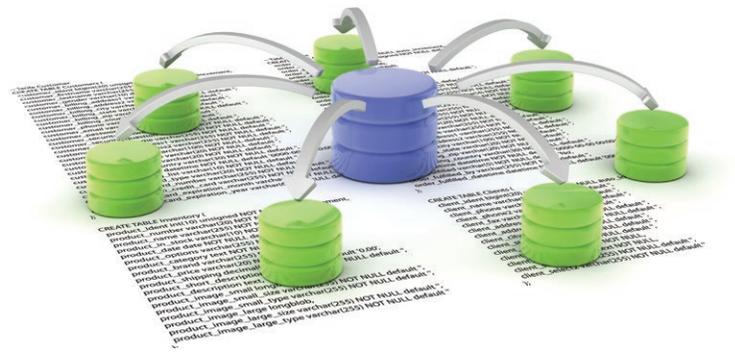




technology opportunity

Program Validates and Analyzes Time History Data Processes

Stand-alone tool is low-cost alternative to multiple-component systems



Innovators at NASA's Armstrong Flight Research Center have developed a software tool that compares differences between time history data files in order to validate and analyze pre-processing activities. The DthDiff utility program compares any two data files supported in the DthData data set. This customizable utility allows users to control the nature of comparisons, specify precision tolerances, and perform an agreement check. This stand-alone utility is part of a software suite that offers a low-cost alternative to expensive, multiple-component data processing and plotting systems. It is useful for the aerospace, manufacturing, and scientific research industries.

Benefits

- **Powerful:** Recognizes a wide variety of data formats due to a new C library of time history routines
- **Flexible:** Supports several tolerances that allow users to control comparisons and specify precision tolerances
- **Economical:** Does not require additional software, computers, or back-end databases

Applications

- Flight testing and simulation projects
- Manufacturing processes
- Scientific research
- Earth climate modeling and simulation
- Retail transaction and delivery analysis
- Economic market modeling

Technology Details

How It Works

NASA Armstrong's DthDiff utility program compares time history files. In addition to configuring the nature of comparisons, users can specify a precision tolerance and perform a check for a specified number of significant digits. Alternatively, they can use absolute, relative, and percent tolerances to perform the comparison. Program output can be used in Armstrong's QuickPlot and other software to display results. Summary output also indicates the number of samples that fail specified tolerance tests.

A command line-driven program, DthDiff works with a separate pre-processing utility (DthData) and plotting software (QuickPlot) to read, write, plot, and validate various data types. The DthData and QuickPlot tools also are available for license. Development is underway for a new version based on Java® software that combines all three utilities into a single graphical user interface (GUI), operating on three tabs.

Why It Is Better

Aircraft test and simulation research projects generate large amounts of computer data, the majority of which are time history data. Conventional data pre-processing utilities require additional software, computers, and back-end databases to operate. NASA Armstrong's DthDiff is a stand-alone utility that compares time history files to validate and analyze pre-processing activities. It can be used to demonstrate repeatability as well as to verify the degree to which test data are the same or different. DthDiff also can be run with a tolerance value to determine the number of samples that fail to meet a specific tolerance test.

This utility is ideal for users in the aerospace, manufacturing, and scientific research industries.

Licensing and Partnering Opportunities

This technology is part of NASA's Technology Transfer Program, which ensures that technologies developed for missions in exploration and discovery are broadly available to the public, maximizing the benefit to the Nation. The DthDiff Time History Software Utility (DRC-012-025) is available through a software usage agreement for commercial applications.

For more information about this technology, please contact:

NASA's Armstrong Flight Research Center

Phone: (661) 276-3368

E-mail: DFRC-TTO@mail.nasa.gov

Web: www.nasa.gov/offices/ipp/centers/dfrc/