create an `mlreportgen.dom.DocumentPart` object based on the template.
   b. Fill in the holes.
   c. Append the part to the main document.

For an example of a report that uses subforms, open the Functional Report example.

Tip The DOM API allows you to store the templates for document parts in the main template for a report. This allows you to use a single template file to supply all the templates required for a report. For details, see "Create Document Part Template Libraries" on page 13-31.

See Also

Functions

`mlreportgen.dom.Document.moveToNextHole`

Classes

`mlreportgen.dom.DocumentPart`

Related Examples

- "Fill in the Blanks in a Report Form" on page 13-27
- "Create a Microsoft Word Template" on page 13-92
- "Add Holes in a Microsoft Word Template" on page 13-93
- "Create an HTML Template" on page 13-101
- "Add Holes in an HTML Template" on page 13-102

More About

- "Form-Based Reporting" on page 13-26

Create Document Part Template Libraries

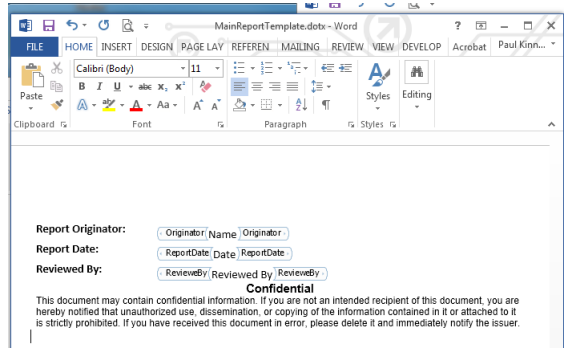
In this section...

A document part template library is a set of document part templates stored by name in another template. You can create a document part based on a template stored in a library by specifying the name of the template in the document part constructor. Document part template libraries allow you to store all the templates for a report in a single template file, for example, the main template file of a report.

Create a Document Part Template Library in a Microsoft Word Template File

You can use the Quick Part Gallery in Word to create a document part template library in the main template of a report. A Quick Part Gallery is a collection of reusable pieces of preformatted content, called quick parts, that is stored in the document. You can use quick parts as templates for DOM `DocumentPart` objects.

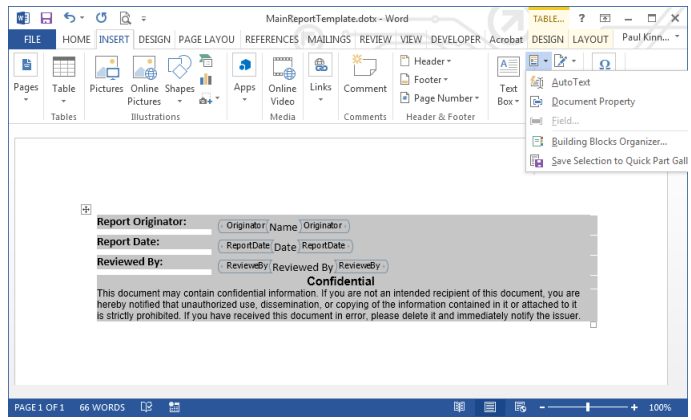
1. Open the Word template in which you want to create the document part template.
2. In the template, create the Word content to serve as a prototype for the document part template. (You will delete the prototype after copying it to the parent template Quick Part Gallery.) The document part template content that you create can contain holes and page layout sections, as well as other types of Word content. For example:



3 On the Word ribbon, select the **Insert** tab.

4 Select the content that you have created for the document part template.

5 On the **Insert** ribbon, click the **Explore Quick Parts** button. Select **Save Selection to the Quick Part Gallery** to save a copy of the selected prototype in the Quick Part Gallery of the template file. The Create New Building Block dialog box appears.



6 In the Create New Building Block dialog box, in the **Name** field, enter a unique name for the template. Use this name in the constructor of a `DocumentPart` object to be based on this quick part.

7 For the first document part template you create in the template file, in the **Category** list, click `Create New Category`. Create a category named `mlreportgen`. Then select `mlreportgen` from the **Category** list.

Otherwise, select `mlreportgen` from the **Category** list.

8 In the **Description** field, enter a template description and click **OK**.

9 Delete the content that served as the prototype for the document part template.

10 Save the template file.

Modify a Document Part Template in a Quick Part Gallery

You can modify a document part template located in a Quick Part Gallery.

1 Open the Word template that contains the document part template.

2 Click in the template where you want to create an instance of the document part template.

3 In the Word ribbon, select the **Insert** tab.

4 On the **Insert** ribbon, click the **Explore Quick Parts** button to display the Quick Part Gallery.

5 To create an instance of the template in the parent template file, in the Quick Part Gallery, select the document part template to modify.

6 Edit the instance.

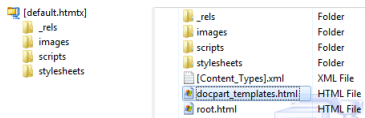
7 Select and save the modified instance to the Quick Part Gallery using the same name as the original template.

8 Delete the instance from the parent template file.

9 Save the parent template file.

Create a Document Part Template Library in an HTML Template File

HTML template packages created by copying the DOM API default HTML template package contains a document part template library file named `docpart_templates.html`.



The `docpart_templates.html` file contains default document part templates whose names and content are indicated by HTML markup conventions defined by the DOM

API. You can modify these templates and add your own templates by editing this file, using the markup conventions.

You can also create a template part library file in an HTML template that you create from scratch. In this case, you must ensure that the file observes the HTML markup conventions that the DOM API uses to indicate the name and content of a document part template in a document part library. To ensure this, copy the default template part library file into the template you create from scratch.

Add a Template to an HTML Document Part Template Library File

1. Unzip the template package containing the part template library file.
2. Open the file, named `docpart_templates.html` by default, in an HTML or text editor.
3. Create the following HTML markup in the `<body>` element of the file.

```
<div class="Template">
  <div class="TemplateName">
     <span class="TemplateName">TEMPLATE_NAME</span>
  </div>
  <div class="TemplateBody">
     TEMPLATE_BODY
  </div>
</div>
```

4. Replace `TEMPLATE_NAME` with a unique name for the template. Use this name in the constructor of a DOM `DocumentPart` object to be based on this template.
5. Replace `TEMPLATE_BODY` with HTML markup that defines the fixed content and holes of the template.
6. Save the library file.
7. Repackage the template.

See Also

Classes

`mlreportgen.dom.DocumentPart`

Related Examples

- “Fill in the Blanks in a Report Form” on page 13-27

- "Create a Microsoft Word Template" on page 13-92
- "Add Holes in a Microsoft Word Template" on page 13-93
- "Create an HTML Template" on page 13-101
- "Add Holes in an HTML Template" on page 13-102

More About

- "Form-Based Reporting" on page 13-26

Object-Oriented Report Creation

Note: This section assumes that you are familiar with object-oriented programming in MATLAB. For information on object-oriented programming in MATLAB, see "Object-Oriented Programming" in the MATLAB documentation.

The DOM API supports an object-oriented approach to creating report programs. With this approach, you subclass the DOM `Document` and `DocumentPart` classes to create document and document part classes tailored to your report application. You then create instances of these classes to generate a report.

Related Examples

- "Simplify Filling in Forms" on page 13-37

Simplify Filling in Forms

The object-oriented approach allows you to exploit the DOM `fill` method to simplify form-based reporting. The `fill` method is intended to be used with instances of classes derived from `mlreportgen.dom.Document` or `mlreportgen.dom.DocumentPart` class. It assumes that for each hole in a document or document part template the derived class defines a method having the following signature:

```
fillHoleId(obj)
```

The `HoleID` part of the signature is the ID of a hole defined by the document or document part template. The `obj` argument is an instance of the derived class. For example, supposed that a template defines a hole named `Author`. Then the derived class would define a method name `fillAuthor` to fill the `Author` hole. Assuming that the derived class defines methods for filling the holes, the `fill` method moves from the first hole in the document or part to the last, invoking the corresponding `fillHoleId` method to fill each hole.

The `fill` method eliminates the need for a report program to loop explicitly through the holes in a document or document part's template. The report need only invoke the document or part `fill` method. For example, suppose that you have derived a report class, name `MyReport`, from the `mlreportgen.dom.Document` class and that this derived class defines methods for each of the holes defined by the report template, based on data supplied in its constructor. Then, you would need only three lines to generate an instance of `MyReport`:

```
function makeReport(rptdata)
rpt = MyReport(rptdata);
fill(rpt);
close(rpt);
```

For an example of a forms-based, object-oriented report program, in the **Examples** pane of the MATLAB Report Generator documentation, open the Object-Oriented Report example.

See Also

Functions

`mlreportgen.dom.Document.moveToNextHole`

Classes

`mlreportgen.dom.DocumentPart`

Related Examples

- “Use Subforms in a Report” on page 13-29
- “Fill in the Blanks in a Report Form” on page 13-27
- “Create a Microsoft Word Template” on page 13-92
- “Add Holes in a Microsoft Word Template” on page 13-93
- “Create an HTML Template” on page 13-101
- “Add Holes in an HTML Template” on page 13-102

More About

- “Form-Based Reporting” on page 13-26

Create and Format Text

In this section...

Create Text

You can create text by appending a string to a document, paragraph, table entry, or list item. The DOM `append` function converts the string to a `Text` object, appends it, and returns the `Text` object. Use the `Text` object to format the text. You can also create a text object directly and append it to a document. This example:

- Creates the `Text` object `t1` by appending the string `'Hello'` to the document
- Uses a `Text` constructor to create a `Text` object and append the text `'World'` to the document

```
import mlreportgen.dom.*
doc = Document('mydoc','html');

t1 = append(doc,'Hello');

append(doc, Text('World'));

close(doc);
rptview('mydoc','html');
```

Create Special Characters

You can define special characters, such as the British pound symbol, to include in a report by creating an `mlreportgen.dom.CharEntity` object. Specify a name of a character entity listed at http://en.wikipedia.org/wiki/List_of_XML_and_HTML_character_entity_references. For example:

```
import mlreportgen.dom.*;
d = Document('test','html');
```

```
p = Paragraph(CharEntity('pound'));
append(d,p);
append(p,'3');

close(d);
rptview('test','html');
```

Append HTML or XML Markup

To append HTML markup to an HTML document or Microsoft Word XML markup to a Word document, use an `mlreportgen.dom.RawText` object. This is useful for creating HTML or Word elements that the DOM API does not support directly, such as the HTML `div` element. This example shows how to create a `RawText` object to append HTML markup.

```
import mlreportgen.dom.*;
d = Document('test','html');

append(d,RawText('<div id = toc> </toc>'));

close(d);
rptview('test','html');
```

Format Text

You can format text programmatically, using either DOM format objects or `Text` object format properties. You can also use Word and HTML template styles. For information about these formatting techniques and format inheritance, see “Report Formatting Approaches” on page 13-20.

Format Text Programmatically

You can use format objects to format `Text` objects or format properties to specify commonly used text formats. This example uses:

- A `FontFamily` format object to specify the primary and backup font
- The `Bold` format property to specify text weight

```
import mlreportgen.dom.*;
d = Document('test','html');

t = append(d, 'Bold Arial text');
```

```
fontFamily = FontFamily('Arial');
fontFamily.BackupFamilyNames = {'Helvetica'};
t.Style = {fontFamily};

t.Bold = true;

close(d);
rptview('test','html');
```

Use these format objects and format properties to format text.

Formatting	Format Object	Format Property
Font	`FontFamily`	`FontFamilyName`
Backup font (HTML only)	`FontFamily`	n/a
Complex script font (for example, Arabic)	`FontFamily`	n/a
East Asian font	`FontFamily`	n/a
Font size	`FontSize`	`FontSize`
Foreground color	`Color`	`Color`
Background color	`BackgroundColor`	`BackgroundColor`
Bold	`Bold`	`Bold`
Italic	`Italic`	`Italic`
Subscript or superscript	`VerticalAlign`	n/a
Strike through	`Strike`	`Strike`
Underline type (single, double, etc.)	`Underline`	`Underline`
Underline color	`Underline`	n/a
Preserve white space	`WhiteSpace`	`WhiteSpace`

Format Text Using Microsoft Word Style Sheets

You can format text using styles defined in the Word template used to generate the report.

To define a text style in a Word template, start by using these steps.

