

# **MapleNet Services Guide**

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# MapleNet Services Guide

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# Overview

## About MapleNet

Use MapleNet™ to share your Maple documents, calculators, and technical applications.

Maple provides the most intuitive interface available for creating web applications that rely on mathematical computations. You simply drag buttons, sliders, math input regions, and other interactive components into your Maple document to create the interface, and add the functionality behind those components using Maple's high-level, mathematically sophisticated programming language. Once completed, you simply save the Maple document on the MapleNet server to make your application available online.

## MapleNet Resources

Resource	Description
MapleNet Server Installation Guide	System requirements and installation instructions for MapleNet. The <b>MapleNet Installation Guide</b> is available in the <b>Install.html</b> file located either on your MapleNet installation DVD or the folder where you installed MapleNet.
MapleNet Administrator Guide	Instructions for using environment variables to configure the MapleNet server. Security issues are also discussed.
MapleNet Services Guide	Outline of MapleNet services. Information on limitations of services provided as well as a summary of MapleNet API endpoints.
MapleNet Compute Engine Application Programming Interface	A detailed description of the MapleNet API with examples.

For additional resources, visit [http://www.maplesoft.com/site\\_resources](http://www.maplesoft.com/site_resources).

## Getting Help

To request customer support or technical support, visit <http://www.maplesoft.com/support>.

## Customer Feedback

Maplesoft welcomes your feedback. For comments related to the MapleNet product documentation, contact [doc@maplesoft.com](mailto:doc@maplesoft.com).



# 1 MapleNet Services

## 1.1 About MapleNet Services

MapleNet provides two primary services for clients, HTML5 versions of Maple documents and a Maple compute interface. In addition MapleNet provides interfaces for hosting Maple help databases online, monitoring MapleNet status and health checking.

## 1.2 Documents

MapleNet hosts Maple worksheets (.mw files) and workbooks (.maple files) and allows them to be viewed in a web browser. In addition, embedded components in those document are interactive, allowing the hosted documents to be used as applications. This section documents the level of support of Maple document features in MapleNet.

- Text and math content (both 1-D and 2-D) should render similarly in a browser and in Maple.
- Start up code will be executed, however auto execute regions will not.
- Most embedded components are supported, although some properties are not. The following table summarizes the embedded component support.

Component	Supported	Limitations
Button	Yes	fontcolor is not supported.
Check Box	Yes	fontcolor and fillcolor are not supported.
Combo Box	Yes	fontcolor is not supported.
Data Table	No	
Dial	Yes	
Label	Yes	fontcolor and fillcolor are not supported.
List Box	Yes	fontcolor and fillcolor are not supported.
Math Expression	Yes	fillcolor are not supported.
Meter	Yes	
Microphone	No	
Plot	Yes	fillcolor and mouseMode are not supported.
Radio Button	Yes	fillcolor and fontcolor are not supported.
Rotary Gauge	Yes	
Shortcut	Yes	
Slider	Yes	fontcolor and fillcolor are not supported.
Speaker	No	
Text Area	Yes	fontcolor and fillcolor are not supported.
Toggle Button	Yes	
Video	No	
Volume Gauge	Yes	

- The use of "this" to refer to the current embedded component is not supported in MapleNet.
- Most plots will be rendered natively in HTML5. HTML5 plots are interactive, allowing panning, scaling and zooming. In addition, HTML5 3-D plots can be rotated.
- Some plot types and options are not supported by HTML5 plots. For these plots either an image will be rendered or the plot will be rendered without the missing feature. The following table summarizes the unsupported for plots features.
- Maplets are not supported.

- Spreadsheets are not supported.

Option	Limitations
Polar Plot	Rendered as an image
Logarithmic Axis	Rendered as an image
Dual Axis	Rendered as an image
2-D Grid Plot	Unsupported
2-D Mesh Plot	Rendered as an image
Background image for a plot	Rendered as an image
transparency	If an HTML5 plot contains transparency data, the transparency values are ignored.
2-D colorscheme	Uses one color from the scheme for the plot
Array Plots	Unsupported
smartplot	Unsupported
time series plot	Unsupported
phase plot	Unsupported

## Downloading Maple Documents

MapleNet can be configured to allow Maple documents to be downloaded as well as displayed. Setting the `MAPLENET_WEBSERVER_ENDPOINTS_DOWNLOAD` configuration variable to `true`, instructs MapleNet to allow documents to be downloaded by adding the `download` URL parameter to a document's URL. For example if a document could be displayed by accessing

```
http://$HOSTNAME/document.mw
```

Then adding the `download` parameter as follows

```
http://$HOSTNAME/document.mw?download
```

causes the document to be downloaded instead of displayed.

