Software

Integrated Budget Office Toolbox

The Integrated Budget Office Toolbox (IBOT) combines budgeting, resource allocation, organizational funding, and reporting features in an automated, integrated tool that provides data from a single source for Johnson Space Center (JSC) personnel. Using a common interface, concurrent users can utilize the data without compromising its integrity. IBOT tracks planning changes and updates throughout the year using both phasing and POP-related (program-operating-plan-related) budget information for the current year, and up to six years out.

Separating lump-sum funds received from HQ (Headquarters) into separate labor, travel, procurement, Center G&A (general & administrative), and service-pool categories, IBOT creates a script that significantly reduces manual input time. IBOT also manages the movement of travel and procurement funds down to the organizational level and, using its integrated funds management feature, helps better track funding at lower levels. Third-party software is used to create integrated reports in IBOT that can be generated for plans, actuals, funds received, and other combinations of data that are currently maintained in the centralized format. Based on Microsoft SQL, IBOT incorporates generic budget processes, is transportable, and is economical to deploy and support.

This program was written by Douglas A. Rushing, Chris Blakeley, Gerry Chapman, and Bill Robertson of Johnson Space Center and Allison Horton, Thomas Besser, and Debbie McCarthy of SAIC. Further information is contained in a TSP (see page 1). MSC-24167-1

PLOT3D Export Tool for Tecplot

The PLOT3D export tool for Tecplot solves the problem of modified data being impossible to output for use by another computational science solver. The PLOT3D Exporter add-on enables the use of the most commonly available visualization tools to engineers for output of a standard format. The exportation of PLOT3D data from Tecplot has far reaching effects because it allows for grid and solution manipulation within a graphical user interface (GUI) that is easily customized with macro language-based and user-developed GUIs. The add-on also enables the use of Tecplot as an interpolation tool for solution conversion between different grids of different types. This one add-on enhances the functionality of Tecplot so significantly, it offers the ability to incorporate Tecplot into a general suite of tools for computational science applications as a 3D graphics engine for visualization of all data.

Within the PLOT3D Export Add-on are several functions that enhance the operations and effectiveness of the add-on. Unlike Tecplot output functions, the PLOT3D Export Add-on enables the use of the zone selection dialog in Tecplot to choose which zones are to be written by offering three distinct options — output of active, inactive, or all zones (grid blocks). As the user modifies the zones to output with the zone selection dialog, the zones to be written are similarly updated. This enables the use of Tecplot to create multiple configurations of a geometry being analyzed. For example, if an aircraft is loaded with multiple deflections of flaps, by activating and deactivating different zones for a specific flap setting, new specific configurations of that aircraft can be easily generated by only writing out specific zones. Thus, if ten flap settings are loaded into Tecplot, the PLOT3D Export software can output ten different configurations, one for each flap setting.

This work was done by Stephen Alter of Langley Research Center. Further information is contained in a TSP (see page 1). LAR-17678-1

Math Description Engine Software Development Kit

The Math Description Engine Software Development Kit (MDE SDK) can be used by software developers to make computer-rendered graphs more accessible to blind and visually-impaired users. The MDE SDK generates alternative graph descriptions in two forms: textual descriptions and non-verbal sound renderings, or sonification. It also enables display of an animated trace of a graph sonification on a visual graph component, with color and line-thickness options for users having low vision or color-related impairments. A set of accessible graphical user interface widgets is provided for operation by end users and for control of accessible graph displays.

Version 1.0 of the MDE SDK generates text descriptions for 2D graphs commonly seen in math and science curriculum (and practice). The mathematically rich text descriptions can also serve as a virtual math and science assistant for blind and sighted users, making graphs more accessible for everyone.

The MDE SDK has a simple application programming interface (API) that makes it easy for programmers and Web-site developers to make graphs accessible with just a few lines of code. The source code is written in Java for cross-platform compatibility and to take advantage of Java's built-in support for building accessible software application interfaces. Compiled-library and NASA Open Source versions are available with API documentation and Programmer's Guide at http://prime.jsc.nasa.gov.

This work was done by Robert O. Shelton of Johnson Space Center, Stephanie L. Smith and Dan E. Dexter of L-3 Communications Corp., and Terry R. Hodgson of Indyne, Inc. Further information is contained in a TSP (see page 1). MSC-24139-1

Astronaut Office Scheduling System Software

AOSS is a highly efficient scheduling application that uses various tools to schedule astronauts' weekly appointment information. This program represents an integration of many technologies into a single application to facilitate schedule sharing and management. It is a Windows-based application developed in Visual Basic. Because the NASA standard office automation load environment is Microsoft-based, Visual Basic provides AOSS developers with the ability to interact with Windows collaboration components by accessing objects models from applications like Outlook and Excel. This also gives developers the ability to create newly customizable components that perform specialized tasks pertaining to scheduling reporting inside the application. With this capability, AOSS can perform various asynchronous tasks, such as gathering/sending/managing astronauts' schedule information directly to their Outlook calendars at any time. AOSS users use