1. Open the Word template used with the report.
2. Open the **Styles** pane.
3. Click the **Manage Styles** button  .
4. Click **New Style**.
5. In the Create New Style from Formatting dialog box, set **Style type** to `Character` or `Linked (paragraph and character)`.

For more information about working with Word styles, see "Modify Styles in a Microsoft Word Template" on page 13-96.

Format Text Using HTML Style Sheets

You can format text using a style defined in the HTML template used to generate the report. Apply a template style to a `Text` object either as the second argument in a `Text` object constructor or by setting the `StyleName` property to a template style.

For an HTML report, use a `span` style. For example:

```
span.Pass {
  font-family: "Times New Roman", Times, serif;
  color: green;
}
```

For more information about using HTML styles with DOM objects, see "Modify Styles in an HTML Template" on page 13-104 .

Apply a Style to a Text Object

Apply a template style to a `Text` object either as the second argument in a `Text` object constructor or by setting the `StyleName` property to a template style. For example, suppose you have defined styles named `Body`, `Pass`, and `Fail` in the template for your report. You can then apply the styles as follows.

```
import mlreportgen.dom.*;
passed = rand(1) >= 0.5;
rpt = Document('MyReport','html','MyTemplate');

t1 = Text('Test status: ');
t1.StyleName = 'Body';
t1.WhiteSpace = 'preserve';
```

```
if passed
  status = 'Passed';
  statusStyle = 'Pass';
else
  status = 'Failed';
  statusStyle = 'Fail';
end

t2 = Text(status,statusStyle);
statusPara = Paragraph(t1);
append(statusPara,t2);
append(rpt, statusPara);

close(rpt);
rptview(rpt.OutputPath);
```

Override Template Formats

You can use programmatic formats to override the formats defined in a template-based style. For example, suppose you define a style named `AlertLevel` in your template and set the color to be green by default. You can override the style in your report program to set a color based on the current alert level. For example:

```
t = Text('Danger!','AlertLevel');
t.Color = 'red';
```

See Also

Classes

`mlreportgen.dom.Bold` | `mlreportgen.dom.CharEntity` | `mlreportgen.dom.FontFamily` | `mlreportgen.dom.FontSize` | `mlreportgen.dom.Italic` | `mlreportgen.dom.Strike` | `mlreportgen.dom.Text` | `mlreportgen.dom.Underline`

Related Examples

- “Add Content to a Report” on page 13-11

More About

- “Report Formatting Approaches” on page 13-20

Create and Format Paragraphs

In this section...

Create a Paragraph

You can create a paragraph by using an `mlreportgen.dom.Paragraph` constructor with a text string. For example:

```
p = Paragraph('Text for a paragraph');
```

You can also specify these DOM objects in a `Paragraph` object constructor.

- `mlreportgen.dom.Text`
- `mlreportgen.dom.ExternalLink`
- `mlreportgen.dom.InternalLink`
- `mlreportgen.dom.LinkTarget`
- `mlreportgen.dom.Image`

Create a Heading

You can use an `mlreportgen.dom.Heading` object to create a paragraph that you want to appear in the table of contents of a document (see “Create a Table of Contents” on page 13-74). Specify the heading level as the first argument in the `Heading` object constructor, followed by the heading content. Optionally, as a third argument, you can specify the name of a paragraph style defined in the template used to generate your report.

This example creates a heading with the text `Chapter 1: System Overview` and specifies the heading to appear at the top level in a table of contents.

```
h1 = Heading(1,'Chapter 1: System Overview');
```

Format a Paragraph

You can format a paragraph programmatically, using DOM format objects or format properties. You can also use Word and HTML template styles. For information about these formatting techniques and format inheritance, see “Report Formatting Approaches” on page 13-20.

Note: You can use the same format objects and properties for `Heading` objects as you do for `Paragraph` objects.

Format a Paragraph Programmatically

You can use format objects to format `Paragraph` objects or format properties to specify commonly used paragraph formats. This example uses:

- An `OuterMargin` format object to specify the margins for the paragraph
- The `HAlign` format property to center the paragraph

```
import mlreportgen.dom.*;
doc = Document('test','html');

p = Paragraph('Indent a half inch and space after 12 points.');
p.Style = {OuterMargin('0.5in','0in','0in','12pt')};
append(doc,p);

p = Paragraph('Centered paragraph');
p.HAlign = 'center';
append(doc,p);

close(doc);
rptview('test','html');
```

Use these format objects and format properties to format a paragraph.

Formatting	Format Object	Format Property
Font	`FontFamily`	`FontFamilyName`
Backup font (HTML only)	`FontFamily`	n/a
Complex script font (for example, Arabic)	`FontFamily`	n/a

Formatting	Format Object	Format Property
East Asian font	`FontFamily`	n/a
Font size	`FontSize`	`FontSize`
Foreground color	`Color`	`Color`
Background color	`BackgroundColor`	`BackgroundColor`
Bold	`Bold`	`Bold`
Italic	`Italic`	`Italic`
Subscript or superscript	`VerticalAlign`	n/a
Strike through	`Strike`	`Strike`
Underline type (single, double, etc.)	`Underline`	`Underline`
Underline color	`Underline`	n/a
Create border around paragraph	`Border`	n/a
Preserve white space	`WhiteSpace`	`WhiteSpace`
Indent a paragraph	`OuterMargin`	`OuterLeftMargin`
Indent first line of paragraph	`FirstLineIndent`	`FirstLineIndent`
Hanging indent	`FirstLineIndent`	n/a
Space before and after paragraph	`OuterMargin`	n/a
Space to right of paragraph	`OuterMargin`	n/a
Space between paragraph and its bounding box	`InnerMargin`	n/a
Space between paragraph lines	`LineSpacing`	n/a
Align paragraph left, center, right	`HAlign`	`HAlign`
Start paragraph on next page	`PageBreakBefore`	n/a
Keep with next paragraph	`KeepWithNext`	n/a

Formatting	Format Object	Format Property
Keep paragraph on same page	`KeepLinesTogether`	n/a
Eliminate widows and orphans	`WidowOrphanControl`	n/a
Table of contents level of paragraph	`OutlineLevel`	`OutlineLevel`

Format a Paragraph Using Microsoft Word Style Sheets

You can format a paragraph using a style defined in the Word template used to generate the report.

To define a paragraph style in a Word template, start by using these steps.

1. Open the Word template used with the report.
2. Open the **Styles** pane.
3. Click the **Manage Styles** button  .
4. Click **New Style**.
5. In the Create New Style from Formatting dialog box, set **Style type** to `Character` or `Linked (paragraph and character)`.

For more information about working with Word styles, see "Modify Styles in a Microsoft Word Template" on page 13-96.

Format a Paragraph Using HTML Style Sheets

You can format using a style in defined in the HTML template used to generate the report.

For an HTML report, define the style as a `p` style. For example:

```
p.BodyPara {
  font-family: "Times New Roman", Times, serif;
  font-style: normal;
  font-size: 11pt;
  color: black;
  margin-left: 0.5in;
```

```
}
```

For more information about using HTML styles with DOM objects, see “Modify Styles in an HTML Template” on page 13-104.

Apply a Style to a Paragraph Object

Apply a template style to a `Paragraph` object either as the second argument in a `Paragraph` object constructor or by setting the `StyleName` property to a template style. For example, suppose you have defined styles named `BodyPara` and `TableTitle` in the template for your report. This example specifies a style name in a `Paragraph` constructor and in a `Paragraph` object `StyleName` format property, using the `TableTitle` style defined in `MyTemplate`.

```
import mlreportgen.dom.*;
rank = 5;
rpt = Document('MyReport','html','MyTemplate');

p = Paragraph('Here is a magic square or rank 5:','BodyPara');
append(rpt,p);

p = Paragraph(sprintf('Rank %d MagicSquare',rank));
p.StyleName = 'TableTitle';
append(rpt,magic(rank));

close(rpt);
rptview(rpt.OutputPath);
```

Override Template Formats

You can use programmatic formats to override the paragraph formats defined in a template-based paragraph style. For example, suppose you define a paragraph style named `BodyPara` in your Word template and set the `KeepWithNext` property to off. You can override the style in your report program to keep a particular paragraph on the same page with the next paragraph. For example:

```
import mlreportgen.dom.*;
rpt = Document('MyReport','docx','MyTemplate');

p = Paragraph('Keep this body paragraph with next.','BodyPara');
p.Style = {'KeepWithNext'};
append(rpt,p);

p = Paragraph('Next paragraph.');
```

```
append(rpt, p);

close(rpt);
rptview(rpt.OutputPath);
```

See Also

Classes

`mlreportgen.dom.Bold` | `mlreportgen.dom.FontFamily` | `mlreportgen.dom.FontSize` | `mlreportgen.dom.Italic` | `mlreportgen.dom.KeepLinesTogether` | `mlreportgen.dom.KeepWithNext` | `mlreportgen.dom.LineSpacing` | `mlreportgen.dom.PageBreakBefore` | `mlreportgen.dom.Paragraph` | `mlreportgen.dom.Strike` | `mlreportgen.dom.Text` | `mlreportgen.dom.Underline`

Related Examples

- “Add Content to a Report” on page 13-11

More About

- “Report Formatting Approaches” on page 13-20

Create and Format Lists

In this section...

You can add two kinds of lists to a report:

- Unordered (bulleted)
- Ordered (numbered)
- Multilevel (lists that contain ordered or unordered lists in any combination)

Create an Unordered List

You can create an unordered list from a numeric or cell array or from scratch.

- Creating a list from a cell array allows you to include items of different types in the list.
- Creating a list from scratch is useful for including multiple objects in a list item.

Create an Unordered List from an Array

You can create an unordered list by appending a one-dimensional numeric or cell array to a document (or document part). The `append` function converts the array to an `mlreportgen.dom.UnorderedList` object, appends the object to the document, and returns the object, which you can then format. In the cell array, you can include strings, numbers, and some DOM objects, such as a `Text` object. For a list of DOM objects you can include, see `mlreportgen.dom.ListItem`.

```
import mlreportgen.dom.*;
d = Document('myListReport','html');

t = Text('third item');
append(d,{'first item',6,t,'fourth item'});
```

```
close(d);
rptview('myListReport','html');
```

You can also create an unordered list from an array by including the array in an `UnorderedList` object constructor.

```
import mlreportgen.dom.*;
d = Document('unorderedListReport','html');

ul = UnorderedList({Text('item1'),'item 2',3});
append(d,ul);

close(d);
rptview('unorderedListReport','html');
```

Create an Unordered List from Scratch

You can create an unordered list from scratch by creating `mlreportgen.dom.ListItem` objects and appending them to an `UnorderedList` object.

```
import mlreportgen.dom.*;
d = Document('unorderedListReport','html');

li1 = ListItem('Rank 3 magic square:');
table = append(li1,Table(magic(3)));
table.Border = 'inset';
table.Width = '1in';
li2 = ListItem('second item');
li3 = ListItem('third item');

ul = UnorderedList();
append(ul,li1);
append(ul,li2);
append(ul,li3);

append(d,ul);

close(d);
rptview('unorderedListReport','html');
```

Create an Ordered List

You can create an ordered list from a numeric or cell array or from scratch.

- Creating an ordered list from a cell array allows you to include items of different types in the list.
- Creating a list from scratch is useful for including multiple objects in a list item.

Create an Ordered List from an Array

You can create an unordered list from a numeric array or cell array by including the array in an `mlreportgen.dom.OrderedList` object constructor. In the cell array, you can include strings, numbers, and some DOM objects, such as a `Text` object. For a list of DOM objects you can include, see `mlreportgen.dom.ListItem`.

```
import mlreportgen.dom.*;
d = Document('orderedListReport','html');

t = Text('step 1');
ol = OrderedList({t,'step 2','step 3'});
append(d,ol);

close(d);
rptview('orderedListReport','html');
```

Create an Ordered List from Scratch

You can create an unordered list from scratch by creating `mlreportgen.dom.ListItem` objects and appending them to an `OrderedList` object.

```
import mlreportgen.dom.*;
d = Document('orderedListReport','html');

li1 = ListItem('Create a rank 3 magic square:');
p = append(li1,Paragraph('>> magic(3)'));
p.FontFamilyName = 'Courier New';
li2 = ListItem('step 2');
li3 = ListItem('step 3');

ol = OrderedList();
append(ol,li1);
append(ol,li2);
append(ol,li3);

append(d,ol);

close(d);
rptview('orderedListReport','html');
```

Create a Multilevel List

A multilevel list is an ordered or unordered list whose list items contain ordered or unordered lists. You can create lists that have as many as nine levels.

