

Net-Centric Enterprise Services (NCES) User Guide

Version 1.2

12 March 2008



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Revision History

Date	Version	Description
29 Jul 2005	0.1	Initial Draft
15 Aug 2005	0.2	Draft
25 Aug 2005	0.3	Draft
1 Sep 2005	0.4	Draft
8-13 Sep 2005	0.5	Added the necessary “install security SDK” to the beginning of all of the “consumer” workflows – added Section 1.4 – Rules of Engagement
19-20 Sep 2006	0.6	Corrections to workflows to point to new document workspace. Fixes for comments from NCES PMO.
26 Sep – 6 Oct 2006	0.7	Corrections to workflows based on developer inputs, NCES Division review, and corrections from “Dry Run” of NCES Support capabilities on 21-23 Sep 05.
21 Nov 2006	0.8	Updates to document to capture DOL Portal modifications and miscellaneous corrections.
17 Jan 2006	1.0	Corrections to non-working links. Clarified workflow instructions. Combined NIPR and SIPR guides. Added new references to the PKI User Guides.
20 Jul 2006	1.0	Added links to PKI Guides. Updated Service Discovery/ Service Provider Workflow. Updated End User section to reflect new Service Discovery portlet. New information on User/Pass for SIPR. Removed “draft”. Removed references to Pilot WG. Updated date/version. Added information on new Collaboration service. Changed all references from ECB 1.1 to ECB 1.2.
7 Sep 2006	1.0	Replaced figure 2-4 and 2-9 with updated screenshots from the updated website and finalized formatting of the entire paper.
20 Apr 2007	1.1	Fixed Hyperlinks in various sections, revised MDR section to reflect upgrade from 5.1 to 6.0, updated help desk (now the GISMIC) references and contact information, and added mention of DKO migration and the location of the “NCES Developer’s Portal” in the document
12 Mar 2008	1.2	Update to reflect migration to DKO. Removed DOL related access information. Added DKO access information. Added NCES Developer Community information. Added notices to any references still pointing to DOL, or to functionality not yet available via DKO.

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Welcome to the Net-Centric Enterprise Services Program

Welcome to the Net-Centric Enterprise Services (NCES) Program. This program represents a critical part of our efforts to develop a set of workable Core Enterprise Services to support net-centricity throughout the Department of Defense (DoD). The NCES Program Status can be found at https://www.intelink.gov/wiki/Net-Centric_Enterprise_Services and https://www.intelink.gov/blogs/_nces/

NCES is making available the following capabilities on the Unclassified but Sensitive Internet Protocol Router Network (NIPRNet) and Secret Internet Protocol Router Network (SIPRNet):

- User Access (Portal)
- Collaboration Service
- Service Security
- Mediation
- Content Discovery
- Content Delivery
- People Discovery
- Service Discovery
- Machine-to-Machine Messaging
- Metadata Discovery
- Enterprise Service Management (ESM)

This guide introduces end users and software developers to the services available within NCES version 2.0. The Web sites referred to in the guide provide detailed user support and technical information to facilitate service usage. Technical support access and availability also are discussed in the guide.

If you have comments or questions, please contact us at nces@csd.disa.mil or ncescolumbus@noc.disa.smil.mil.

Once again, we are pleased to welcome you to the NCES Program and look forward to working with you and supporting your efforts to become more 'Net-Centric'.

How to Use This Guide

This guide provides information on how organizations can get involved within NCES. Participation gives end users and software developers an early opportunity to test the capabilities of the services and provide feedback to the NCES Program Management Office (PMO) for future updates to these services.

This guide explains the cycle of activities, or workflows, necessary for participants to learn more about the NCES Program, acquire documentation, and use NCES services. The guide also provides the workflows necessary for engaging Web service developers and helping them find instructions and tools for building interoperable services.

The guide provides several links to NCES Defense Knowledge Online (DKO) sites, such as the NCES Developer Community, Working-Level Integrated Product Team (WIPT) sites supporting NCES program management, and Working Group (WG) sites supporting NCES services development. Users must obtain access to the DKO to view these sites.

How This Guide Is Organized

- Section 1 presents general information on the NCES Program and how to get involved with NCES.
- Section 2 presents the steps users must follow to gain access to the NCES services and relevant documentation.
- Sections 3 through 6 describe how NCES users (end users, service consumers, service providers, and data providers) can use and integrate within the services.
- Section 7 contains contact information on the GIG Infrastructure Services Management Center (GISMIC), previously known as the “NCES Help Desk.”

1 Introduction

Information on the Net-Centric Enterprise Services (NCES) Program is located at <http://www.disa.mil/nces> (NIPRNet) and <http://www.disa.smil.mil/nces> (SIPRNet).

