

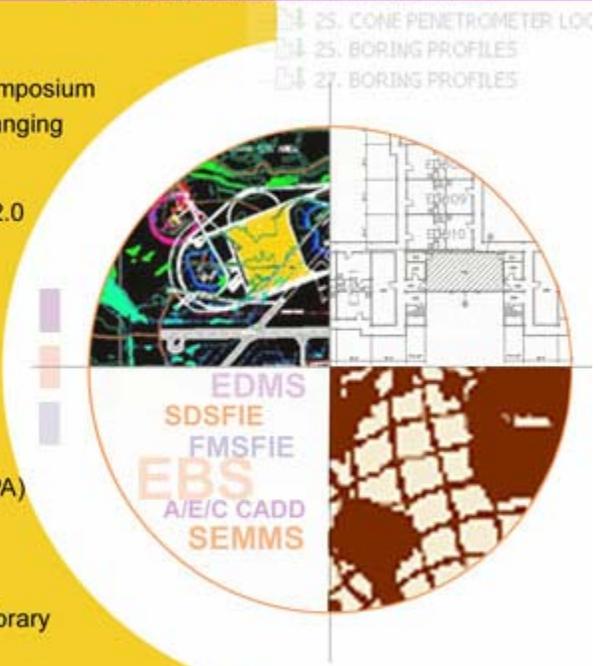


EDMS
SDSFIE
FMSFIE
EBS
A/E/C CADD
SEMMS

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Insights

From the Center Chief

*by Harold L. Smith, Chief
The CADD/GIS Technology Center for Facilities,
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Well, we did it! The Spatial Data Standard for Facilities, Infrastructure, and Environment (SDSFIE) is now the American National Standards Institute (ANSI) Standard NCITS 353. Congratulations to all that helped create it, review it, and implement it – and there are many.

Accreditation as an ANSI standard does not come easily. To be approved, the SDSFIE had to meet stringent requirements spelled out by ANSI, including consensus approval among a national group of technical experts, a public review and comment evaluation, and an issue resolution process.

The ANSI accreditation highlights the SDSFIEs migration from a Department of Defense (DoD) standard into a national standard. Henry Tom, Chairman of NCITS GIS Technical Committee, put the standards into perspective when he stated, "Now there will be a national standard for enabling the common collection and interoperability of spatial data by DoD facilities, state and local governments. Because these operations include our military facilities, civilian airports and other public facilities, infrastructure, and environment, this standard is fundamental for our homeland defense."

The Center regularly updates and expands the SDSFIE and will do the same for NCITS 353. Digital updates include adding to the SDSFIE feature catalog, enhancing the browser and generator tools, and adding functionality to ensure compatibility with current technology. Kate McMillian, Director of the NCITS Secretariat, commented, "Given the sheer size of NCITS 353, providing this standard in digital form via a CD greatly enhances the viewing and browsing of it and reduces the burden on an organization's efforts to implement this standard into a commercial, geographic information database schema."

Now we have the hard work ahead – implementing the standard at every DoD installation. With this backing from NCITS, we are well on our way.



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2002 Geospatial Technologies Symposium and Exposition: Supporting a Changing Environment

The 2002 Symposium and Exposition is a go! Submit your presentation abstracts now - it is easy and completely automated.

The official Web site for the 2002 Geospatial Technologies Symposium and Exposition is now online:

http://tsc.wes.army.mil/center_info/symposium/Symposium.asp?mode=4. This site contains information on the schedule, location, exhibitor booths, and registration. Submitters will be notified of the acceptance of their abstract by April 19, 2002. Each Symposium has had many diverse and interesting presentations, and the Center looks forward to seeing what topics have been faced and solved by users in this collection of abstracts.

The Symposium will be held at the Henry B. Gonzalez Convention Center on August 20-22, 2002 in San Antonio, TX.

For additional information about the conference, contact Toby Wilson (James.T.Wilson@erdc.usace.army.mil, 601-634-3604) or Stephen Spangler (Steve.C.Spangler@erdc.usace.army.mil, 601-634-3104).