You can create multilevel lists either from cell arrays or from scratch. Creating a multilevel list from scratch is useful for creating list items that contain multiple paragraphs, paragraphs and tables, and other combinations of document elements.

Create a Multilevel List from a Cell Array

You can use any of these approaches to create a multilevel list from a cell array.

- Nest one-dimensional cell arrays representing sublists in a one-dimension cell array representing the parent list.

```
import mlreportgen.dom.*;
d = Document('orderedListReport','html');

ol = OrderedList({'step 1','step 2',...
     {'option 1','option 2'},...
     'step 3'});
append(d,ol);

close(d);
rptview('orderedListReport','html');
```

- Include list objects as members of a one-dimensional cell array representing the parent list. Use this approach to create ordered sublists from cell arrays.

```
d = Document('myListReport','html');

append(d,{'first item',OrderedList({'step 1','step 2'}),'second item'});

close(d);
rptview('myListReport','html');
```

- Combine the nested cell array and nested list object approaches.

Create a Multilevel List from Scratch

You can create a multilevel list from scratch by appending child lists to parent lists.

```
import mlreportgen.dom.*;
```

```
d = Document('orderedListReport','html');

ol = OrderedList({'Start MATLAB', ...
     'Create a rank 3 or 4 magic square:'});
optionList = UnorderedList;
li = ListItem('>> magic(3)');
table = append(li,Table(magic(3)));
table.Width = '1in';
append(optionList, li);
li = ListItem('>> magic(4)');
table = append(li,Table(magic(4)));
table.Width = '1in';
append(optionList,li);
append(ol, optionList);
append(ol, ListItem('Close MATLAB'));,
append(d,ol);
close(d);
rptview('orderedListReport','html');
```

Format Lists

You can use list styles defined in a report style sheet to specify the indentation of each level of a list and the type of bullet or the number format used to render list items. To use a template-defined list style to format a list, set the `StyleName` property of the list to the name of the style. For example:

```
import mlreportgen.dom.*;
d = Document('myListReport','html','MyTemplate');

list = append(d,{'first item',...
    OrderedList({'step 1','step 2'}),'second item'});
list.StyleName = 'MyListStyle';

close(d);
rptview('myListReport','html');
```

Note: A list style determines how list items are rendered regardless of the list type. If you do not specify a list style, the DOM API uses a default list style that renders the list according to type. For example, the default list style for unordered lists uses bullets to render list items. If you specify a list style for an `UnorderedList` object that numbers top-level items, the top-level items are numbered, even though the object type is unordered (bulleted).

Create a Word List Style

To define a list style in a Word template, select `List` as the style type in the Create New Style from Formatting dialog box (see "Add Styles to a Word Template" on page 13-97).

Create an HTML List Style

To define a list style in an HTML template cascading style sheet (CSS), use the `ul` element for unordered list styles and the `ol` element for ordered list styles. You can use the parent element selector (>) to define multilevel list styles. For example, this CSS code defines the appearance of a two-level unordered list that can contain ordered or unordered sublists.

```
ul.MyUnorderedList {
 list-style-type:disc;
}

ul.MyUnorderedList > ul {
 list-style-type:circle;
}

ul.MyUnorderedList > ol {
 list-style-type:decimal;
}
```

For information about editing a cascading style sheet (CSS), see documentation such as the W3Schools.com CSS tutorial.

See Also

Classes

`mlreportgen.dom.ListItem` | `mlreportgen.dom.OrderedList` | `mlreportgen.dom.UnorderedList`

Functions

`mlreportgen.dom.OrderedList.append`

Related Examples

- "Use Style Sheets" on page 13-21

Create and Format Tables

In this section...

Two Types of Tables

You can use the DOM API to create two types of tables that differ in structure.

- An informal table (i.e., a table) consists of rows that contain table entries.
- A formal table contains a header, a body, and a footer section. Each section contains rows that contain table entries.

Informal tables are useful for most of your reporting needs. Use formal tables for tables whose headers or footers contain multiple rows.

For details about informal tables, see:

- "Create a Table from a Two-Dimensional Array" on page 13-57
- "Create a Table Using the Table entry Function" on page 13-57
- "Create a Table from Scratch" on page 13-58
- "Format a Table" on page 13-59

For details about formal tables, see:

- "Create a Formal Table" on page 13-64
- "Format a Formal Table" on page 13-64

Create a Table from a Two-Dimensional Array

You can create a table by appending a two-dimensional numeric array or a cell array containing built-in MATLAB data (strings and numbers) and DOM objects (`Text`, `Table`, `Image`, etc.) to a document. The `append` function converts the array to a `Table` object, appends it to the document, and returns the `Table` object, which you can then format. You can also create a `Table` object directly by including a two-dimensional array in its constructor.

This example shows how to create a table from a numeric array and another table from a cell array of various object types. The cell array contains a magic square, which is rendered as an inner table. The cell array also includes a `Text` object constructor that uses the `AlertLevel` template style.

```
import mlreportgen.dom.*;
doc = Document('test');

table1 = append(doc,magic(5));
table1.Border = 'single';
table1.ColSep = 'single';
table1.RowSep = 'single';

ca = {'text entry',Paragraph('a paragraph entry'); ...
       Text('Danger!','AlertLevel'),magic(4)};
table2 = Table(ca);
append(doc,table2);

close(doc);
rptview(doc.OutputPath);
```

Create a Table Using the Table entry Function

You can use the `entry` function with a `Table` object to add content to a table entry or to format an entry. This approach is useful when you need to format table entries individually. For example:

```
import mlreportgen.dom.*;
doc = Document('test');

a = magic(5);
[v,i] = max(a);
[v1,i1] = max(max(a));
```

```
table = Table(a);

text = table.entry(i(i1),i1).Children(1);
text.Color = 'red';
append(doc,table);

close(doc);
rptview(doc.OutputPath);
```

Create a Table from Scratch

You can create a table from scratch by creating `TableEntry` objects, appending them to `TableRow` objects, and appending the `TableRow` objects to a `Table` object. This approach is useful when you need to create table entries that span multiple columns or rows that have a different number of entries. This example shows how to create a table with four columns and two rows. In the first table row, the second entry spans the second and third columns.

```
import mlreportgen.dom.*;
doc = Document('test');

table = Table(4);
table.Border = 'single';
table.ColSep = 'single';
table.RowSep = 'single';

row = TableRow;
append(row, TableEntry('entry 11'));
te = TableEntry('entry 12-13');
te.ColSpan = 2;
te.Border = 'single';
append(row, te);
append(row, TableEntry('entry 14'));
append(table,row);

row = TableRow;
for c = 1:4
  append(row, TableEntry(sprintf('entry 2%i', c)));
end
append(table,row);

append(doc,table);
```

```
close(doc);
rptview(doc.OutputPath);
```

Format a Table

You can format a table programmatically, using DOM format objects or format properties. You can also use Word and HTML template styles. For information about these formatting techniques and format inheritance, see “Report Formatting Approaches” on page 13-20.

Format a Table Programmatically

You can use format objects to format tables or use `Table` format properties to specify commonly used table formats. This example uses:

- `Border`, `ColSep`, and `RowSep` format objects to specify a red table border and the green column and row separators
- The `Width` format property to specify the table width

```
import mlreportgen.dom.*;
doc = Document('test','html');

table = Table(magic(5));
table.Style = {Border('inset','red','3px'), ...
               ColSep('single','green','1px'), ...
               RowSep('single','green','1px')};

table.Width = '50%';

append(doc, table);

close(doc);
rptview(doc.OutputPath);
```

Use these format objects and format properties to format a table.

Formatting	Format Object	Format Property
Width of table	`Width`	`Width`
Color of table background	`BackgroundColor`	`BackgroundColor`
Create border around table	`Border`	`Border`

Formatting	Format Object	Format Property
Color of border	`Border`	`BorderColor`
Thickness of border	`Border`	`BorderWidth`
Create left, right, top, or bottom table border	`Border`	n/a
Collapse table and table entry borders (HTML)	`BorderCollapse`	`BorderCollapse`
Create column separator	`ColSep`	`ColSep`
Column separator color	`ColSep`	`ColSepColor`
Column separator thickness	`ColSep`	`ColSepWidth`
Create row separator	`RowSep`	`RowSep`
Row separator color	`RowSep`	`RowSepColor`
Row separator thickness	`RowSep`	`RowSepWidth`
Indent table from left margin	`OuterMargin`	`OuterLeftMargin`
Space before or after table	`OuterMargin`	n/a
Space to right of table	`OuterMargin`	n/a
Align table left, right, or center	`HAlign`	`HAlign`
Specify table entry flow direction (left-to-right or right-to-left)	`FlowDirection`	`FlowDirection`
Resize table columns to fit contents	`ResizeToFitContents`	n/a

Format Table Entries

A `Table` object has properties that allow you to specify the same format or set of formats for all of its entries.

Formatting	Table Object Property
Align entries vertically (top, middle, bottom)	`TableEntriesValign`

Formatting	Table Object Property
Align entries horizontally (left, right, center)	`TableEntriesValign`
Create space (padding) between entry boundary and content	`TableEntriesInnerMargin`
Apply a set of format objects to all table entries	`TableEntriesStyle`

Keep a Table and Its Title on the Same Page

Use the `KeepLinesTogether` and `KeepWithNext` paragraph formats to keep a table title and the table together on the same page. This example creates a table title, creates table content, and makes the table header row bold, using table entry indexing. To keep the table on the same page, the code specifies `KeepLinesTogether` and `KeepWithNext` for all rows except the last row. The last row has only `KeepLinesTogether` set and not `KeepWithNext`. This prevents the table from being forced to stay with the paragraph that follows.

```
import mlreportgen.dom.*
rpt = Document('test','docx');

p = Paragraph('Table 1');
p.Style = {Bold,KeepLinesTogether,KeepWithNext};
append(rpt, p);

ca = {Paragraph('Col 1'),Paragraph('Col 2'); ...
      Paragraph('data 11'),Paragraph('Data 12'); ...
      Paragraph('data 21'),Paragraph('Data 22')};

ca{1,1}.Children(1).Bold = true;
ca{1,2}.Children(1).Bold = true;

for r = 1:2
    for c = 1:2
        ca{r, c}.Style = {KeepLinesTogether,KeepWithNext};
    end
end

for c = 1:2
    ca{3, c}.Style = {KeepLinesTogether};
end
```

```
 append(rpt, ca);

close(rpt);
rptview(rpt.OutputPath);
```

Format a Table Using Microsoft Word Style Sheets

You can format tables using an existing Word styles in a template or a template style that you modify or add.

To define a table style in a Word template, start by using these steps.

1. Open the Word template used with the report.
2. Open the **Styles** pane.
3. Click the **Manage Styles** button  .
4. Click **New Style**.
5. In the Create New Style from Formatting dialog box, set **Style type** to `Table`.

For more information about using Word styles with DOM objects, see “Modify Styles in a Microsoft Word Template” on page 13-96.

Format a Table Using an HTML Style Sheet

You can format tables using an HTML style defined in the template used to generate the report.

