

SOFTWARE MANAGEMENT IN A CHANGING ENVIRONMENT

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Introduction

The Energy Science and Technology Software Center (ESTSC), located in Oak Ridge, TN is the U.S. Department of Energy's (DOE) centralized software management facility. Operated by the DOE Office of Scientific and Technical Information, the ESTSC is authorized to license and distribute federally funded DOE-sponsored software and federally funded U.S. Nuclear Regulatory Commission (NRC) sponsored software developed by national laboratories and other facilities and contractors of DOE and the NRC. ESTSC also makes available selected software from the Nuclear Energy Agency (NEA) of the Organization for Economic Cooperation and Development through a Cooperative Arrangement between the Office of Scientific and Technical Information and the NEA. We also work with Specialized Information Analysis Centers (SIACs) to maximize their effectiveness and ensure that requesters are referred to the appropriate SIAC when needed.

Background

The Department of Energy's centralized software management was first the responsibility of the National Energy Software Center (NESC). NESC was operated by Argonne National Laboratory in Illinois before it was moved to Oak Ridge. In 1991, the NESC collection was moved to the DOE Office of Scientific and Technical Information Office (OSTI) in here in Oak Ridge. The name was changed to Energy Science and Technology Software Center when the Software Center moved from Argonne to Oak Ridge. The Center was operated by onsite contractors with oversight provided by DOE employees until October 1995. OSTI employees then assumed the responsibility of operating the ESTSC. This new responsibility was a result of downsizing and reducing federal budgets. The Software Center staff was reduced from 7.5 employees to presently 4 employees.

Policy

The Department of Energy Order 1430.1D, soon to be reissued as DOE O241.1, requires the management of scientific and technical software for Departmental, Intergovernmental, and public availability to be in accordance with best business practices, and to include mechanisms for the review of sensitive foreign country requests for the software. The ESTSC is the focal point for coordinating review of all such requests for software.

Software for which the contractor has asserted copyright is required by the M&O contract to be submitted to the ESTSC. Such copyrighted software is not publicly disseminated but is available to Federal Government organizations and their contractors for use on

Government work only, as specified within the terms of the copyright approval issued by DOE.

Responsibilities

The key responsibility of the Center is to serve as the Department's centralized point for the collection, management, announcement, and distribution of DOE-sponsored software and to make available to the DOE and NRC communities information on software programs developed by others that could be of use to them. To help fulfill this responsibility, OSTI and the ESTSC have entered into cooperative arrangements with other organizations including Federal and international agencies to foster exchange of scientific and technical computer software for the benefit of DOE and its contractors as described below.

- Under an interagency agreement between DOE and the NRC, the ESTSC has been designated as the exclusive operating agent for NRC's software management activity and is authorized to collect, process, test, announce and distribute software sponsored by NRC.
- As part of DOE's international cooperative arrangement with the Nuclear Energy Agency (NEA) of the European Organization for Economic Cooperation and Development (OECD), the Software Center has an agreement for the exchange of DOE scientific and technical computer software falling under the ESTSC 's scope and also coordinates NRC nuclear-related exchanges with the NEA. Under this arrangement, computer software from the NEA collection is also made available to DOE and its contractors at substantial discounts.

Cooperative agreements are also in place with DOE's Specialized Information Analysis Center, such as the National Petroleum Technology Office and the Radiation Shielding Information Computational Center at the Oak Ridge National Laboratory, where DOE sponsored or supported unlimited software that falls within their scope may be announced by the ESTSC but is distributed by those Centers.

Under most M&O contracts, the DOE, the Federal Government and their contractors have rights to use all software that has been copyrighted by DOE M&O contractors. Therefore, copyrighted software is contractually required to be provided to the Software Center for

DOE/Government use. Under a "limited rights license" the ESTSC broadly announces the copyrighted software, identifies the DOE contractor, or its designee(s), as the source of availability for public requesters and refers them to the M&O contractors or their designated contact(s).

