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## **Introducing TESLA v2.1.1**

Version 2.1.1 represents a major update to Quintessa's TESLA decision support software tool. Over the past few years, we have been developing and enhancing TESLA behind the scenes, with a focus on making it the ideal support tool for applying an approach founded on Evidence Support Logic (ESL) to the structured analysis of complex decisions. Examples of the areas where an ESL approach supported by TESLA has helped streamline decision processes and focus resources are:

- examination of alternative approaches to mitigation of leaks associated with Magnox Swarf Storage Silos for Jacobs Engineering (UK) and assessment of the confidence with which they can be expected to achieve defined goals;
- comparing potential sites for the storage of CO<sub>2</sub> while taking into account the uncertainties and risks involved in each site in a consistent fashion ([James et al., 2010. What does it take to evaluate a potential CO2 storage site: the ZeroGen example. Society of Petroleum Engineers, SPE137447](#), and also for the EU [CO<sub>2</sub>ReMoVe](#) project);
- investigating particular issues relevant to performance assessment of single shell radioactive waste tanks at Hanford, Washington State, U.S.A ([Egan et al., 2009 Assessing confidence in performance assessments using an Evidence Support Logic methodology: An Application of TESLA – 9484. Proceedings of the WM2009 Conference, March 1-5, 2009, Phoenix, AZ](#)); and
- consistently evaluating the quality of geochemical data obtained from groundwater samples (Mizuno et al., 2007. Proposal for a quality assessment method of groundwater chemistry for hydrochemical investigation. Journal of the Japanese Association of Groundwater Hydrology, 49, 139-152 (in Japanese with English abstract)).

This new version of TESLA incorporates a host of new features designed to help make it easier to analyse, present and audit decisions, a summary of which is given below.

### **Contact Quintessa**

If you are interested in learning more about how an approach involving Evidence Support Logic could be applied to your business, please contact Quintessa's decision support team at [tesla@quintessa.org](mailto:tesla@quintessa.org).

## ***Important Information***

From v2.1, TESLA uses a new, more secure, binary file format.

Older versions of TESLA will not be able to open the files generated by TESLA v2.1 and newer. For that reason, if users wish to share trees generated by TESLA v2.1 or newer with their colleagues then they should ensure that their colleagues have, at a minimum, a demonstration version of TESLA v2.1 (that can be obtained from our Quintessa Online website as described below). Colleagues with a fully licenced version of TESLA will be able to alter the tree in addition to viewing it.

TESLA v2.1 and newer can read files generated by older versions of TESLA. Please be aware however, that if such trees are saved then they will be converted to the latest format and will no longer be accessible with older versions of TESLA. For that reason, you may wish to back up files generated by older versions of TESLA before opening them.

We recommend that anyone upgrading an existing TESLA installation first uninstall the old copy.

## ***Trying out TESLA***

A demonstration version of TESLA v2.1.1 can be downloaded from:

<http://www.quintessa-online.com/TESLA/>

If you do not hold a current licence for the software, it will run in a restricted demonstration mode. The restrictions are as follows:

- new trees can only contain a maximum of 10 nodes;
- no new nodes can be added to trees opened from pre-existing files;
- the save functionality is disabled.

You may use TESLA in demonstration mode to view and investigate trees created by other users.

## ***Notes for Existing TESLA Licence Holders***

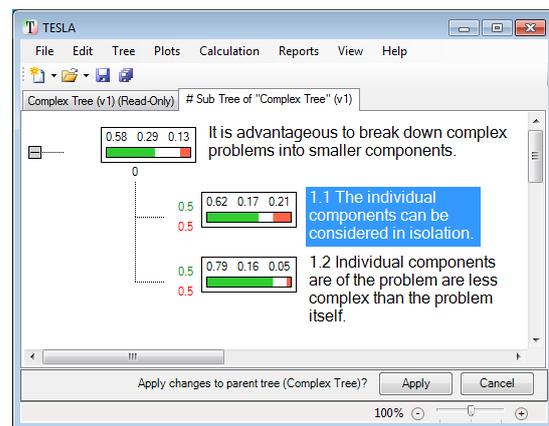
If you are an existing licence holder but that licence has expired (which will occur if it has been more than one year since the licence was activated) you may install TESLA v2.1.1, but it will drop into demonstration mode, as described above. You can then test it out. If you decide that you would like to upgrade to the new version, please contact us at [tesla@quintessa.org](mailto:tesla@quintessa.org) to enquire about upgrading your licence. Otherwise, you may uninstall the new version and reinstall your old version of TESLA. Your existing licence will be preserved in such a scenario. Please contact us if you require an installer for a previous version of TESLA.