To define a table style in an HTML template, define the style as a `table` style. For example:

```
table.MyTable {
  border-bottom-color: rgb(128, 128, 128);
  border-bottom-width: thin;
  border-collapse: collapse;
}
```

Tip Use the CSS parent selector (>) to specify the format of the children of a table to be formatted with your table style. For example, this CSS code specifies the format of the table entries (`td` elements) of a table whose style is `MyTable`.

```
table.MyTable > tr > td {
```

```
  font-family: Arial, Helvetica, sans-serif;
  font-size: 11pt;
  text-align: center;
}
```

Apply a Table Style to a Table

Once you have defined a table style in a template, you can apply it to a `Table` object in your report program either as the second argument in the `Table` object constructor or by setting it to the `StyleName` property of the `Table` object. For example, suppose you have defined styles named `BodyPara`, `TableTitle`, and `RuledTable` in the template for your report. This example specifies style names in a `Paragraph` constructor, in the `StyleName` property of a Paragraph object, and in a `Table` constructor.

```
import mlreportgen.dom.*;
rank = 5;
rpt = Document('MyReport','html','MyTemplate');

p = Paragraph('Here is a magic square or rank 5:','BodyPara');
append(rpt,p);

p = Paragraph(sprintf('Rank %d MagicSquare',rank));
p.StyleName = 'TableTitle';

append(rpt,Table(magic(rank),'RuledTable'));

close(rpt);
rptview(rpt.OutputPath);
```

You can use programmatic formats to override the styles defined in a template-based table style. For example, suppose you define a table style named `UnruledTable` in your template to create tables without any borders or column or row separators. You can then override the style in your report program to draw a frame around a table.

```
import mlreportgen.dom.*;
rpt = Document('MyReport','html','MyTemplate');

table = Table(magic(5),'UnruledTable');
table.Border = 'single';
append(rpt,table);

close(rpt);
rptview(rpt.OutputPath);
```

Create a Formal Table

To create a formal table, use the same basic approaches as with an informal table, except that you must use an `mlreportgen.domlFormalTable` constructor to construct a formal table. The constructor optionally accepts a two-dimensional numeric array or a cell array of MATLAB data for the body, header, and footer sections.

If you choose to build a formal table completely or partially from scratch, you can use the `FormalTable` object functions `appendHeaderRow` and `appendBodyRow` to append rows to the table header and footer sections. The `FormalTable.append` function appends a row to the body section. Alternatively, you can access a section using the `Header`, `Body`, or `Footer` properties of the `FormalTable` object.

```
import mlreportgen.dom.*
d = Document('test');

t = FormalTable({'a','b';'c','d'});

r = TableRow();
append(r,TableEntry('Column 1'));
append(r,TableEntry('Column 2'));
append(t.Header,r);

append(d,t);

close(d);
rptview(d.OutputPath);
```

Format a Formal Table

You can format a formal table programmatically, using DOM format objects or format properties. You can also use Word and HTML template styles. For information about these formatting techniques and format inheritance, see “Report Formatting Approaches” on page 13-20.

Format a Formal Table Programmatically

You can format a formal table programmatically the same way you format an informal table. The format objects and properties that apply to an informal table also apply to formal tables. In addition, you can format the header, body, and footer sections of an informal table programmatically. If you specify a format for the table and one of its sections, the value you specify for the section overrides the value you specify for the table

as a whole. Not all formal table formats apply to formal table sections. For example, you cannot indent a header, body, or footer section independently of the containing table. In other words, the `OuterLeftMargin` property does not apply to formal table sections.

Apply Table Styles to a Formal Table and Its Sections

Use the same procedure for defining formal table styles in Word and HTML templates as you use for defining informal table styles.

You can apply a table style to a formal table and to each of its sections. If you apply a table style to the table itself and to one of its section (for example, the header), the section style overrides the table style.

Note: If you apply a table style to one or more sections of a Word formal table, you must specify the widths of each of the table columns. Otherwise, the columns of the sections may not line up.

Create and Format Table Rows

If you need to build a table from scratch, you can use the `TableRow` constructor to create the rows. Format the rows and then append the rows to a table that you are building.

Create a Table Row

The `mlreportgen.dom.TableRow` constructor takes no arguments and returns a `TableRow` object. You can then create and append `TableEntry` objects to the object to complete the row construction. Once you construct the row, you can add the row to the table, using the `append` function. This example creates a two-column table with two rows.

```
import mlreportgen.dom.*
rpt = Document('test');

table = Table(2);

row = TableRow();
append(row,TableEntry('Col1'));
append(row,TableEntry('Col2'));
append(table,row);
```

```
row = TableRow();
append(row,TableEntry('data11'));
append(row,TableEntry('data12'));
append(table,row);

append(rpt,table);

close(rpt);
rptview(rpt.OutputPath);
```

Specify the Format of a Table Row

Use these format objects and format properties to format a table row.

Row Height Formatting	Format Object	Format Property
Specify the exact height of a row	`RowHeight`	`Height`
Specify the minimum height of row (Word only)	`RowHeight`	n/a
Cause this row to repeat as header row when a table flows across pages	`RepeatAsHeaderRow`	n/a
Allow this row to straddle a page boundary	`AllowBreakAcrossPages`	n/a

Format Table Columns

To format table columns, you can use `mlreportgen.dom.TableColSpecGroup` objects, either alone or with `mlreportgen.dom.TableColSpecGroup` objects. Use a `TableColSpecGroup` object to specify the format of a group of adjacent table columns. Use a `TableColSpec` object to override, for some table columns, some or all of the formats of a column group. In this example, the `TableColSpecGroup` property specifies a column width of 0.2 inches and green text. The `TableColSpec` overrides those formats for the first column, specifying a width of 0.5 inches and bold, red text.

```
import mlreportgen.dom.*
rpt = Document('test');

rank = 5;
table = Table(magic(rank));
```

```
table.Border = 'single';
table.BorderWidth = '1px';

grps(1) = TableColSpecGroup;
grps(1).Span = rank;
grps(1).Style = {Width('0.2in'),Color('green')};

specs(1) = TableColSpec;
specs(1).Span = 1;
specs(1).Style = {Width('0.5in'),Bold,Color('red')};

grps(1).ColSpecs = specs;

table.ColSpecGroups = grps;
append(rpt,table);

close(rpt);
rptview('test','html');
```

Create and Format Table Entries

If you need to build a table from scratch, you can use the `mlreportgen.dom.TableEntry` constructor to create table entries. You can then format the table entries and add them to table rows, which you can then add to the table you are building. If you need to format entries in a table that you have created from a cell array, you can use the `TableEntry` or `TableRow` function `entry` to gain access to an entry, which you can then format.

Create a Table Entry

Use a `TableEntry` constructor to create a table entry. You can optionally use the constructor to specify these kinds of entry content:

- Char array
- Any of these kinds of DOM objects:
  - `Paragraph`
  - `Text`
  - `Image`
  - `Table`
  - `OrderedList`

- `UnorderedList`
- `CustomElement`

Format Table Entries Programmatically

You can use format objects or `TableEntry` format properties to format a table entry programmatically.

Formatting	Format Object	Format Property
Create border around entry	`Border`	`Border`
Color of border	`Border`	`BorderColor`
Thickness of border	`Border`	`BorderWidth`
Create left, right, top, or bottom entry border	`Border`	n/a
Align entry content top, bottom, middle	`VAlign`	`VAlign`
Space between entry boundary and entry content	`InnerMargin`	`InnerMargin`
Space between entry content and its top, bottom, right, or left boundaries	`InnerMargin`	n/a
Cause entry to span multiple columns	`ColSpan`	`ColSpan`
Cause entry to span multiple rows	`RowSpan`	`RowSpan`

Format Table Entries Using Style Sheets

For HTML reports, you can use styles defined in an HTML template style sheet to format table entries. When defining a table entry style, use a `td` element selector. For example:

```
td.TableEntryWithBorder {
  border:5px solid red;
}
```

To apply a template-defined style to a table entry, set the `TableEntry` object `StyleName` property to the name of the style or specify the style name as the second argument to the `TableEntry` constructor. For example:

```
te = TableEntry('Hello World','TableEntryWithBorder');
```

See Also

Classes

`mlreportgen.dom.AllowBreakAcrossPages` | `mlreportgen.dom.ColSep` | `mlreportgen.dom.FlowDirection` | `mlreportgen.dom.FormalTable` | `mlreportgen.dom.RepeatAsHeaderRow` | `mlreportgen.dom.ResizeToFitContents` | `mlreportgen.dom.RowHeight` | `mlreportgen.dom.RowSep` | `mlreportgen.dom.Table` | `mlreportgen.dom.TableBody` | `mlreportgen.dom.TableColSpec` | `mlreportgen.dom.TableColSpecGroup` | `mlreportgen.dom.TableEntry` | `mlreportgen.dom.TableFooter` | `mlreportgen.dom.TableHeader` | `mlreportgen.dom.TableHeaderEntry` | `mlreportgen.dom.TableRow`

Functions

`mlreportgen.dom.FormalTable.appendFooterRow` | `mlreportgen.dom.FormalTable.appendHeaderRow` | `mlreportgen.dom.TableRow.append`

Related Examples

- “Add Content to a Report” on page 13-11

More About

- “Report Formatting Approaches” on page 13-20

Create Links

In this section...

Links

You can add these kinds of links to a report:

- External — Link to a location outside of the report, such as an HTML page or a PDF file. Use an `mlreportgen.dom.ExternalLink` object.
- Internal — Link to locations in the report. Use an `mlreportgen.dom.InternalLink` object.

Create a Link Target

To specify the link target for an `InternalLink` object, use value in the `Name` property of an `mlreportgen.dom.LinkTarget` object. When you construct an `ExternalLink` object, you can use an `LinkTarget` object `Name` value or a URL.

This example creates a link target called `home`, and uses `home` as the target for an internal link.

```
import mlreportgen.dom.*
d = Document('mydoc');

append(d,LinkTarget('home'));
append(d,InternalLink('home','Go to Top'));

close(d);
rptview('mydoc', 'html');
```

Create an External Link

Use an `mlreportgen.dom.ExternalLink` object to create an external link, specifying the link target and the link text.

```
import mlreportgen.dom.*
d = Document('mydoc');

append(d,ExternalLink('http://www.mathworks.com/','MathWorks'));

close(d);
rptview('mydoc','html');
```

Create an Internal Link

To set up links to a location in a report, append an `mlreportgen.dom.InternalLink` object to the document or document element. Use an `mlreportgen.dom.LinkTarget` object with the document element to link to. For example, you can include an `About the Author` link to a section that has the heading `Author's Biography`.

```
import mlreportgen.dom.*
d = Document('mydoc');

append(d,InternalLink('bio','About the Author'));
h = Heading(1,LinkTarget('bio'));
append(h,'Author''s Biography');
append(d,h);

close(d);
rptview('mydoc','html');
```

See Also

`mlreportgen.dom.ExternalLink` | `mlreportgen.dom.InternalLink` | `mlreportgen.dom.LinkTarget`

Related Examples

- “Create Image Maps” on page 13-81
- “Add Content to a Report” on page 13-11

More About

- “Report Formatting Approaches” on page 13-20

Create and Format Images

In this section...

Create an Image

To create an image to a report, create an `mlreportgen.dom.Image` object. You can append it to one of these document element objects:

- `Document`
- `Group`
- `Paragraph`
- `ListItem`
- `TableEntry`

For example, you can create a MATLAB figure, save it as an image, and add the image to a report.

```
import mlreportgen.dom.*
d = Document('imageArea','html');

p = Paragraph('Plot 1');
p.Bold = true;
append(d,p);

x = 0:pi/100:2*pi;
y = sin(x);
plot(x,y);

saveas(gcf,'myPlot_img.png');

plot1 = Image('myPlot_img.png');
append(d,plot1);
```

```
close(d);
rptview(d.OutputPath);
```

For a list of supported image formats, see `mlreportgen.dom.Image`.

Resize an Image

To resize an image object, you can:

- Set the `Image.Height` and `Image.Width` properties.
- Use an `mlreportgen.dom.Height` or `mlreportgen.dom.Width` object in an `Image.Style` property definition.

For Microsoft Word reports, you can use an `mlreportgen.dom.ScaleToFit` object to scale an image so that it fits within the page margins.

Image Storage

Keep the original file until it has been copied into the document. The DOM API copies the contents of the source image file into the output document either when you append the `Image` object to the document (if you set the `Document.StreamOutput` property to `true`) or when you close the document.

Links from an Image

You can specify an area in an image to be a link. Clicking a link area in an image in an HTML browser opens the link. For details, see “Create Image Maps” on page 13-81.

See Also

`mlreportgen.dom.Height` | `mlreportgen.dom.Image` | `mlreportgen.dom.ScaleToFit` | `mlreportgen.dom.Width`

Related Examples

- “Add Content to a Report” on page 13-11

More About

- “Report Formatting Approaches” on page 13-20

Create a Table of Contents

In this section...