Meeting Customer Needs

The ESTSC has improved response to customers and software delivery time by streamlining the operations of the Center. There have been a number of enhancements made to the Software Management Access Control System (SMACS), including customizing the standard quote letter so additional information can be added to the standard letter on line. In addition, SMACS now prints letterhead as opposed to the staff inserting letterhead in the printer causing smudges and taking considerably more staff time.

Another change was made to SMACS enabling multiple price quotes using information input from the initial quote. Previously for multiple records, all information had to be re-entered for each additional record. The capability to print labels directly from data entered into the system was also added to each workstation.

The ESTSC has also enhanced the Web Page and added electronic submission forms. We plan to redesign the ESTSC Home Page in the near future. We have developed Desktop Publishing Capability which enables us to print our Domestic Listing and our Foreign Catalog whenever the need arises, eliminating considerable prep and graphics effort.

In addition, we have developed a multiple package pricing policy allowing discounts to those who want to purchase more than 2 software packages. Even with a significantly reduced staff, we normally send out software packages within 3 to 5 days after receipt of the signed licensed agreement and payment.

New equipment was purchased and existing equipment was upgraded to capitalize on new technologies. Included in this, we now have the capability to handle 4mm Dat Tape and Compact Disc (CD) media.

As a result of these enhancements, the Center has also managed to keep the cost of software packages down. We have not had a price increase since FY 1994, but have managed to improve the service to our customers.

Copyrighted Software and Sensitive Country Requests

When the Center receives a request for copyrighted software, the requester is asked to verify his status as either DOE, DOE contractor, Other Federal Agency (OFA) or OFA contractor, and the Center asks if the software will be used on a Federal Contract before price quote information is provided on copyrighted and/or limited software. Price quote information stating the software can only be used on Federal contract work and a license form are provided. If appropriate, additional written evidence is required before the software package is provided to the requester.

Also, in direct support of DOE Headquarters, all customer requests for computer software from sensitive foreign countries are required to be sent to the ESTSC for coordination with DOE Headquarters for review and approval or denial before processing can be done. The Office of Nuclear Non-Proliferation reviews these sensitive country requests and sometimes will send them to other Headquarters Offices for additional review before providing the appropriate disposition to the ESTSC. The Center then notifies the submitting organization of DOE's decision and, if the request is approved, will either process the software request or forward the DOE approval to the requesting organization for appropriate action.

Dissemination to Certain Audiences

DOE Laboratories sometimes request special handling that might include dissemination by the Software Center to certain audiences and referral of others to the Laboratory. Specifically, some submitting offices request broader dissemination by the ESTSC. If the software is not to be commercialized and the submitter may not want or may not be equipped to handle customer requests, submittal to the ESTSC can provide the submitter with control of distribution without the actual responsibility for handling, processing and distribution.

Routine Operational Questions

The ESTSC provides user technical support limited to responding to routine installation, operational or media questions. User questions related to software operation or development are screened by the Software Center staff and discussed prior to referral to the developers, as appropriate, thus minimizing the need for DOE software developers to respond to routine user questions.

Technology Partnerships

The Software Center also supports DOE's technology partnership. DOE or NRC software received by the Center without restrictions or dissemination limitations is available to the public and may be enhanced or modified for commercialization. Individuals or organizations may request permission to distribute their versions of DOE or NRC software from the ESTSC. Derivative dissemination letters are then provided without cost. The Letter also informs them that Export Administration Regulations may apply for foreign distribution.

The following five examples illustrate successful partnerships between the Center and the Laboratories.

SIMION

- INEEL has licensed SIMIOM3D6.0 to several commercial vendors and has asked the ESTSC to publicly announce it on the WWW. ESTSC has referred a number of public requesters to the INEEL licensees and has distributed 142 copies of SIMION to other Federal Agencies and their contractors.

ESTSC Designated by DOE or Laboratory as Exclusive Distributor of the Following Packages

TOUGH2 & TOUGH2(PC)

- Over 125 copies distributed by ESTSC. Organizations who get TOUGH2 through partnerships with the LBNL developer and those who get it from the Software Center use it on major problems in waste cleanup, as well as storage site analysis and design.

