CAWT - COM Automation With Tcl

1   Introduction

CAWT is a high-level Tcl interface for scripting Microsoft Windows® applications having a COM interface. It uses **Twapi** for automation via the COM interface.
Currently packages for Microsoft Excel, Word, PowerPoint, OneNote, Outlook, SAPI, Internet Explorer, MathWorks Matlab, Adobe Acrobat Reader and Google Earth are available.

Note: Only Microsoft Office packages Excel, Word, PowerPoint and Outlook are in active development. The other packages are proof-of-concept examples only.

CAWT sources are available at https://sourceforge.net/projects/cawt/.
The CAWT homepage is at https://www.tcl3d.org/cawt/

The CAWT user distribution contains the Tcl sources, documentation (this document and a reference manual), several test programs showing the use of the CAWT functionality and the needed external libraries Twapi, TkImg, Base64 and Tablelist (see chapter 1.2 for details).

The CAWT developer distribution additionally contains scripts for generating the documentation, the distribution packages and the CAWT Starkit and Starpack. It also includes the external packages Ruff! and textutil (see chapter 1.2 for details). The developer distribution is intended for programmers who want to extend the CAWT package.

1.1 Architecture overview

The **CAWT** package currently consists of the following sub-packages:

CawtCore	Basic automation functionality.
CawtOffice	Basic Microsoft Office automation functionality.
CawtEarth	Automation functionality for Google Earth.
CawtExcel	Automation functionality for Microsoft Excel.
CawtExplorer	Automation functionality for Microsoft Internet Explorer.
CawtMatlab	Automation functionality for MathWorks Matlab.
CawtOcr	Automation functionality for Microsoft Document Imaging.
CawtOneNote	Automation functionality for Microsoft OneNote
CawtOutlook	Automation functionality for Microsoft Outlook.
CawtPpt	Automation functionality for Microsoft PowerPoint.
CawtReader	Automation functionality for Adobe Acrobat Reader.
CawtSapi	Automation functionality for Microsoft Speech API.
CawtWord	Automation functionality for Microsoft Word.

Each sub-package is implemented as a separate Tcl package and can be loaded explicitly with the Tcl package command, ex. `package require cawtexcel`. All available CAWT sub-packages can be loaded with a single command: `package require cawt`.

Note: Package names are all lower case.

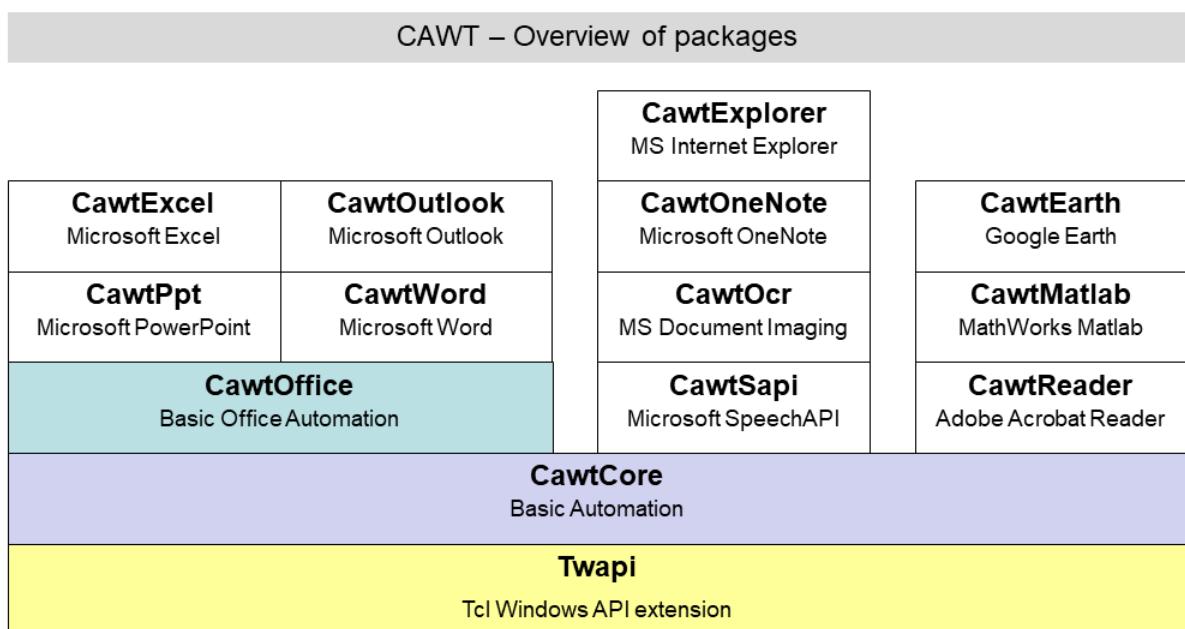The next figure shows the architecture of the CAWT package.

Figure 1: Overview of CAWT packages

1.2 Dependencies

The following table shows a list of the external Tcl packages used in the CAWT infrastructure.

Lib	Version	Comment	URL
Libraries needed for the CAWT package			
Twapi	>= 4.4	Mandatory: Included in CAWT user distribution.	https://twapi.magicsplat.com/
tDOM	>= 0.9	Optional: Included in CAWT user distribution.	http://tdom.org/
TkImg	>= 1.4.1	Optional: Included in CAWT user distribution.	https://sourceforge.net/projects/tkimg/
Base64		Optional: Included in CAWT user distribution.	https://sourceforge.net/projects/tcllib/
Tablelist	>= 6	Optional: Included in CAWT user distribution.	https://www.nemethi.de
Libraries needed for generating the CAWT documentation			
Ruff!	>= 1.0	Included in CAWT developer distribution.	https://ruff.magicsplat.com/
Tcllib		Ruff! needs the textutil module from Tcllib. (textutil included in CAWT developer distribution)	https://sourceforge.net/projects/tcllib/

N o t e :
tDOM Mandatory for the CawtOneNote package.
TkImg: Needed for some functionalities (see the CawtExcel package for further details).
Base64: Needed for photo image to clipboard functionality.
Tablelist: Needed only for the excelTablelist module.

1.3 Installation and Usage

Installation of **CAWT** is simple and fast.

If you just want to play with the test programs to get an impression on how CAWT works, unzip the user distribution file in a folder of your choice. Then open a shell window, go to folder *TestPrograms* of the CAWT distribution and execute a test program with a line as follows:

```
> tclsh Excel-01_Basic.tcl
```

See also chapter 5 for scripts to run all or groups of test programs in batch mode.

If you want to use CAWT as a package for your own applications, the *Cawt* folder should be copied into the library section of your Tcl installation (ex. *C:\Tcl\lib*). If write access to this Tcl directory is not permitted, you can copy the *Cawt* directory somewhere else, eg. *C:\myCawt*. To have Tcl look for packages in this location, you must set the TCLLIBPATH environment variable with the above specified directory name as value. Note that on Windows the path must be written with slashes (not backslashes):

> set TCLLIBPATH = C:/myCawt.

If suitable versions of **Twapi**, **tDOM**, **TkImg, Base64** or **Tablelist** are already available on your machine, you may remove the appropriate folders from the *Externals* subfolder. Otherwise you should move these packages into the same folder, where you have copied *Cawt* to.

N o t e :
CAWT is also available via **BAWT** (Build Automation With Tcl) at https://www.tcl3d.org/bawt/