Create a Microsoft Word Table of Contents

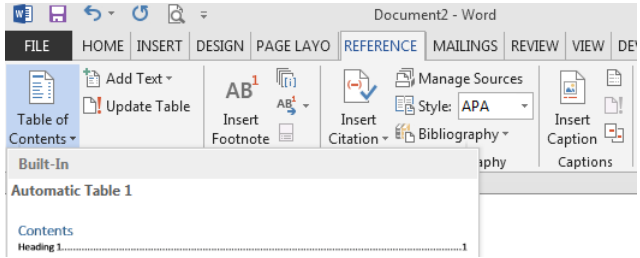
The DOM API relies on an automatic table-of-contents (TOC) generation feature of Word to generate a table of contents in a DOM Word report. With the Word TOC generation feature, you create an item called a TOC reference in a Word document where you want a TOC to appear. You create and set the outline line level of the paragraphs (typically section heads) that you want to include in the generated TOC. Finally, you have Word update the TOC to include the content of the paragraphs at the indicated outline level.

You use a very similar procedure for Word reports you create using the DOM API, except that you create the section heads programmatically instead of interactively. To generate a table of contents in a DOM Word report, perform these steps.

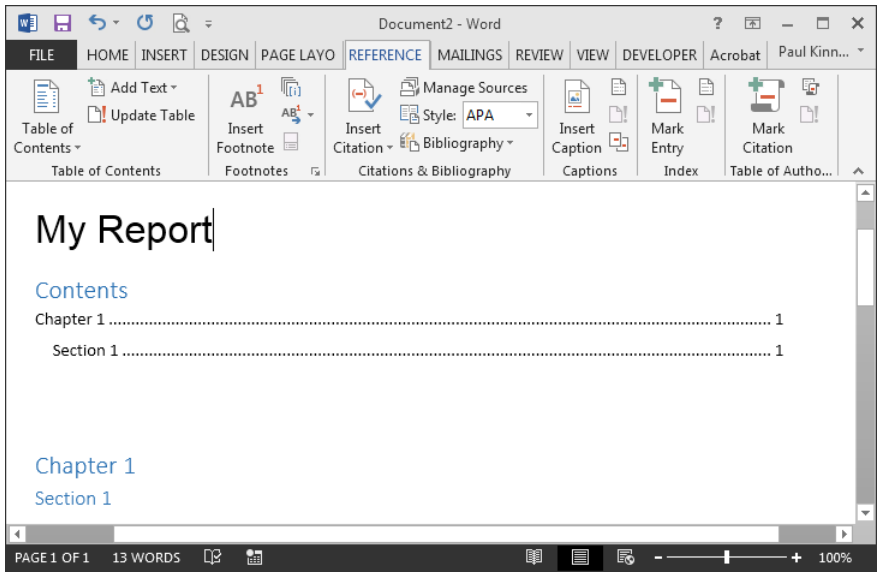
1. Create a table of contents reference in the Word template to specify where in the report to generate the TOC. See “Create a Word Table of Contents Reference” on page 13-74.
2. Set the outline levels of the section heads that you want to appear in the table of contents. See “Set Outline Levels of Section Heads” on page 13-78.
3. Update the generated document. See “Update the TOC in a Word Report” on page 13-75.

Create a Word Table of Contents Reference

1. Open the template in Word.
2. Click where you want to create the table of contents.
3. In the Word ribbon, select the **References** pane.
4. Select the **Table of Contents** button.



5 Select a TOC format option to generate a table of contents. For example, select the **Built-In** format option. The TOC appears.



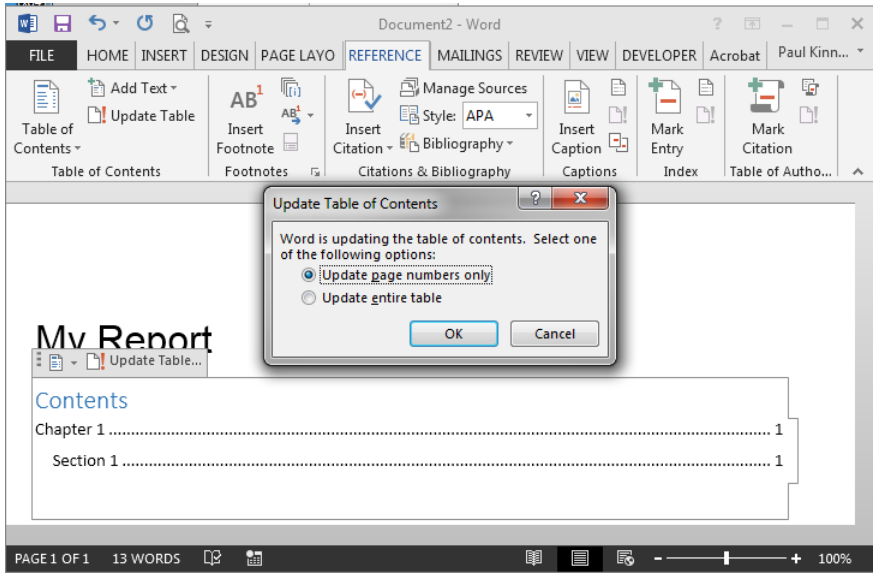
6 Save the template.

Update the TOC in a Word Report

After you generate a Word report with the DOM API, open the report in Word and update the document. Updating a document refers to the process of updating the parts of a Word document that Word itself generates, such as a TOC, page numbers, and so on, to reflect changes in the document content. The DOM `rptview` function causes Word to update a report after opening it. If you use `rptview` to display your document in Word, you do not need to do anything else to generate a TOC in your report.

However, if you open a newly generated report yourself in Word, without first using `rptview`, perform these steps to get the TOC to appear.

1. In the Word template, select the TOC reference.
2. Open the **Reference** pane and click the **Update Table** button.
3. In the Update Table of Contents dialog box, select **Update entire table** and click **OK**.



4. Save the report.

Create an HTML Table of Contents

The DOM API provides a JavaScript script that you can include in an HTML report to generate a table of contents when you open the report in an HTML browser. To use this script to generate a TOC in an HTML report, perform these steps.

1. Create an HTML TOC placeholder element in the template. See “Create an HTML TOC Placeholder” on page 13-77
2. Set the outline levels of the section heads that you want to appear in the table of contents. See “Set Outline Levels of Section Heads” on page 13-78.
3. Open the generated report in a browser.

Create an HTML TOC Placeholder

An HTML TOC placeholder element is an HTML `div` element with an `id` attribute set to `toc`.

```
<div id="toc"/>
```

You can create a TOC placeholder in any of the following ways.

- "Use a Template That Contains a Placeholder" on page 13-77
- "Insert a Placeholder Programmatically Using a Custom Element" on page 13-77
- "Insert a Placeholder Programmatically Using a Document Part" on page 13-78

Use a Template That Contains a Placeholder

1. Create a copy of the DOM default HTML template.
2. Unzip the template using the `unzipTemplate` command.
3. In a text or HTML editor, open the template main document (typically named `root.html`).
4. In the root document, in the report location you want the TOC to appear, insert the following HTML markup:

   ```
   <div id="toc"></div>
   ```
5. Save the main document.
6. Zip the template, using the `unzipTemplate` command.
7. Set the outline levels of the section heads that you want to appear in the table of contents. See "Set Outline Levels of Section Heads" on page 13-78 .
8. Use the template to generate the report.

Next,

Insert a Placeholder Programmatically Using a Custom Element

If you use the DOM default HTML template (or a template based on the default template), you can create a placeholder programmatically in your report. For example:

```
import mlreportgen.dom.*;
d = Document('MyReport','html');
append(d,'My Report');
```

```
toc = CustomElement('div');
toc.CustomAttributes = {CustomAttribute('id', 'toc')};
append(toc, CustomText()); % Workaround for browser bug
append(d, toc);

append(d, Heading(1, 'Chapter 1'));
append(d, Heading(2, 'Section 1'));

close(d);
rptview(d.OutputPath);
```

Insert a Placeholder Programmatically Using a Document Part

The document part template library of the DOM default template contains a document part for creating a TOC placeholder. If you use this template or a template based on it, you can use the document part to insert a TOC placeholder in your report. For example:

```
import mlreportgen.dom.*;
d = Document('MyReport','html');
append(d,'My Report');

append(d, DocumentPart(d,'ReportTOC'));
append(d, Heading(1,'Chapter 1'));
append(d, Heading(2,'Section 1'));

close(d);
rptview(d.OutputPath);
```

Set Outline Levels of Section Heads

To generate a table of contents in a Word or HTML report, your program must set the outline levels of the section heads that you want to appear in the table. An outline level is a paragraph format property that specifies whether and at what level a paragraph's contents appear in a table of contents. For example, if a paragraph has an outline level of 1, its content appears at the top level of the generated table of contents. You can use up to nine distinct outline levels.

To set the outline level of paragraphs, use one of these approaches.

- "Use Template-Defined Styles to Set Outline Levels" on page 13-79
- "Use Format Objects to Set Outline Levels" on page 13-79
- "Use Heading Objects to Set Outline Levels" on page 13-79

Use Template-Defined Styles to Set Outline Levels

You can use styles defined in the report's template to set the outline level of a paragraph. For example, by default Word documents include a set of styles, `Heading 1`, `Heading 2`, and so on, that define outline levels for paragraphs you want to appear in a TOC. Your program can use these built-in styles to specify that paragraphs that serve as section heads appear in the TOC. The following example illustrates the use of template-defined styles to set the outline levels of section heads. This example assumes that the template `MyTemplate` includes a TOC reference.

```
import mlreportgen.dom.*;
d = Document('MyReport','docx','MyTemplate');

append(d, Paragraph('Chapter 1','Heading 1'));
append(d, Paragraph('Section 1','Heading 2'));

close(d);
rptview(d.OutputPath); % Updates the TOC
```

You can also use Word or an HTML editor to define your own heading styles and then use them to generate a report.

Use Format Objects to Set Outline Levels

You can use format objects to set outline levels. This example assumes that the template `MyTemplate` includes a TOC reference.

```
import mlreportgen.dom.*;
d = Document('MyReport','docx','MyTemplate');

h1 = {FontFamily('Arial'),FontSize('16pt'),OutlineLevel(1)};
h2 = {FontFamily('Arial'),FontSize('14pt'),OutlineLevel(2)};
p = append(d,Paragraph('Chapter 1'));
p.style = h1;
p = append(d, Paragraph('Section 1'));
p.style = h2;

close(d);
rptview(d.OutputPath); % Updates the TOC
```

Use Heading Objects to Set Outline Levels

You can use `mlreportgen.dom.Heading` objects to specify outline levels. A `Heading` object is a paragraph whose constructor specifies its outline level. You can use a `Heading`

object alone or in combination with template-based styles or format object-based styles. This example assumes that the template `MyTemplate` includes a TOC reference.

```
import mlreportgen.dom.*;
d = Document('MyReport','docx','MyTemplate');

h1 = {FontFamily('Arial'),FontSize('16pt')};
h2 = {FontFamily('Arial'),FontSize('14pt')};
h = append(d, Heading(1,'Chapter 1'));
h.style = h1;
h = append(d, Heading(2,'Section 1'));
p.style = h2;

close(d);
rptview(d.OutputPath); % Updates the TOC
```

The `Heading` objects generate HTML `h1`, `h2` (and so on) elements. By using `Heading` objects in an HTML report, you can ensure that your report uses the default styles for headings implemented by the browser in which you display the report.

See Also

Functions

`rptview` | `unzipTemplate` | `zipTemplate`

Classes

`mlreportgen.dom.Heading`

Related Examples

- “Create a Microsoft Word Template” on page 13-92
- “Create an HTML Template” on page 13-101

Create Image Maps

You can specify areas of an image to be links. Clicking the link area in an image in an HTML browser opens the target. You can map different areas in an image to different link targets.

1. Create an `mlreportgen.dom.ImageArea` object for each image area that is to serve as a link. You can specify text to display if the image is not visible.

   You can specify an image area to have one of these shapes:

   - Rectangle
   - Circle
   - Polygon

   For details, see `mlreportgen.dom.ImageArea`.
2. Create an `mlreportgen.dom.ImageMap` object to associate the link areas with the image. Append the `ImageArea` objects to the `ImageMap` object.

