

SOLE SOURCE JUSTIFICATION AND APPROVAL FOR ACQUISITION UNDER THE SIMPLIFIED ACQUISITION THRESHOLD

1. Contracting Agency and Activity. The Department of the Interior, United States Geological Survey, Office of Acquisition and Grants, Reston Acquisition Branch, plans to solicit from a single source. This document sets forth the justification and approval as required by FAR 13.106-1(b)(1)) “Only One Source Reasonable Available”.

2. Nature of Action Being Approved. The USGS Geological Survey – Woods Hole Coastal & Marine Science Center (USGS – WHCMSC) has a requirement to exercise option year one of purchase order, G12PX01552 for the Enterprise License and Gold Support subscription for the ActiveThought Python software site license from Enthought, Inc. for the period of 08/23/2013 through 08/22/2014. This site license will be available to all USGS scientists.

3. Description of Supplies or Services. The USGS employs geoscientists in all regions and disciplines who require efficient and powerful tools for geospatial data access, processing, analysis, and visualization, including the ability to access data via community web standards directly into analysis software such as ArcGIS. Python is emerging as one of the powerful analysis and visualization environments across the geosciences. Although Python is free, there are hundreds of toolboxes, and many must be compiled for a specific operating system, making it challenging for scientists to install. For effective use, and interoperability of Python code within the USGS, the USGS has a need for a maintained, controlled Python distribution.

To ensure compatibility with ArcGIS 10.0 (which uses Python 2.6) and ArcGIS 10.1 (which requires Python 2.7), to function on the range of computers used at the USGS, and to effectively carry out USGS scientific work, the distribution must meet specified requirements.

REQUIREMENTS

The Python Distribution must support Python 2.6 and 2.7 on the following platforms:

- Both 32/64 bit OS (for compatibility with 32-bit and 64-bit applications)
- Windows (XP, 7) – USGS enterprise desktop platform
- Windows Server 2003/2008) – USGS enterprise server platform
- Linux (Ubuntu, RedHat, CentOS)
- Mac OS X – USGS oceanography/climate research community
- Solaris – Legacy USGS database systems

The Python Distribution must have these packages:

- Python 2.6, 2.7 with Python standard library (required for ArcGIS support)
- Cython - language for writing C extensions for Python
- fwrap - wrap Fortran 77/90/95 code in C, Cython and Python
- ipython - advanced shell for interactive and exploratory computing
- libgdal Geospatial Data Abstraction Library
- matplotlib - interactive 2D plotting library

- mayavi - 3D plotting library
- netCDF4 - read from OPeNDAP, read/write NetCDF 3 and NetCDF4
- numpy - general-purpose array-processing and math library
- PIL - image processing library
- pyproj - cartographic transformations and geodetic computationspytz - world timezone definitions, modern and historical
- pywin32 – Windows MFC support; Pythonwin IDE
- Qt - cross-platform application and UI framework
- scipy - library for mathematics, science, and engineering
- wxPython - wrapper around the wxWidgets C++ GUI library
- xlrd - extract data from Microsoft Excel (tm) spreadsheet files
- xlwt - create spreadsheet files compatible with MS Excel

4. Estimated Dollar Value is Less Than the Simplified Acquisition Threshold (SAT) (\$150,000 effective 10/1/2010). The estimated dollar amount for this requirement is \$50,000.00.

5. Statutory Authority. A single source will be solicited as implemented in FAR 13.106-1(b)(1)) “Only One Source Reasonable Available”.

6. Rationale Supporting Use of Citation in No. 5.

a. The USGS needs a supported scientific Python distribution that works on all their major operating systems (Windows, Mac, Linux, Solaris), is compatible with ESRI ArcGIS and comes equipped with essential Python packages that enable scientific processing and visualization of geosciences data that let the USGS freely collaborate with the national and international science community.

b. There are several companies providing Python distributions, which contain a number of python packages that are guaranteed to work on a particular architecture, and have a simple install and maintenance procedure. ActiveState and Anaconda Python are popular in the business community, and Enthought Python and Python(x,y) are two popular distributions for the scientific community. Python(x,y) is free, and supports most of the packages listed, but is only available on Windows, and there is no guarantee of support (it is the work of one individual in France). Enthought Python is the only package that meets the full requirements of supporting all the operating systems used by USGS scientists and with the packages USGS requires.

c. This capability is critically needed by the USGS contribution to the White House initiative on Coastal and Marine Spatial Planning, to deliver USGS model products to other USGS scientists and State decision makers using ArcGIS. Inability to acquire the Enthought Python Distribution (EPD) would require costly and time consuming work arounds to achieve the same functionality. There are currently 110 registered users of the EPD within the USGS. We estimate that trying to manage the 100+ packages without the EPD would take 2 hours per month, or 2650 hours/year. These users are mostly scientists or computer specialists, and if we conservatively estimate an hourly rate of \$20/hour, this amounts to \$52,800. Because there would be no way of ensuring a common software environment, even more time and money would be spend trying to modify code or packages to duplicate functionality created by other USGS employees. The USGS

CMSP Program has provided funds along with the USGS Core Science Systems mission area to ensure that the Enthought Python Distribution will remain functional during the FY14 calendar year.

7. Other Information.

The USGS National Earthquake Information Center – Golden, CO individual Enthought licenses expired on May 19, 2012. This one USGS site license replaced several individual licenses. There are now 110 registered users of the EPD.

8. The Efforts to Identify Additional Sources Including the Market Research Conducted.

Other companies that distribute Python software were identified. However, none of them, other than the proposed vendor, Enthought, Inc. meet the Government’s minimum need. ActiveState and Anaconda Python do not provide the required NetCDF4 (data services) and Mayavi (3D plotting) packages, and Python(x,y) is only available on the Windows platform.

9. Future Plans to Permit Competition.

If other scientific Python distributions come on the market that meet the technical requirements, the contract may be competed with other vendors, as this contract is only to exercise option year one of purchase order G12PX01552.

10. Recommendation Program Office

Based on the above, I recommend this acquisition be conducted on a sole source basis and certify that the above statements are true and correct.



Rich Signell

7/9/2013
Date

11. Certifications from the Contracting Officer

- a. Price reasonableness is based on comparison to a purchase order for the same licenses made in the same amount. This PO was provided by the vendor as evidence that USGS is receiving a fair and reasonable price.
- b. This justification is accurate and complete to the best of my knowledge and belief.

David P Ouellette, Contracting Officer

Date

12. Concurrence by Competition Advocate > \$25,000 (DIAPR 2008-10 Enhancing Competition)

Jennifer Farrell, Bureau Competition Advocate

Date