1.1 Program Overview

The NCES Program is based on an emerging concept within DoD, called “net-centricity,” which enables systems to provide the right information, to the right people, at the right time.

NCES supports new capabilities in the NIPRNet and SIPRNet DoD domains, bringing together Internet technology and the power of DoD. NCES enables the creation of a marketplace of information sources and services for DoD information. The program represents a different approach for DoD - an approach that is market-based, enterprise-wide and joint by design. NCES customers include the Warfighter, Intelligence, and Business domains - anyone within the DoD community who needs to share and retrieve information.

The NCES Program provides four product lines:

1. **Enterprise Service-Oriented Architecture (SOA) Foundation:** Enables DoD transformation by providing the core infrastructure that supports data and application interoperability, assessment of service, and data utilization. The core infrastructure reduces the complexity of DoD’s information technology environment and promotes the reuse of existing information technology capabilities.
2. **Collaboration:** Provides collaboration and messaging services, such as whiteboard sessions, conferencing sessions, and messaging, as well as a variety of collaboration tools.
3. **Content Discovery & Delivery:** Supports efficient information advertisement, discovery, and delivery.
4. **User Access (Portal):** Provides a personalized, user-defined, Web-based presentation that enables secure access to various enterprise services (including information retrieval and posting), collaboration tools, instant messaging (IM), and working groups.

Each product line represents a bundled set of related capabilities that can be leveraged throughout the DoD Global Information Grid (GIG), thus negating the need for multiple DoD Programs of Record (POR) or Communities of Interest (COI) to build redundant functionality.

1.2 NCES Involvement

Members of the DoD community can become involved with the NCES Program in several ways.

- By becoming a user:

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Users are DoD end users and developers who support DoD Programs of Record or Communities of Interest and can access and use NCES services.

Note: Developers can be government entities or commercial entities as long as commercial entities directly support a government program.

Users can engage with NCES in one or more of the following ways:

As an **End User**:

End users can directly access some services via a portal environment. Services available to end users include Portal, Collaboration, People Discovery White Pages, Content Discovery and Delivery, Metadata Registry, and Service Discovery and Registration.

As a **Service Consumer**:

Service consumers are developers (government or commercial) that support DoD and have applications that use/interface with the services provided by NCES or by other Service Providers.

As a **Service Provider**:

Service providers are developers (government or commercial) that support DoD and have applications that provide their own services to the enterprise.

As a **Data Provider**:

Data providers are developers (government or commercial) that support DoD and have data to expose to the enterprise.

- **By attending Working-Level Integrated Product Team (WIPT)/Working Group (WG) Meetings:**

NCES has established WIPTs and lower-level WGs, chaired by NCES and/or ASD (NII) staff, to engage DoD stakeholders and users. A primary activity of WIPTs and WGs is the review of key acquisition activities and documents.

WIPTs and WGs meet regularly. Meeting dates and locations, and other information on WIPTs, are posted on the WIPT sites within DKO. Attendance is open to representatives of DoD organizations interested in becoming involved in the NCES Program.

NCES manages or leverages the following WIPTs and WGs. Because of the sensitive information that appears on some of these sites, separate registration may be necessary. Please contact the NCES PEO to join a WIPT or WG and obtain access to WIPT sites within DKO. The PEO email address is ContactPEO-GES@disa.mil.

- **NCES Test & Evaluation WIPT** (<https://www.us.army.mil/suite/page/469840>)
- **NCES Engineering WIPT** (<https://www.us.army.mil/suite/page/465318>)
- **NCES Cost WIPT** (<https://www.us.army.mil/suite/page/465292>)

- **NCES Acquisition WIPT** (<https://www.us.army.mil/suite/page/465285>)

1.3 Rules of Engagement

Users must provide the information discussed in this subsection to the GIG Infrastructure Services Management Center (GISMIC). Section 7 of this document contains GISMIC contact information.

Note: If a user falls into more than one category (listed below), he or she only needs to send a single email to the GISMIC that contains the information required for all his or her applicable categories.

1.3.1 End Users

Do not need to provide any information to the GISMIC.