For example, you can create a link from a plot image to documentation about plotting.

```
import mlreportgen.dom.*
d = Document('imageArea','html');

x = 0:pi/100:2*pi;
y = sin(x);
plot(x,y);
annotation('textbox',[0.2,0.4,0.1,0.1],...
           'String','Help for plot function');
saveas(gcf,'plot_img.png');

plot1 = Image('plot_img.png');
append(d,plot1);

area1 = ImageArea(...
    ['http://www.mathworks.com/help/matlab/ref/' ...
    'plot.html?searchHighlight=plot'], ...
    'plot function help',240,450,463,492);

map = ImageMap();
plot1.Map = map;
append(map,area1);
```

```
close(d);
rptview(d.OutputPath);
```

See Also

Classes

`mlreportgen.dom.Image` | `mlreportgen.dom.ImageArea` | `mlreportgen.dom.ImageMap`

Functions

Related Examples

- “Add Content to a Report” on page 13-11

More About

- “Report Formatting Approaches” on page 13-20

Automatically Number Document Content

In this section...

You can automatically number document content, such as chapter, section, table, and figure headings. Append automatic numbering objects to the document where you want numbers to appear. Each automatic number is associated with a numbering stream that determines the value of each number in a sequence. Report generation replaces an automatic numbering object with a number based on its position in the document relative to other automatic numbers in the same stream. For example, the first automatic numbering object in a stream can be replaced by 1, the second by 2, and so on. You can use automatic numbering to create hierarchical numbering schemes such as Section 1.1., Section 1.2, and so on.

You can automatically number document content programmatically or by inserting automatic numbering fields in a Word template or numbering properties in an HTML template. For example, you can insert automatic numbering in a template for a document part that is appended repeatedly to a report.

Automatically Number Content Programmatically

To automatically number document content programmatically, do the following at each point in a document where you want an automatically generated number to appear.

1 Create an automatic numbering object, using the `mlreportgen.dom.AutoNumber` constructor. Specify the name of the associated automatic numbering stream in the constructor. For example, this line creates an automatic number belonging to the stream named `chapter`.

```
chapterNumber = AutoNumber('chapter');
```

Note: If the specified automatic numbering stream does not exist, the `AutoNumber` constructor creates a numbering stream having the specified name. The implicitly constructed stream renders automatic numbers as Arabic numerals. To use a stream with different properties, create the stream explicitly, using a `createAutoNumberStream` function of a `Document` object.

---

2. Append the `AutoNumber` to a `Text`, `Paragraph`, or `Heading` object that contains the text that precedes the automatic number.

   ```
   append(chapHead,chapterNumber);
   ```

3. Append an `mlreportgen.dom.CounterInc` format object to the `Style` property of the content object that you want to automatically number. Appending a `CounterInc` object increments the stream associated with the automatic number when the paragraph or heading is output. The updated value replaces the `AutoNumber` object.

   ```
   chapHead.Style = {CounterInc('chapter'), WhiteSpace('preserve')};
   ```

This script automatically numbers the chapter headings in a document.

```
import mlreportgen.dom.*;
d = Document('MyReport','html');

for rank = 3:5
    chapHead = Heading(1,'Chapter ','Heading 1');
    append(chapHead,AutoNumber('chapter'));
    append(chapHead,sprintf('. Rank %i Magic Square',rank));
    chapHead.Style = {CounterInc('chapter'), ...
                      WhiteSpace('preserve')};
    append(d,chapHead);
    table = append(d,magic(rank));
    table.Width = '2in';
end

close(d);
rptview(d.OutputPath);
```

Create Hierarchical Automatic Numbering

You can create hierarchical numbering schemes, such as 1.1, 1.2, 1.3, 2.1, 2.2, and so on. Use an `mlreportgen.dom.CounterReset` format object to reset a child automatic number to its initial value when its parent number changes. For example, this script uses a `CounterReset` format object to reset the chapter table number stream at the beginning of each chapter.

```
import mlreportgen.dom.*;
d = Document('MyReport','html');

for rank = 3:2:9
    chapHead = Heading(1,'Chapter ');
    append(chapHead, AutoNumber('chapter'));
```

```
    chapHead.Style = {CounterInc('chapter'), ...
                      CounterReset('table'), ...
                      WhiteSpace('preserve')};
    append(d,chapHead);

    for i = 0:1;
        tableHead = Paragraph('Table ');
        append(tableHead,AutoNumber('chapter'))
        append(tableHead,'.');
        append(tableHead, AutoNumber('table'));
        append(tableHead, ...
           sprintf('. Rank %i Magic Square',rank+i));
        tableHead.Style = {CounterInc('table'), ...
                           Bold, ...
                           FontSize('11pt'), ...
                           WhiteSpace('preserve')};
        append(d,tableHead);
        table = append(d,magic(rank+i));
        table.Width = '2in';
    end
end

close(d);
rptview(d.OutputPath);
```

Automatically Number Content Using Part Templates

You can automatically number a document by creating document parts based on templates containing Microsoft Word or HTML automatic numbering and repeatedly appending the parts to a document.

For example, suppose that you add a chapter part template `Chapter` to the part template library of the Word `MyReportTemplate.dotx` report template. This template uses a Word sequence (`SEQ`) field to number the chapter heading. The template also contains holes for the chapter title and the chapter content.

This script uses the chapter part template to create numbered chapters. The last statement in this script opens the report in Word and updates it. Updating the report causes Word to replace the `SEQ` fields with the chapter numbers.

```
import mlreportgen.dom.*
d = Document('MyReport','docx','MyReportTemplate');

for rank = 3:5
    chapterPart = DocumentPart(d,'Chapter');
    while ~strcmp(chapterPart.CurrentHoleId,'#end#')
       switch chapterPart.CurrentHoleId
           case 'ChapterTitle'
              append(chapterPart, ...
                 sprintf('Rank %i Magic Square',rank));
           case 'ChapterContent'
              table = append(chapterPart,magic(rank));
              table.Width = '2in';
       end
       moveToNextHole(chapterPart);
    end
    append(d, chapterPart);
end

close(d);
rptview(d.OutputPath);
```

You can use a similar approach to automatically number HTML reports, using the CSS `counter-increment` and `content` properties in the template for your report.

See Also

Functions

`mlreportgen.dom.Document.createAutoNumberStream` | `mlreportgen.dom.Document.getAutoNumberStream`

Classes

`mlreportgen.dom.AutoNumber` | `mlreportgen.dom.AutoNumberStream` | `mlreportgen.dom.CounterInc` | `mlreportgen.dom.CounterReset`

Display Report Generation Messages

In this section...

Report Generation Messages

The DOM API includes a set of messages that can display when you generate a report. The messages are triggered every time a document element is created or appended during report generation.

You can define additional messages to display during report generation. The DOM API provides these classes for defining messages:

- `ProgressMessage`
- `DebugMessage`
- `WarningMessage`
- `ErrorMessage`

The DOM API provides additional classes for handling report message dispatching and display. It uses MATLAB events and listeners to dispatch messages. A message is dispatched based on event data for a specified DOM object. For an introduction to events and listeners, see “Events and Listeners — Concepts”.

Display DOM Default Messages

This example shows how to display the default DOM debug messages. Use a similar approach for displaying other kinds of DOM report messages.

1 Create a message dispatcher, using the `MessageDispatcher.getTheDispatcher` method. Use the same dispatcher for all messages.

```
dispatcher = MessageDispatcher.getTheDispatcher;
dispatcher.Filter.DebugMessagesPass = true;
```

2. Use the `MessageDispatcher.Filter` property to specify to display debug messages.

   ```
   dispatcher.Filter.DebugMessagesPass = true;
   ```

3. Add a listener using the MATLAB `addlistener` function. Specify the dispatcher object, the source and event data, and a `disp` function that specifies the event data and format to use for the message.

   ```
   l = addlistener(dispatcher,'Message', ...
         @(src, evtdata) disp(evtdata.Message.formatAsText));
   ```

4. Include a code to delete the listener. Place it after the code that generates the report.

   ```
   delete(l);
   ```

This report displays debug messages.

```
import mlreportgen.dom.*;
d = Document('test','html');

dispatcher = MessageDispatcher.getTheDispatcher;
dispatcher.Filter.DebugMessagesPass = true;

l = addlistener(dispatcher,'Message', ...
      @(src, evtdata) disp(evtdata.Message.formatAsText));

open(d);

p = Paragraph('Chapter ');
p.Tag = 'chapter title';
p.Style = { CounterInc('chapter'),...
    CounterReset('table'),WhiteSpace('pre') };
append(p, AutoNumber('chapter'));
append(d,p);

close(d);
rptview('test','html');

delete(l);
```

Create and Display a Progress Message

This example shows how to create and dispatch a progress message. You can use a similar approach for other kinds of messages, such as warnings.

1. Create a message dispatcher.

   ```
   dispatcher = MessageDispatcher.getTheDispatcher;
   ```

2. Add a listener using the MATLAB `addlistener` function.

   ```
   l = addlistener(dispatcher,'Message', ...
         @(src, evtdata) disp(evtdata.Message.formatAsText));
   ```

3. Dispatch the message, using the `Message.dispatch` method. Specify the dispatcher object and the message to dispatch. Here the message is a debug message called `starting chapter`, and the `Document` object `d` is the source of the message.

   ```
   dispatch(dispatcher,ProgressMessage('starting chapter',d));
   ```

4. Include code to delete the listener, after the code that generates the report.

   ```
   delete(l);
   ```

This report uses this progress message.

```
import mlreportgen.dom.*;
d = Document('test','html');

dispatcher = MessageDispatcher.getTheDispatcher;

l = addlistener(dispatcher,'Message', ...
      @(src, evtdata) disp(evtdata.Message.formatAsText));

open(d);
dispatch(dispatcher,ProgressMessage('starting chapter',d));

p = Paragraph('Chapter ');
p.Tag = 'chapter title';
p.Style = { CounterInc('chapter'),...
    CounterReset('table'),WhiteSpace('pre') };
append(p, AutoNumber('chapter'));
append(d,p);

close(d);
rptview('test','html');

delete(l);
```

The MATLAB Command Window displays progress messages, including the `starting chapter` message, as well as the messages the DOM API dispatches by default.

See Also

Functions

`mlreportgen.dom.MessageDispatcher.dispatch` | `mlreportgen.dom.MessageDispatcher.getTheDispatcher` | `mlreportgen.dom.ProgressMessage.formatAsHTML` | `mlreportgen.dom.ProgressMessage.formatAsText` | `mlreportgen.dom.ProgressMessage.passesFilter`

Classes

`mlreportgen.dom.DebugMessage` | `mlreportgen.dom.ErrorMessage` | `mlreportgen.dom.MessageDispatcher` | `mlreportgen.dom.MessageEventData` | `mlreportgen.dom.MessageFilter` | `mlreportgen.dom.ProgressMessage` | `mlreportgen.dom.WarningMessage`

Compile a Report Program

If the MATLAB Compiler™ product is installed on your system, you can use it to compile your DOM-based report generation program. This allows you to share your report generation program with others who do not have MATLAB installed on their systems.

To enable someone who does not have MATLAB installed to run your compiled program, your program must execute the following statement before executing the first line of DOM code that it executes to generate a report:

```
makeDOMCompilable();
```

Create a Microsoft Word Template

Use one of these approaches to create a Word template for generating a report.

- Use `mlreportgen.dom.Document.createTemplate` to create a copy of the DOM API default Word template that you can then customize. For example,

  ```
  mlreportgen.dom.Document.createTemplate('mytemplate','docx');
  ```

- Use an existing Word template (for example, a report template for your organization) and customize the template to use with the DOM API.
- Create a Word template from scratch.

If you copy an existing template that is not based on the DOM API default Word template, apply any standard Word styles such as `Title`, `Heading 1`, `TOC 1`, `List 1`, `Emphasis`, etc. to an element in the template. You can apply the styles to placeholder content and then remove the content. That process creates instances of the standard styles in the template style sheet.

See the Word documentation for information about how to create templates and to copy styles from one template to another.

Related Examples

- "Add Holes in a Microsoft Word Template" on page 13-93
- "Modify Styles in a Microsoft Word Template" on page 13-96
- "Create an HTML Template" on page 13-101

Add Holes in a Microsoft Word Template

In this section...

Template holes are places in a template that a report script fills with generated content, supporting a forms-based report.

Note: To create holes in a Word template, use the Word **Developer** ribbon. If the **Developer** tab is not showing in your Word ribbon, add it to the ribbon.

1. In Word, select **File** > **Options**.
2. In the Word Options dialog box, select **Customize Ribbon**.
3. In the **Customize the Ribbon** list, select the **Developer** check box.

Inline and Block Holes

The DOM API supports two types of holes: inline and block.