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A/E/C CADD Standard, Release 2.0

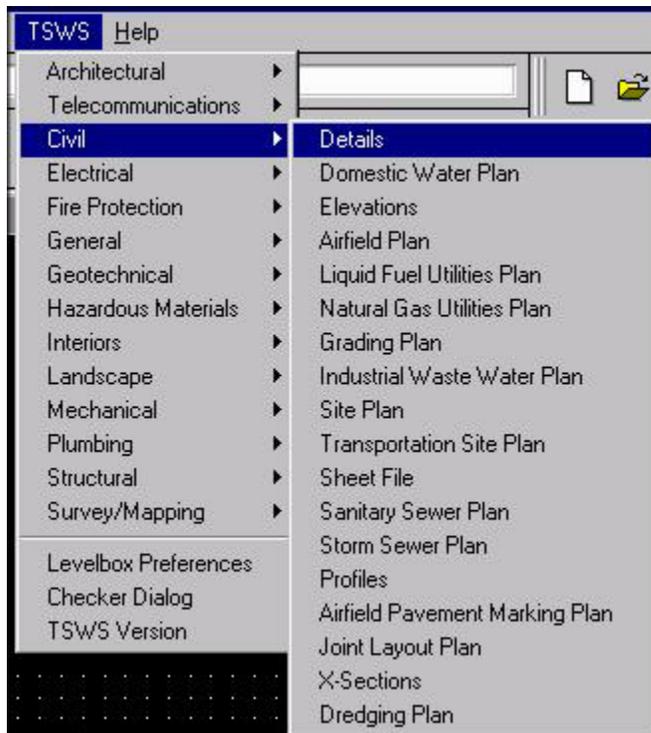
*by Stephen Spangler
The CADD/GIS Technology Center for Facilities, Infrastructure, and
Environment*



In October 2001, The CADD/GIS Technology Center made Release 2.0 of the A/E/C CADD Standard available to its users. For this release, the Center took a "less can be better" approach to the Standard. Center personnel visited several Corps sites in FY01 and discovered from field personnel what worked in Release 1.8 of the Standard and what did not. The Corps' Field Actions CADD (FAC) groups also provided great feedback on the

Standard. The result is a more streamlined Standard. Where the previous Standard offered various options on naming and creating files, this release has whittled down the options, resulting in a Standard that is less open to interpretation. The Standard also incorporates changes made between Releases 1.0 and 2.0 of the U.S. National CAD Standard (NCS). For instance, the Utilities and Security disciplines have been merged into other disciplines to make the Standard compliant with the NCS. Several new symbols have been added to the existing symbol libraries, including Hydrographic Survey symbols.

The MicroStation Workspace and File Manager have been updated to reflect changes to the Standard. In addition, several improvements have been made. The Workspace Generator now accepts long level names. The Checker has been updated to compare files against specific model file types, rather than simply the discipline. All tools have been updated to function with Access 2000. The File Manager tool has been updated to comply with the NCS file naming



methodology for model files and sheet files. For FY02, the Workspace, Checker, and File Manager will be updated to work with MicroStation V8.

This past year, there were two Standard/Workspace Assistance Team (SWAT) visits to assist Corps sites in implementing the A/E/C CADD Standard. Jacksonville and Louisville Districts were both visited by the SWAT. Personnel at the sites were introduced to the Standard, Workspace, and

Checker. Informal meetings were held with different discipline sections to determine the workflow for CADD drawings at the site. The general consensus from attendees was that they were interested in moving to a Corps-wide standard, but wanted a "honeymoon" period with the Standard to become acquainted with the material in it. In the SWAT training classes, students used the Workspace 2.0 Beta software. The students agreed that additional implementation tools would be helpful, since their heavy workloads do not allow them time for searching manuals to locate information levels. All attendees felt the SWAT visits were worthwhile. If any Corps sites are interested in funding a SWAT visit for FY02, please contact John Kincaid at John.A.Kincaid@mvr02.usace.army.mil.

Additional information about the A/E/C CADD Standard and Workspace can be found at: <http://tsc.wes.army.mil/products/standards/aec/aecstdweb.asp>. If you have any questions about the Standard or have recommendations for improvements, please contact Stephen Spangler at Steve.C.Spangler@erdc.usace.army.mil.

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Electronic Bid Solicitations (EBS) Web Services

by Drew Anderson

*The CADD/GIS Technology Center for Facilities, Infrastructure, and
Environment*

Striving to simplify the transfer of electronic solicitations to industry, Electronic Bid Solicitation (EBS) Web sites have been outfitted with Web services. These services expose an Application Program Interface (API) that publishes solicitation information. The API works like a function normally found in a program. A request is made specifying the method to execute and passes necessary parameters. A response is then formulated based on the request and sent back. The whole process is performed using the http protocol over the Internet. Requests to the API are formatted in eXtensible Markup Language (XML), as are the corresponding responses.