If you are an existing licence holder and it has been less than a year since your licence was activated then you will be able to install the new version of TESLA and enjoy its full unrestricted capabilities at no extra cost.

## New Features

- **Simplification.** TESLA now has a single propagation method, previously known as Advanced Evidence Support Logic (AESL). Any old trees created using standard ESL will be converted to the new format. We have taken the decision to concentrate on developing ESL within TESLA; therefore multi-attribute decision analysis (MADA) trees are no longer supported.
- **Updates to terminology and documentation.** The User Guide and the terminology used within the main application have been updated in accordance with Quintessa's expert understanding of best practice in the application of ESL.
- **Improved tree view**

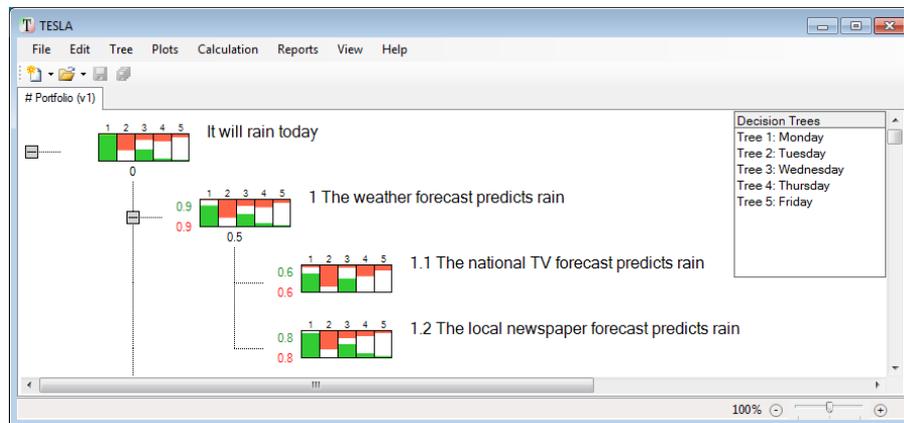
- A new **sub-tree** feature makes it easier to focus attention on complex trees. A branch can be broken off the main tree, values and tree parameters can be altered without affecting the main tree, and then the changes can be discarded or subsumed back into the main tree as required.



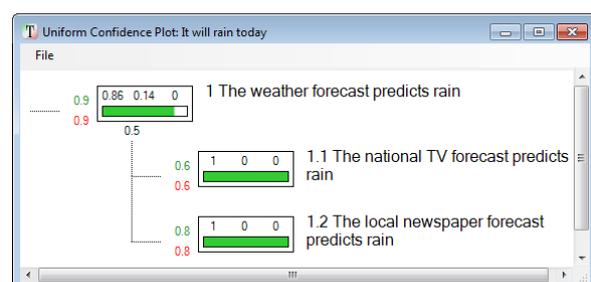
- Using the option under the "View" menu, **hypothesis summaries** can be shown or hidden. This means that hypothesis titles can now be much shorter.
- **Wrapping of long hypothesis titles** has been improved to reduce the amount of scrolling required. This is particularly useful when working with deeply nested trees.
- **Graduated zooming** can be performed using the slider in the status bar.
- It is now possible to **reorder sibling hypotheses** (hypotheses with a common parent).

- **Better change control management.** It is now possible to label versions of the tree in the change log, so they are easily identifiable.
- **Improved file management.** Supporting documentation added to a tree is now handled more effectively using a local library. File sizes can be reduced by archiving supporting documents in a separate file rather than embedding them in the tree itself.
- **Fully formatted PDF/Word reports.** The entire contents of the tree can now be output as a fully formatted PDF or Word report, in a choice of styles with a choice of elements.
- **Portfolio Tool**
  - The portfolio tool can be used to **compare different versions of the same tree** – showing how the decision has evolved with time, or to **compare multiple applications of the same tree structure** (e.g. when a single tree structure is used to evaluate different CO<sub>2</sub> storage sites) – which is useful when assessing a range of options on the same basis.