- An inline hole is for document elements that a paragraph element can contain: `Text`, `Image`, `LinkTarget`, `ExternalLink`, `InternalLink`, `CharEntity`, `AutoNumber`.
- A block hole can contain the same kinds of document elements as an inline hole, as well as `Paragraph`, `Table`, `OrderedList`, `UnorderedList`, `DocumentPart`, and `Group` document elements.

Create an Inline Hole

1. Open the template in Word.
2. On the Word ribbon, select the **Developer** tab.
3. Click **Design Mode** to see the hole marks with the title tag after creating the hole.
4. Position the Word insertion mark at the point in the paragraph where you want to create an inline hole.

Tip If the hole is the only hole in a paragraph or is at the end of a paragraph:

a. Add several blank spaces at the end of the paragraph.

b. Insert the hole before the spaces.

c. Delete the extra spaces.

5. Click the **Rich Text Control** button Aa. Word inserts a rich text control at the insertion point.
6. Click the **Properties** button.
7. In the dialog box, in the **Title** field enter an ID for the hole and in **Tag** field enter `Hole`. Click **OK**. The hole ID appears on the rich text control.

Create a Block-Level Hole

Creating a block-level hole in a Word document is essentially the same as creating an inline hole. The main difference is that rich text content control must contain an (empty) paragraph instead of residing in a paragraph.

1. Open the template in the Word editor.
2. On the Word tool ribbon, select the **Developer** ribbon.
3. Click **Design Mode** to see the hole marks with the title tag after creating the hole.
4. Create an empty paragraph at the point where you want to create a block-level hole. If you are at the end of a document, create a second empty paragraph.
5. Select the empty paragraph.
6. Select the **Rich Text Control** button Aa. Word inserts a rich text control at the insertion point.
7. Click the **Properties** button.
8. In the dialog box, in the **Title** field enter an ID for the hole and in **Tag** field enter `Hole`. Click **OK**. The hole ID appears on the rich text control.

Set Default Text Style for a Hole

Your template can specify the name of a default style to use to format `Text` and `Paragraph` objects appended to a hole. If such an object does not specify a style name,

the DOM API sets its `StyleName` property to the name of the default style, which must be a character or linked character and paragraph style defined in the template. Defining a default hole style eliminates the need to format hole content programmatically.

1. Open the template in Microsoft Word.
2. In the Word ribbon, select the **Developer** tab.
3. Click the hole whose default style name you want to specify.

   This step assumes that you have already created the hole. If have not create a hole, see "Inline and Block Holes" on page 13-93.
4. In the **Developer** ribbon, click **Properties**.
5. In the Content Control Properties dialog box, select the **Use a style to format text typed into the empty control** check box.
6. From the **Style** list, select a style to use an existing style or select **New Style** to create a new style to be used as the default style. In either case, the style must be a `Character` or a `Linked (paragraph and character)` style.
7. Click **OK** and save the template.

Related Examples

- "Modify Styles in a Microsoft Word Template" on page 13-96
- "Create an HTML Template" on page 13-101
- "Create and Format Tables" on page 13-56

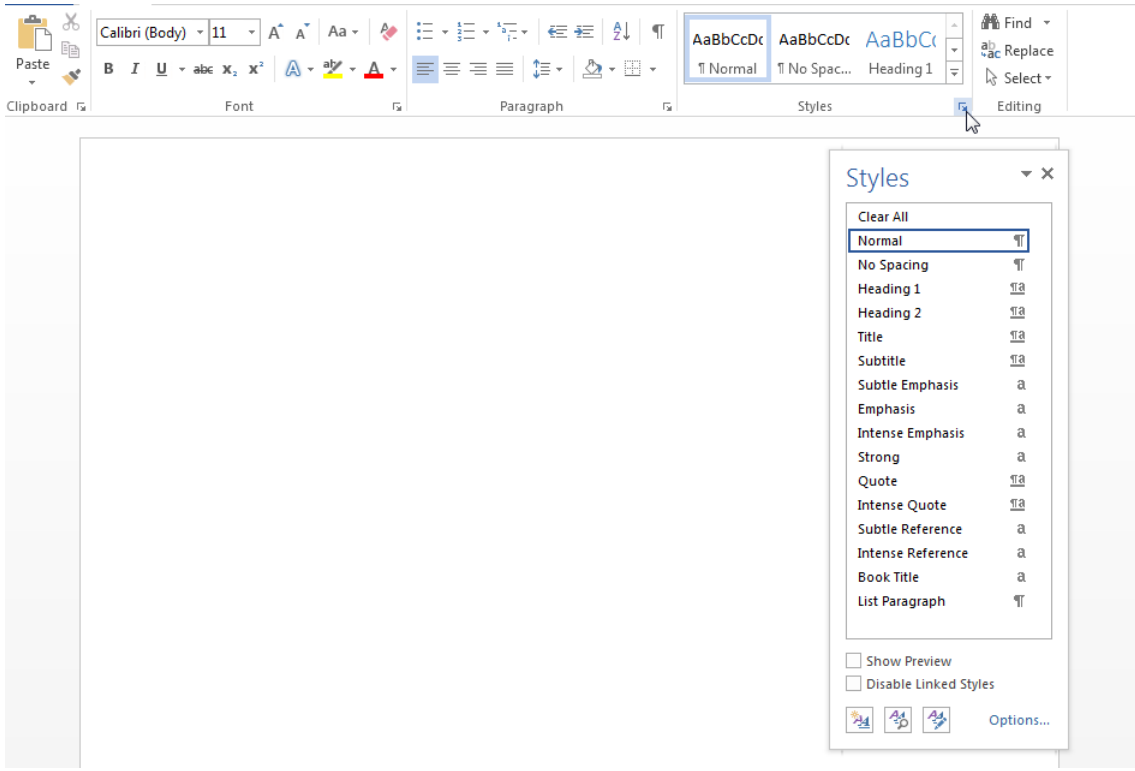
Modify Styles in a Microsoft Word Template

In this section...

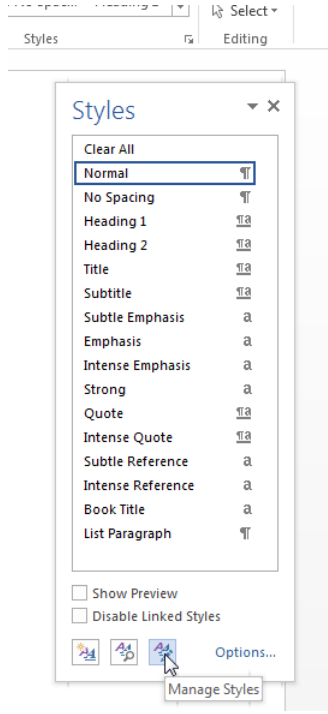
Edit Styles in a Word Template

You can customize or add format styles in a custom Word template.

1 In Word, open the Styles dialog box.



2 In the Style dialog box, click the **Manage Styles** button.



3 In the Manage Styles dialog box, click **Modify**. The Modify Style dialog box appears.

4 In the Modify Style dialog box, change any of the style definitions. For example, you could change the font family, font size, indentation, etc. To save your changes, click **OK** and close the dialog box.

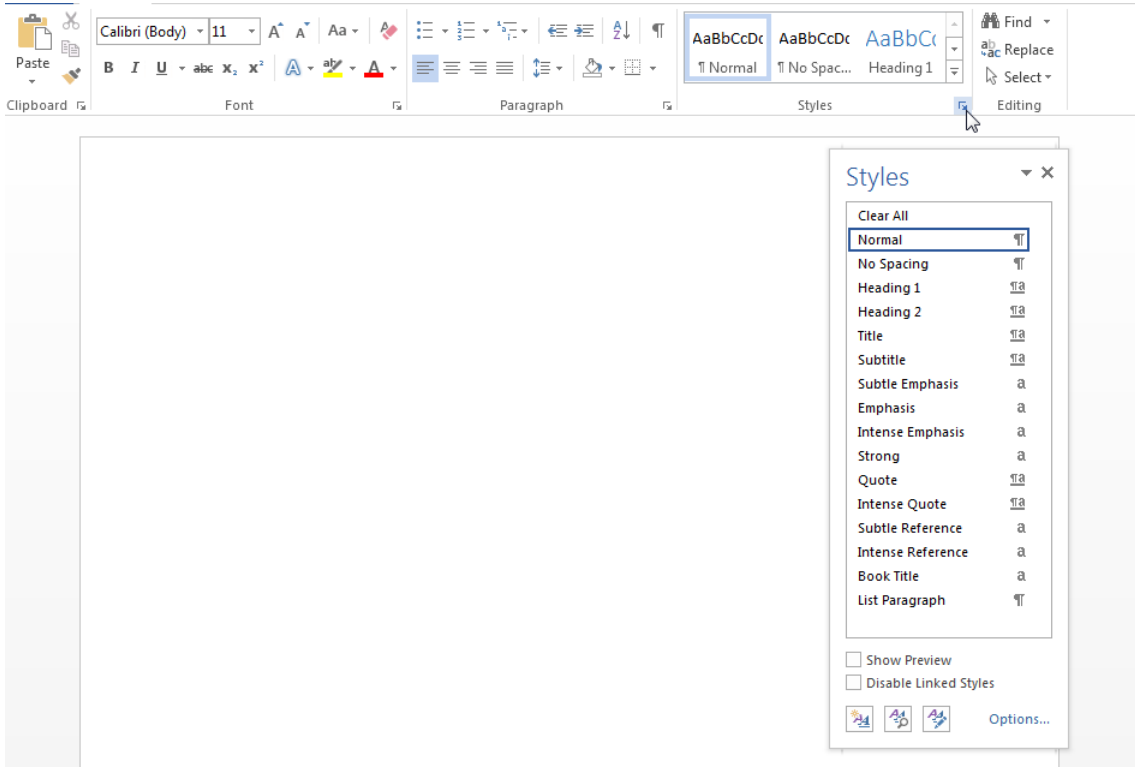
5 In Word, save and close the template.

For more information about using Word styles, see the Microsoft Word documentation.

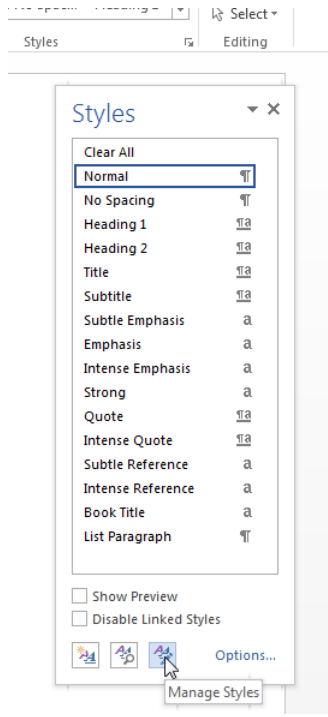
Add Styles to a Word Template

To add a new style to a template:

1 In Word, open the Styles dialog box.

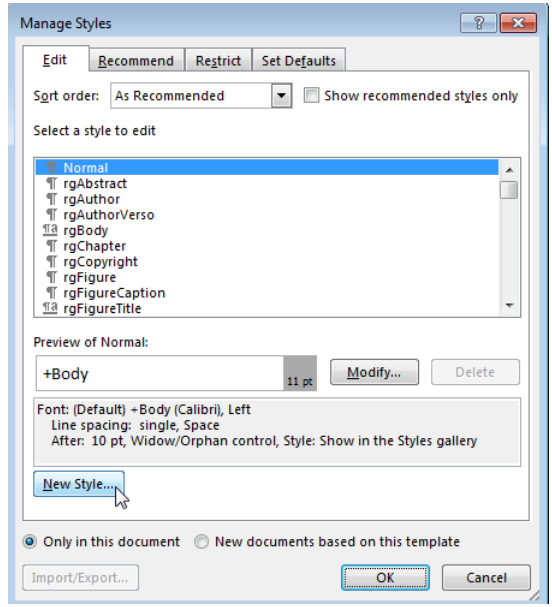


2 In the Style dialog box, click the **Manage Styles** button.



3 If applicable, select an existing style to use as a starting point for the new style.

4 Click the **New Style** button.



5 Specify a name for the new style and define the style characteristics. To save the new style definition, click **OK** and close the dialog box.

6 In Word, save and close the template.

Related Examples

- "Add Holes in a Microsoft Word Template" on page 13-93
- "Create an HTML Template" on page 13-101

Create an HTML Template

Use one of these approaches to create an HTML template for generating a report.