Here is the pseudo code for obtaining all solicitations, including files, from EBS Web sites.

```
Get a list of EBS Web Sites
For each Site
    Get a list of Advertised Solicitations
    For each Solicitation
        Get Solicitation Meta Data
        Get a list of Amendments
        Get a list of Plan Holders
        Get a list of Solicitation Files
    Next Solicitation
Next Site
```

Utilizing Microsoft's Document Object Model (DOM), applications can be easily written to process this information. Before you are able to use Microsoft's DOM in a Visual Basic project, you must first add the "Reference": Microsoft XML, version 2.0 or higher. The following is an example program followed by a code explanation of how to obtain a list of all EBS Web sites with Web services.

```
1. Dim doc As New DOMDocument
2. Dim node As IXMLDOMNode
3. Dim attr As IXMLDOMAttribute
4. doc.async = False
5. doc.Load "http://tsn.wes.army.mil/EBSWebSites.asp"
6. For Each node In doc.documentElement.childNodes
7.     For Each attr In node.Attributes
8.         Select Case UCase(attr.nodeName)
9.             Case "NAME"
10.                Debug.Print "Web Site Name: " &
```

```

attr.nodeValue
11.          Case "URL"
12.          Debug.Print "URL:" & attr.nodeValue
13.      End Select
14.  Next
15. Next

```

Line 1 creates a new DOM object. When loaded with XML data, it represents a tree of data.

Line 2 defines a "node" object. A "node" could have "child nodes," "attributes," and/or data. In this case, we are only worried about the "child nodes" of the root node.

Line 3 defines an "attribute". Here we use only the "nodeName" and "nodeValue" properties of an attribute.

Line 4 tells the DOM object to download the entire XML data stream first before processing it.

Line 5 does the actual http call to the given URL. The XML data the script produces are loaded into the DOM and made available for us to read. Currently, the Microsoft DOM object does not support SSL.

Line 6 will loop through the child nodes of the root node. Since the structure of this XML data stream is only two levels deep, this is all we need to process all of the data.

```

<Response .....>                ; Root node with attributes
  <WebSite ..... \>              ; Child nodes with attributes
  <WebSite ..... \>
  <WebSite ..... \>
</Response>

```

Line 7 will loop through all attributes of a node. A node could have many attributes, each having a name and a value.

```

<WebSite                ; Node name
Name="..."            ; Name of EBS Web Site
  URL="..."           ; URL to Web Services
  Database="..."      ; Database name in use at the site
  Link="..."          ; URL to Solicitation web page
  Code="..."          ; Solicitation procurement code
  FilePath="..."     ; Path to solicitation files
/>

```

Lines 8 thru 13 will print each Web site's name and URL.

As you can see, using Web services is really very easy. One just needs to know how to make the call to the API and then understand the format of the data coming back. For a complete listing of available API function calls please refer to <http://tsn.wes.army.mil/TSNSoftware.asp>.

For additional information, contact Drew Anderson at 601-634-4226 or e-mail to Drew.L.Anderson@erdc.usace.army.mil.

ProjectWise[®] and Digital Print Room[™] Now Available on Intergraph's IM/FCAD2 Contract

*by John A. Hood
The CADD/GIS Technology Center for Facilities, Infrastructure, and
Environment*

Intergraph Government Solutions (IGS) has announced the addition of ProjectWise[®] and Digital Print Room[™] software from Bentley Systems to The CADD/GIS Technology Center's Installation Management/Facilities CAD2 (IM/FCAD2) contract. IM/FCAD2 provides one-stop shopping for the product, service, and support needs of Federal agencies. By combining technology and product support from Bentley Systems with implementation and technical services from IGS, these additions provide significant advantages to Center customers. IGS is a systems integration and management consulting company providing leading-edge business and technical solutions. Technical support from Bentley Systems through their SELECT program is available on IM/FCAD2 at <http://cad2.wes.army.mil/> for these products. (Bentley SELECT is a service and technology subscription program available for engineering automation software.)

ProjectWise is an engineering information management tool that allows organizations to store, retrieve, manage, and view engineering documents – with support for over 200 file format types, including MicroStation[®], AutoCAD[®], and Microsoft[®] Office. Digital Print Room enables digital plot archive creation, management, and distribution over the Internet or an Intranet, allowing users to create Web-viewable digital archives of plots for an entire organization.