KIVA

- KIVA software distribution by the developer to the LANL development partners, commercially by the copyright holder (Cray version, only), and to more than 29 eligible requesters by the software center provides significant technology transfer in a very important energy field.

INGRID, DYNA, GRIZ, MAZE, NIKE, ORION, TAURUS, TOPAZ

- 218 copies of the LLNL versions of these codes have been distributed by ESTSC. LLNL relies on the Software Center to handle all requests for these codes, except for their narrowly defined collaborator list. ESTSC refers potential collaborators to LLNL.

NEAT & NEAT/MHEA

- In direct collaboration ORNL and NREL, ESTSC provides a reduced cost for distributing these programs to State Energy/Weatherization Offices. About 1250 copies of these programs have been distributed to ESTSC to date. Those who get it from the center use it to predict and evaluate home energy consumption.

Key Benefits

The ESTSC supports the Department's and National Laboratories' missions by providing the following benefits:

- Provides a central place for the collection, announcement and dissemination of DOE and NRC sponsored and selected NEA software;
- Provides direct interagency coordination;
- Partners with DOE offices to assure configuration control, foster software reuse and support technology partnerships;
- Provides "added value" through performing the appropriate level of reviews and/or testing on software it announces;
- Handles routine information and distribution requests, operational questions, and questions concerning copyright, thus minimizing the need for and the availability of software for modification or enhancement;
- Works with DOE offices to provide special pricing and bulk mailing, when needed;
- Provides broad announcement, dissemination and licensing activities, in cooperation with DOE and contractors;
- Works with DOE sites to assure controlled announcement or dissemination where appropriate.

The Center also works with the DOE sites to assist them in software submittal. Guidelines for submitting software are attached to the DOE Order and are available on the OSTI Web Site.

The ESTSC reviews all software submitted and categorizes into one of three categories based on the level of review performed. These categories are:

- **As Is**

The **As Is** software packages have been checked for completeness to ensure that all the necessary pieces of the package are included and that media are machine-readable (printable and viewable). The data also have been examined for copyrighted or controlled information.

- **Screened**

The **Screened** software packages have received all reviews performed on **As Is** packages, plus the software has been checked for unresolved external references.

- **Tested**

The **Tested** software packages have received all the reviews performed on **Screened** packages, plus the software has been compiled on the appropriate platform to ensure that it complies and links without error. The software also has been tested using input and associated output information sent to the Center by the submitter.

Conclusion

The Software Center collection represents the latest in Federal technology and the Center provides the mechanism to not only broadly announce DOE and NRC sponsored software, but also to provide information about and access to other Federal and international scientific and technical software. Since the software is available at reduced costs for use by DOE, other Federal agencies, and Federal contractors, it maximizes the benefit not only to the Department but also to the Federal Government. Through effective scientific and technical computer software management provided by the Software Center, hundreds of thousands of dollars are saved annually by the Department. ESTSC has been able to improve customer service, yet has minimized cost while maintaining constant software prices.

Guidelines for submitting software to the ESTSC are attached to the DOE Order, and both the Guidelines and select, searchable records from the software catalog are available electronically on the DOE World Wide Web server on the Internet. There is a sub-team of Goal III which are presently reviewing the guidelines and are in the process of updating them.

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To order software, request consultation services or for further information, contact the Energy Science and Technology Software Center (ESTSC) at:

Mail: P.O. Box 1020
Oak Ridge, TN 37831-1020

Telephone: (423) 576-2606
Fax: (423) 576-6436
E-mail: ESTSC@adonis.osti.gov

or visit our World Wide Web site at:

- <http://www.doe.gov/html/osti/estsc/estsc.html>
Provides direct access to general information about ESTSC including a direct link to the software catalog.
- <http://www.doe.gov/waisgate/estsc.html>
Provides direct access to the online searchable ESTSC software catalog.