- Use `mlreportgen.dom.Document.createTemplate` to create a copy of the DOM API default HTML template that you can then customize. For example:

  ```
  mlreportgen.dom.Document.createTemplate('mytemplate','html');
  ```

- Use an existing HTML template (for example, a report template for your organization) and customize the template to use with the DOM API.
- Create an HTML template from scratch.

Edit a Zipped HTML Template

To edit a zipped HTML template, unzip it into a subfolder of the current folder, using the `unzipTemplate` function. For example, to unzip files for a template called `mytemplate`:

```
unzipTemplate('mytemplate')
```

To repackage a template after you edit it, use the `zipTemplate` function. For example, to package the `mytemplate.htmx` template in a subfolder called `mytemplate`, in the current folder:

```
zipTemplate('mytemplate.htmtx')
```

If you do not want to use the current folder, you can specify a path with the `unzipTemplate` and `zipTemplate` functions.

Related Examples

- “Add Holes in an HTML Template” on page 13-102
- “Modify Styles in an HTML Template” on page 13-104
- “Create a Microsoft Word Template” on page 13-92

Add Holes in an HTML Template

In this section...

Template holes are places in a template that a report script fills with generated content, supporting a forms-based report.

Inline and Block Holes

The DOM API supports two types of holes: inline and block.

- An inline hole is for document elements that a paragraph element can contain: `Text`, `Image`, `LinkTarget`, `ExternalLink`, `InternalLink`, `CharEntity`, `AutoNumber`.
- A block hole can contain a `Paragraph`, `Table`, `OrderedList`, `UnorderedList`, `DocumentPart`, and `Group`.

Create an Inline Hole

1. Unzip the template.
2. Open the `root.html` document of the template in an HTML or text editor.
3. Place the insertion point in the paragraph where you want to create a hole.
4. Add code that uses this pattern:

```
<p>
  <span>
    <div class=Hole" data-default-hole-style-name="STYLE_NAME"
     data-hole-id="HOLEID">
       <span class="HoldId:>HOLEID</span>
       <span class="HoleDesc">HOLE_DESCRIPTION</span>
     </div>
  </span>
</p>
```

   Replace `STYLE_NAME` with the name of a default text (HTML `span` element) style to use for formatting `Text` objects appended to this hole. If a `Text` object appended to

this hole does not specify a style name, the DOM API sets the text object `StyleName` property to the default style name. The style must be defined in the style sheet of the template. Defining in the template a default text style for hole content eliminates the need to format hole content programmatically.

Set `HOLEID` to the ID of the hole, and use `HOLE_DESCRIPTION` to describe the hole.

Templates based on the DOM API default HTML template contain a style sheet for holes that highlights the hole IDs when you display the template in a browser.

Create a Block Hole

1. Unzip the template.
2. Open the `root.html` document of the template in an HTML or text editor.
3. Position the insertion point at the desired location for the hole. You cannot set he insertion point inside a paragraph.
4. Add code that uses this pattern:

```
<div>
  <span>
    <div class=Hole" data-default-hole-style-name="STYLE_NAME"
     data-hole-id="HOLEID">
       <span class="HoldId:>HOLEID</span>
       <span class="HoleDesc">HOLE_DESCRIPTION</span>
     </div>
  </div>
```

Replace `STYLE` with the name of a default paragraph (HTML `p` element) style to use for formatting text content appended to this hole. If you do not specify a style name for a `Text` object appended to this hole, the DOM API sets the text object `StyleName` property to the default style name. The template style sheet must define the default style. Defining a default paragraph style for hole content eliminates the need to format hole content programmatically.

Set `HOLEID` to the ID of the hole, and use `HOLE_DESCRIPTION` to describe the hole.

Related Examples

- “Modify Styles in an HTML Template” on page 13-104
- “Create a Microsoft Word Template” on page 13-92

Modify Styles in an HTML Template

You can customize or add format styles in a custom HTML template.

1. In a text or HTML editor, open the `TEMPLATEROOT/Stylesheet/root.css` file.
2. In the Properties pane, click **Open stylesheet**.
3. In a text or HTML editor, edit the cascading style sheet (CSS).

   For information about editing a cascading style sheet, see documentation such as the W3Schools.com CSS tutorial.
4. Save the style sheet.

Related Examples

- “Add Holes in an HTML Template” on page 13-102
- “Create a Microsoft Word Template” on page 13-92

Create Microsoft Word Page Layout Sections

In this section...

You can divide a Word document into one or more sections, each with its own page layout. Page layout includes page margins, page orientation, and headers and footers.

Define Page Layouts in a Template

Every Word template has at least one page layout section. You can use Word to create as many additional sections as you need. For example, you may want to create in the main template of a report sections for your report's title page, table of contents, and chapters. See the Word documentation for information on how to create page layout sections in a Word template.

Navigate Template-Defined Sections

When you open a `Document` or `DocumentPart` object in a report program, the DOM API creates a hole and an associated `DOCXSection` property object for each section defined in the document or document part template. The hole ID for the first section is `#start`. The hole ID for the second section is `sect2`, and so on.

You can use the `moveToNextHole` function to move from section to section and from hole to hole within a section. At each section hole, the DOM API sets a document or document part `CurrentDOCXSection` property to the `DOCXSection` object associated with that object. The `DOCXSection` object reflects the properties of the current section, as defined in the template. For example, if you have defined the page orientation of that section to be portrait, the page orientation is set as portrait in the current `DOCXSection` object.

You can change the template-defined section properties programmatically. For example, the page orientation of the DOM default Word template is portrait. This example shows how to change the orientation to landscape to accommodate wide tables. The code swaps the height and width of the page to reflect the new page orientation.

```
import mlreportgen.dom.*
```

```
rpt = Document('test','docx');
open(rpt);

sect = rpt.CurrentDOCXSection;
pageSize = sect.PageSize;
pageSize.Orientation = 'landscape';

saveHeight = pageSize.Height;
pageSize.Height = pageSize.Width;
pageSize.Width = saveHeight;

table = append(rpt,magic(22));
table.Border = 'solid';
table.ColSep = 'solid';
table.RowSep = 'solid';

close(rpt);
rptview(rpt.OutputPath);
```

Create Sections Programmatically

You can use the `append` function of a `Document` or `DocumentPart` to create sections programmatically. To use the `append` function to add a section to a report, use this `append` syntax:

```
paraObj = append(rptObj,paraObj,docxSectionObj)
```

This us of the append function appends a paragraph to the report as the last paragraph of the current section and then starts a new section whose properties are defined by a `DOCXSection` object. For example, this script adds a landscape section to a report to accommodate a large magic square.

```
import mlreportgen.dom.*
rpt = Document('test','docx');

append(rpt,Heading(1,'Magic Square Report','Heading 1'));

sect = DOCXSection;
sect.PageSize.Orientation = 'landscape';
sect.PageSize.Height = '8.5in';
sect.PageSize.Width = '11in';
append(rpt,Paragraph('The next page shows magic square.'),sect);
```

```
table = append(rpt,magic(22));
table.Border = 'solid';
table.ColSep = 'solid';
table.RowSep = 'solid';

close(rpt);
rptview(rpt.OutputPath);
```

See Also

Classes

`mlreportgen.dom.DOCXPageMargins` | `mlreportgen.dom.DOCXPageSize` | `mlreportgen.dom.DOCXSection`

Related Examples

- “Create a Microsoft Word Template” on page 13-92

Create Page Footers and Headers

In this section...

You can create as many as three page headers and three page footers for a Word report section:

- One for the first page of the section
- One for even pages
- One for odd pages

You can create report page headers and footers programmatically or in the template used to create a report or report part. You can append content to both template-defined and programmatically defined headers and footers.

Create Page Headers and Footers in a Template

You can use Word to create page headers and footers in the main template of a report. For information on creating headers and footers, see the Word documentation.

When you open a report, the DOM API:

1. Reads the headers and footers from the template and converts them to `DOCXPageHeader` and `DOCXPageFooter` objects, respectively
2. Associates the headers and footer objects with the `DOCXSection` object that defines the properties of the section that contains the headers and footers
3. Adds the headers and footers to your report as your code navigates the sections defined by the template

As your report generation program navigates the sections, it can append content to the template-defined headers and footers.

Access Template-Defined Headers and Footers

To append content to a template-defined header or footer, you need to access it. Use the `CurrentDOCXSection` property of a `Document` or `DocumentPart` object to access the

template-defined headers and footers for the current section of a document or document part.

The value of the `CurrentDOCXSection` property is a `DOCXSection` object whose `PageHeaders` and `PageFooters` properties contain a cell array of `DOCXPageHeader` and `DOCXPageFooter` objects corresponding to the template-defined headers and footers of the current section. The header cell array can contain as many as three header objects, depending on how many of the possible types of headers (first page, even page, odd page) you define for the section. The footers cell array similarly can contain as many as three footer objects. The objects can appear in any order in the cell array. Thus, to access a header or footer of a particular type, search the cell array to find the one you want to access.

Append Content to a Template-Defined Header or Footer

You can use the DOM API to append content to a template-defined header or footer that appears on every page in a section. To append content to a header or footer in the current section of a document or document part, first use the document or document part `CurrentDOCXSection` property to access the `DOCXPagerHeader` or `DOCXPageFooter` object. Then use the `append` method of a `DOCXPageHeader` or `DOCXPageFooter` object to append content to the header or footer. Because header and footer objects are a kind of document part object, you can append any kind of content to a page header or footer that you can append to a document part, for example, images and tables as well as paragraphs.

You can use holes in the header and footers of your main template to control the positioning of content that you append to the headers and footers. For example, this script appends today's date to a hole named `Date` on the first template-defined page header of the first section of a report. This example assumes that the Word template `MyReportTemplate` has one section that defines a first page, odd page, and even page header and footer.

```
import mlreportgen.dom.*;
d = Document('MyReport','docx','MyReportTemplate');
open(d);

sect = d.CurrentDOCXSection;

for i = 1:numel(sect.PageHeaders)
    if strcmpi(sect.PageHeaders(i).PageType,'first')
        firstPageHeader = sect.PageHeaders(i);
        while ~strcmp(firstPageHeader.CurrentHoleId,'#end#')
```

```
            switch firstPageHeader.CurrentHoleId
                case 'Date'
                    append(firstPageHeader,date);
            end
            moveToNextHole(firstPageHeader);
        end
        break;
    end
end

close(d);
rptview(d.OutputPath);
```

Generate Header and Footer Content That Varies from Page to Page

You cannot programmatically append to headers and footers content that varies from page to page, such as page numbers or running heads. To create content that varies, use Word fields, which enable automatic content generation. For example, to include a page number on each page of a section of your report, insert a page number field in the report template in the page footer of a section. For more information, see the Microsoft Word documentation.

Create Page Headers and Footers Programmatically

Perform these steps to create programmatically a page header or footer in the current section of a report.

1. Use the `DOCXPageHeader` or `DOCXPageFooter` constructor to create a page header or footer of the desired type (first page, odd page, even page, or odd and even page) based on a template that defines template form (the fixed content and holes for variable content).
2. Fill the holes in the header or footer with content.
3. Insert the header or footer in the array of page headers or footers of the current `DOCXSection` object.

This script creates a first page header from a template stored in the document part template library of a report.

```
import mlreportgen.dom.*;
d = Document('MyReport','docx','MyReportTemplate');
open(d);
```

```
pageHeaders(1) = DOCXPageHeader('first',d,'FirstPageHeader');

while ~strcmp(pageHeaders(1).CurrentHoleId,'#end#')
    switch pageHeaders(1).CurrentHoleId
        case 'Date'
            append(pageHeaders(1),date);
    end
    moveToNextHole(pageHeaders(1));
end

d.CurrentDOCXSection.PageHeaders = pageHeaders;

close(d);
rptview(d.OutputPath);
```

See Also

Functions

`mlreportgen.dom.Document.createTemplate`

Classes

`mlreportgen.dom.Document` | `mlreportgen.dom.DocumentPart` | `mlreportgen.dom.DOCXPageFooter` | `mlreportgen.dom.DOCXPageHeader` | `mlreportgen.dom.DOCXSection`

Related Examples

- “Create a Microsoft Word Template” on page 13-92
- “Create an HTML Template” on page 13-101