ProjectWise and Digital Print Room CLINs (contract line item numbers) and pricing are provided in the Online Product Catalog at www.intergraph.com/govt/contracts/fac/, along with other products offered on the Contract.

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Blanket Purchase Agreement (BPA) with Environmental Systems Research Institute (ESRI)

by John A. Hood

The CADD/GIS Technology Center for Facilities, Infrastructure, and Environment

In May 2001, The CADD/GIS Technology Center for Facilities, Infrastructure, and Environment completed negotiations with the Environmental Systems Research Institute (ESRI) for a blanket purchase agreement (BPA) containing all products available on the ESRI General Services Administration (GSA) schedule. The initiative is part of a pilot project to evaluate acquisition vehicles for their suitability as eventual follow-on contracts for the Installation Management/Facilities CAD2 (IM/FCAD2) contracts. The contract is available to all Center partnering agencies including IM/FCAD2 customers. The BPA became available immediately and will be renewable for 4 years. Per the contract, all orders by eligible agencies are below other ESRI GSA schedule prices.

All Corps offices can order directly using their in-house contracting resources. Other agencies can request a delegation of procurement authority from the Corps' Vicksburg Consolidated Contracting Office. Orders may also be placed via direct fund site through the IM/FCAD2 ordering office (<http://cad2.wes.army.mil/orderguide.asp>). All relevant contract information is available on the Center's Web site at <http://tsc.wes.army.mil>. Frequent updates and instructions are continually added.

Fourth quarter sales totaled \$375,546 with the Corps being the largest customer and the Army and Marine Corps acquiring approximately \$10,000 each. The predominate purchases were for the ArcView product suite and associated upgrades. Approximately 90 percent of the sales total was for product purchases or upgrades, with maintenance accounting for the remaining 10 percent.

In FY02, the Center will continue to enhance and improve the BPA as well as pursue other vehicles, including BPAs for support service.

For additional information, contact John Hood at 601-634-3138 or e-mail to John.A.Hood@erdc.usace.army.mil.

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Geodetic Conversion Routines Library

by Dr. V. Danushkodi

The CADD/GIS Technology Center for Facilities, Infrastructure, and Environment

Sometimes one good thing leads to another, to quote a well-know cliché. During the development of the Survey Engineering Monumentation Management System (SEMMS), Center team members generated a geodetic conversion routines library to facilitate data conversion between various horizontal and vertical datums in the United States. In a follow-up endeavor, the Center staff has completed a standard set of dynamic link libraries (DLL's) that perform geodetic data conversions within custom-built programming applications. The objective of the current project was to expand the DLL for use in Visual Basic, C, and C++ platforms.

Survey control data exist in several horizontal and vertical datums, such as the North American Datum of 1927 (NAD27), NAD83, State Plane Coordinate System (SPCS) of 1927, SPCS 83, Universal Transverse Mercator of 1927 (UTM27), UTM83, North American Vertical Datum of 1988 (NAVD88), National Geodetic Vertical Datum of 1929 (NGVD29). The Engineer Research and Development Center's (ERDC's) Topographic Engineering Center, Alexandria, VA, developed a conversion software in C, known as CORPSCON, which enables conversions of data in survey feet, international feet, meters, or decimal degrees. This software provides the basis for the geodetic conversion routines library.

This project has been documented in ERDC/ITL Technical Report ITL-01-02, which can be downloaded at <http://libweb.wes.army.mil/uhtbin/hyperion/ITL-TR-01-5.pdf>. The report details 35 conversion functions available in the DLL. Appendices A, B, and C provide source codes for example problems in Visual Basic, C, and C++ platforms, respectively. The example problems provide details of invoking the DLL and using the conversion functions step by step.

The geodetic conversion DLL and example codes were distributed to the Civil Works Field Working Group for beta testing, review, and comment. Current users include Memphis, New Orleans, Mobile, Galveston, and Savannah Districts; the ERDC Coastal and Hydraulics Laboratory; and Hill Air Force Base. Even though the DLL was developed for government users, two architecture/engineering (A/E) firms requested the DLL for use in their software products developed for government. The DLL is being used by the University of Alabama in their Critical Analysis Accident Environment (CARE) Web site

<http://care.cs.ua.edu>.

For additional information, contact Dr. V. Danushkodi by telephone at 601-634-4452 or e-mail to V.Danushkodi@erdc.usace.army.mil.

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The CADD/GIS Technology Center for Facilities, Infrastructure, and Environment

Harold L. Smith, Center Chief

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