

SMARTree Software is a new data framework built with an easy to use drag and drop GUI that allows implementation and control of standard protocols to store and share material, process and test data. The drag and build SMARTree environment utilizes SMARTags to index files for direct access within the client . The content within SMARTrees include built in logic and integrity checks so as to ensure valid data with compliance to various material and test standards. Version 1.x has a number of data reduction methods capable of handling various data sources that include raw test data or images and can extract various information from these files through an easy and automated process.

- Easy to use drag and drop GUI that allows implementation and control of standard protocols to store and share material, process and test data.
- Encompasses hierarchical trees comprised of elements that include the following: Header, Text, Value, Date, Table, Selection, Laminate Plot.
- Includes built in logic and integrity checks for each element so as to ensure valid data with compliance to various material and test standards.
- Includes a number of data reduction methods capable of handling various data sources that include raw test data or images and can extract various information from these files through an easy and automated process.
- Includes an XML parser with read and write capabilities that allow storage of data in an easily readable format.
- It includes the ability to drag drop data from XML SMARTree libraries and assemble information in an organized hierarchy.

- Includes a template feature that aids in building various trees and has a novel method of referencing and searching tree contents in shared libraries.
- Has the ability to store and edit material properties via real time file indexing.
- Includes standard cut/copy/paste/duplicate features as well as a SMART search feature to easily locate data.
- Includes a number of preexisting tree templates and standards that aid in the quick population of new trees. This feature is incorporated into an active folder management utility that tracks SMARTree's within designated folders.
- Has the ability to communicate to external devices using standard NI DAQ protocols for machine process control and feedback.
- Has an embedded licensing method that controls software and embedded module activation and expiration.

SMARTree establishes the development of a standard protocol implemented through various PC client and mobile applications that build on the cloud storage concept so as to store and share material, process and test data. The client software that builds these standards accommodates ease of use with built in integrity checks so as to ensure data integrity and compliance with various material testing standards. The client software is built with integrated data reduction methods capable of handling various data sources that include raw test data or images. The client software is also built with embedded analytical or numerical solvers to aid in generating material property data such as micromechanics or effective laminate properties. Cloud sharing of this user generated data is built up on the dropbox.com platform but can be shared with other cloud based methods preferred by the

user.