## Uploading Maple Documents

```
http://$HOSTNAME/mapleonline/upload/upload.html
```

This page allows users to select Maple documents from their web browser for uploading to MapleNet. All uploaded files are placed into an upload directory.

To enable uploading, the `MAPLENET_WEBSERVER_ENDPOINTS_UPLOAD` configuration variable must be set to `true`. The upload page will display the contents of the upload directory if the `MAPLENET_WEBSERVER_ENABLEDIRECTORYLISTING` configuration variable is set to `true`. An example of this configuration can be found in the Examples section.

The upload directory is `/webroot/worksheet/upload` which, by default, exists within the docker container. Therefore any uploaded documents will be lost when the container is restarted. If you want uploads to persist between MapleNet restarts you should mount a host directory on top of the upload directory. An example of this configuration can also be found in the Examples section.

The API of the upload endpoint itself is not documented as its interface is not considered stable. Applications that attempt to use the upload endpoint directly will be broken by future versions of MapleNet.

## 1.3 Compute

The MapleNet Compute Service allows for applications to send a Maple computation to MapleNet and receive the result of executing that computation. This service is an application programming interface, not an end user interface. For more details about the Compute Service, see the **MapleNet Compute Engine Application Programming Interface** document.

## 1.4 Additional Features

MapleNet provides some secondary features and server monitoring tools. These are described below. The term endpoint refers to a URL that MapleNet provides that can be accessed using standard HTTP requests. When these endpoints are accessed MapleNet replies with an HTTP response containing the requested information. There is no file on the server corresponding to these replies, they are generated by MapleNet itself.

### Help

The help endpoints allow access to Maple help pages hosted by MapleNet. By default MapleNet does not have any help databases installed. Instructions for adding help databases can be found in the Examples section of the Administrator's Guide. The following endpoints allow access to the contents of the help databases.

#### Table of Contents: HTTP GET to /help/toc

Display the Table of Contents [TOC] for the help databases as an HTML page. The displayed TOC will link to the help pages for display in MapleNet. The help pages linked to by the TOC can be filtered using the language, product and category URL parameters. These parameters correspond to the options of the same name used when constructing the TOC for the help databases. For example to display English help pages for Maple, you would access `/help/toc/?language=en&product=Maple`. Parameters may also be given more than once to increase the matches (multiple parameters act as an "OR"), so `/help/toc/?language=en&product=Maple&product=MapleSim` would show all English help pages from Maple or MapleSim. By default help page links are relative links to the `/help/display/` endpoint of the current MapleNet. To change this, the `MAPLENET_WEBCLIENT_HELPURL` configuration variable can be used.

#### Topic display: HTTP GET to /help/display/TOPIC

Display the help page corresponding to TOPIC. For example, `/help/display/int` or `help/display/convert,rational`. If there are multiple help pages matching the given topic, the page with the higher priority (as defined in the help database) will be displayed. You can filter by language, product and category, as with the Table of Contents, however in the case of displaying a help page the filtering behaves differently. The displayed page must match one value for each given parameter, with priority given to the value appearing earlier in the URL. For example `/help/display/int?language=ja&product=Maple` would display Maple's int help page in Japanese if it existed or a 404 error if it did not. However using `/help/display/int?language=ja&language=en&product=Maple`, would display the Japanese page if it existed or the English page if it did not (and return a 404 if neither a Japanese or English help page existed).

#### Download help page: HTTP GET to /help/download/TOPIC

Download the help page corresponding to TOPIC. This endpoint is identical the the display endpoint, except that instead of opening the page in MapleNet the help page is downloaded.

### **Using WebClient.HelpUrl to Change the URL of the Help Database**

The WebClient.HelpUrl command parameter offers a way to select a different URL for your help database. By default, the value of WebClient.HelpUrl is set to "http://maplesoft.com/support/help/Maple/view.aspx?path="

For an example of using the WebClient.HelpUrl parameter to point to a different URL, see the Examples section of the Administrator's Guide.

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