- The portfolio tool can also be used to **compare trees with different parameterisations**. Users are notified about differences in the parameterisation of the trees within the portfolio.



- **Improved support for template designers.** The process of creating a template tree is now clearer and more straightforward. A “Template Guidance” tab allows guideline confidence values and text to be entered; supporting documents can be attached and delivered to the template users. Guideline information entered by the template designer can be viewed easily whilst users go through the process of inputting confidence values.
- **More Secure File Format.** The information associated with the decision making process and the conclusions drawn from that process can sometimes be sensitive. An encrypted file format is used to help ensure that all stored information is inaccessible without the use of TESLA.
- **Improved Usability**
  - Standard keyboard shortcuts can now be used to control **rich text fields**. See Table 1.
  - **Keyboard shortcuts** for the main application have been standardised. See Table 2.
  - More **tooltips** have been added to dialogs, providing guidance in the application of ESL using TESLA.
  - **New user input fields** have been added to each node to allow users to separate out the information they record, e.g. reasons for choosing tree parameter values, a detailed description of the hypothesis, reasons for choosing confidence values.
- **Support for 64bit Windows.** TESLA now supports both 32 and 64 bit Windows.
- **Single-branch Uniform Confidence plots.** Uniform confidence plots can now be drawn for a single branch as well as the entire tree; confidence can be applied to any level in the tree, not just the leaf



nodes.

- **Much more...** This release also includes many updates designed to improve stability and memory footprint.

### ***Known Issues***

At the time of release there are no known issues with TESLA v2.1.1.

Between TESLA v2.0 and TESLA v2.1 the action of copying and pasting a hypothesis or branch of hypotheses, or of working on a sub-tree and subsequently subsuming it back into the main tree, could provoke the following information associated with those hypotheses to be lost:

- Text entered into the 'rationale' or 'notes' field;
- Actions or reasons listed against values of confidence for or confidence against a hypothesis.

Also, at version 2.1, the print dialog would fail to appear on 64 bit Windows.

From v2.1.1 the above issues have been resolved. It is recommended that all users upgrade to v2.1.1 if possible.

**Table 1: Keyboard Shortcuts for Rich-Text Fields**

Action	Keyboard Shortcut
Cut	Ctrl+X
Copy	Ctrl+C
Paste	Ctrl+V
Bold	Ctrl+B
Undo	Ctrl+Z
Redo	Ctrl+Y
Italic	Ctrl+I

Action	Keyboard Shortcut
Increase font size	Ctrl+]
Decrease font size	Ctrl+[
Left align	Ctrl+L
Right align	Ctrl+R
Centre align	Ctrl+E
Increase indent	Ctrl+T
Decrease indent	Ctrl+Shift+T

**Table 2: Keyboard Shortcuts for Menu Items**

Action	Shortcut
File > New Tree	Ctrl+N
File > Open	Ctrl+O
File > Close	Ctrl+F4
File > Save	Ctrl+S
File > Save all	Ctrl+Shift+S
File > Print	Ctrl+P
File > Exit	Alt+F4
View > Collapse Tree at Selection Level	Ctrl+Left
View > Expand Tree at Selection Level	Ctrl+Right
View > Zoom In	Ctrl+Plus Ctrl+MouseScroll
View > Zoom Out	Ctrl+Minus Ctrl+MouseScroll
Move node selection up	Up
Move node selection down	Down

Action	Shortcut
Edit > Edit Node	F2
Edit > New Child Node	Ctrl+Ins
Edit > Cut	Ctrl+X
Edit > Copy	Ctrl+C
Edit > Delete	Ctrl+Del
Edit > Delete Child Nodes	Shift+Del
Edit > Move Node Up	Ctrl+Up
Edit > Move Node Down	Ctrl+Down
Calculation > Force Update	F5
Plots > Tree Plots	Ctrl+T
Help > View Manual	F1