

USING THE TREEAGE PRO 2007 COM AUTOMATION LIBRARY

Starting with v2007, the TreeAge Pro Excel/COM module provides a powerful scripting interface that can be used to analyze and make changes to trees via Excel macros (or from other COM-compliant scripting/programming tools).

The scripting interface is very similar to the TreeAge Pro Interactive library, described in Appendix F. Both libraries are documented in detail at the TreeAge support website.

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What is the "TreeAgeProLib" COM library?

Starting with v2007, users of the TreeAge Pro Excel module also have access to a full-featured COM automation interface for TreeAge Pro 2007.

What this means is that it is a simple task for TreeAge Pro users to create custom Excel macros (or scripts in other COM automation clients, e.g., C++, Python, etc.) that can update and analyze trees and other documents in TreeAge Pro. Other applications with scripting interfaces can be used, for example Visual Basic or C++.

Utilizing your choice of Windows scripting or development tools, with Excel VBA being the most popular, you can control trees, graphs, and Monte Carlo output using a set of commands similar to those used with TreeAge Pro Interactive (see below).

A simple macro might, for example, open the tree in TreeAge Pro, make changes to selected values (probabilities, payoff components, etc.), and then perform a series of Monte Carlo simulations or Markov analyses.

The scripting interface can be used to automate repetitive tasks, for example:

- **Monte Carlo simulation** – manage a series of Monte Carlo simulations from Excel (or another application supporting COM scripting/macros)
- **Markov analyses** – manage a series of Markov cohort analyses from Excel

The TreeAge Pro 2007 library interface provides access to trees and other documents via straightforward methods and properties.

A sample listing of objects is provided here to illustrate the applications of the scripting interface.

TreeAge Pro – selected objects

ApplicationObj	<i>Controls access to TreeAge Pro documents</i>
TreeObj	<i>Wrapper around tree document</i>
NodeObj	<i>Wrapper for a single tree node</i>
CEOutput	<i>Output of a C/E analysis</i>
GraphObj	<i>Wrapper for a graph</i>
TextReportObj	<i>Provide access to output of analyses</i>
MarkovOutput	<i>Output of a Markov analysis</i>
MonteParams	<i>Parameters for a Monte Carlo simulation</i>
MonteOutput	<i>Output of a Monte Carlo simulation</i>

Each object has different properties and methods. Here are a few for TreeObj:

TreeObj – selected methods and properties

MonteOutput	<i>Output of a Monte Carlo simulation</i>
SelectRoot	<i>Selects the root node of the tree</i>
GetNodeObj	<i>Creates a NodeObj at the selected node</i>
Markov	<i>Runs a Markov analysis</i>
MonteCarlo	<i>Runs a Monte Carlo simulation</i>
CostEff	<i>Runs a baseline cost-effectiveness analysis</i>

Using the TreeAgeProLib library in a macro

A simple example macro illustrating usage of some common objects and methods is shown below.

```
'--- This VBA macro could be linked to button in spreadsheet.
Sub Analyze_CE_Baseline()
    Dim tree As TreeAgeProLib.TreeObj
    Dim nod As TreeAgeProLib.NodeObj
    Dim cea As TreeAgeProLib.CEOOutput
    Dim graph As TreeAgeProLib.GraphObj
    Dim ok as integer

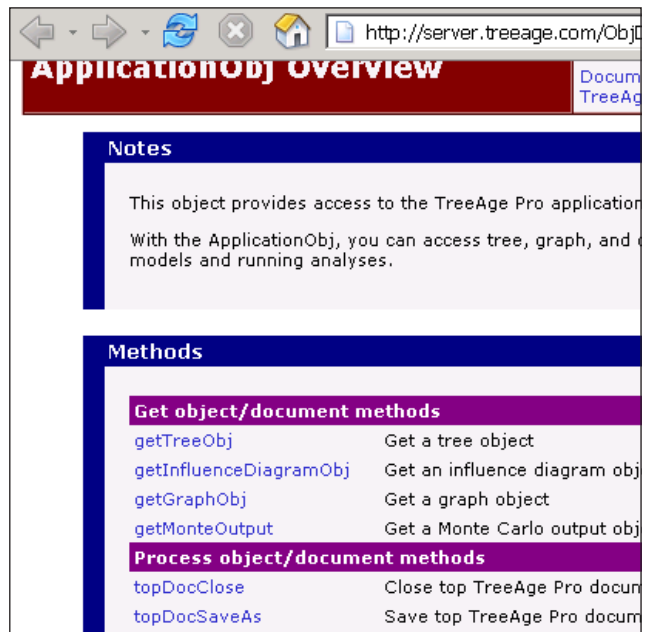
    Dim treeage As New TreeAgeProLib.ApplicationObj '--- connect
    Set tree = treeage.getTreeObj("", "") '-- empty string gets top tree
    If not tree is nothing Then '-- if tree open ...
        tree.SelectRoot
        Set nod = tree.GetNodeObj
        If nod.type = nt_decision then '-- if root is decision do CEA
            Set cea = tree.CostEff '-- analysis will show in TreeAge Pro
            '--- If we want graph: Set gObj = ceo.GetGraph(1, "")
            '--- Or, we could GetTextReport() and show in Excel
        End If
    End If
End Sub
'-----
```

This section of VBA code is similar to the “Excel Sample.xls” for TreeAge Pro Interactive shown in Appendix E. The main difference between the code sample here, and the TreeAge Pro Interactive sample shown later in Appendix E, is that the TreeAge Pro code uses the ApplicationObj (TreeAge Pro Interactive on the other hand simply creates TreeObj objects directly).

Example macro projects, as well as complete object documentation, can be found at the TreeAge web site:

<http://server.treeage.com/objDocs>

A good introduction to the functionality of the interface can be gained by opening some of the example projects under TreeAge Pro\Tutorial Examples\ActiveX\ and accessing the Macro project editor (press Alt + F11).



This page illustrates some of the tools available when working with the TreeAge Pro 2007 library in Excel's VBA macro window.

The first step in creating your own macro project using the TreeAge Pro 2007 library is to add a reference to the library.

To open the VBA Editor for Excel, press Alt+F11.

To add a reference to TreeAge Pro 2007, choose Tools > References.

You can then browse the available functionality by pressing F2 to open the Object Browser, and selecting the TreeAgeProLib from the list of referenced libraries.