1.3.2 Service Consumers

The organizational representative of a service consumer must provide the following information on the consuming system:

- Mission Assurance Category (MAC), Confidentiality Level (CL), and highest level of data classification (Definitions for MAC and CL are provided in Appendix B.)
- DoD Public Key Infrastructure (PKI) Server Certificate information
- Proof of Authority to Operate (ATO) and Authority to Connect (ATC) with the signature of the system's Designated Approval Authority (DAA)
- Organization's desired outcome of the partnership
- Resources (human and machine) needed from NCES
- Expected number of total and concurrent users accessing NCES
- Time frame for engagement and expected duration
- Performance and reliability requirements
- Machine and domain names

1.3.3 Service Providers

The organizational representative of a service provider must provide the following information on the system:

- MAC, CL, and highest level of data classification
- DoD PKI Server Certificate information
- Proof of ATO and ATC with the signature of the system's DAA
- Web Services Description Language (WSDL) document for registration in the NCES Service Discovery Service
- Organization's desired outcome of the partnership
- Resources (human and machine) needed from NCES
- Expected number of total and concurrent users accessing NCES
- Time frame for engagement and expected duration
- Performance and reliability requirements
- Machine and domain names

1.3.4 Data Providers

The organizational representative of a data provider must provide the following information on the system:

- Classification level of provided data
- DoD PKI Server Certificate information
- Proof of ATO and ATC with the signature of the system's DAA
- Organization's desired outcome of the partnership
- Resources (human and machine) needed from NCES
- Expected number of total and concurrent users accessing NCES
- Time frame for engagement and expected duration
- Performance and reliability requirements
- Machine and domain names

1.4 Glossary

A glossary of NCES Program terms and acronyms is available at http://www.disa.mil/nces/about_nces/glossary.html (NIPRNet) and http://www.disa.smil.mil/nces/about_nces/glossary.html (SIPRNet). A list of acronyms used in this guide is provided in Appendix A.

2 NCES User Access Information

2.1 Defense Knowledge Online Registration

Access to NCES services is provided through the DKO site. The first step for anyone who wants to use NCES services is to register to DKO. Start by accessing the site at <https://www.dko.dod.mil>.

The screenshot shows the top navigation bar with the U.S. Army logo, the AKO (Army Knowledge Online) logo, and the DKO (Defense Knowledge Online) logo. Below the logos is a login section with two forms: "Login to AKO / DKO" and "CAC Login to AKO / DKO". Each form has fields for "Username:" and "Password:", a "Login" button, and a "CAC Login" button. To the right of the login forms is a photograph of a group of military personnel, with a callout bubble pointing to the text "Help Desk". Below the photograph is a news snippet about the Honorable Pete Geren, Secretary of Defense, awarding thirteen Soldiers for their actions following the Sept. 11, 2001 attacks. Below the news snippet are three columns of links: "New User?" (with links for "Register for AKO" and "Register for DKO"), "Help" (with links for "Reset Password" and "Help Desk"), and "FAQs" (with links for "How do I install the DoD Certificate?", "How do I reset my password?", "How do I register for an AKO Account?", and "How do I use my CAC to login to AKO?"). A callout bubble points to the "Register for DKO" link. Below the links is a footer section with "DoD Service Portals" and "AKO Terms of Use / Terms of Service".

Figure 2-1 DKO Registration

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After selecting **Register for DKO**, there will be several options for account types: Army Account, Joint Account, and Sponsored Account. Choose that account type appropriate for your situation and follow the instructions on the site. Active Army, Army Reserve, National Guard, DA Civilians, Retired Army, and Army Guests are eligible for Army Accounts. Joint Accounts are available to certain groups. There is a list available from the DKO public page by clicking the link for *Eligibility: Pre-authorized DoD Users*. If you are not eligible for a Joint Account, it is possible to be sponsored for an account. Please contact the DKO Point of Contact for DISA NCES to inquire about sponsorship by DISA. That contact information is available from the Eligibility page.

2.2 Public Key Infrastructure Certificates

Nearly all NCES services require the use of PKI certificates for access. For individual end users of the services, this can mean a Common Access Card (CAC) or DoD issued software token certificate for NIPRNet, SIPRNet users need to obtain PKI Soft Certificates. Further, service consumers and service providers will need to obtain server certificates in order to interoperate with machine-to-machine services.

For more information on obtaining certificates, please see these guides (requires DKO access);

- End User:
 - “NCES PKI User’s Guide for NIPRNET/Internet Use”
<https://www.us.army.mil/suite/doc/7000037>
 - “NCES PKI User’s Guide for SIPRNET Use”
<https://www.us.army.mil/suite/doc/7000038>
- Service Consumer or Service Provider:
 - “NCES PKI System Administrators and Application Owners Guide for NIPRNET/Internet Use” <https://www.us.army.mil/suite/doc/6999949>
 - “NCES PKI System Administrators and Application Owners Guide for SIPRNET Use” <https://www.us.army.mil/suite/doc/6999950>

2.3 Accessing the Services

The **DKO Home** page is the starting point for accessing any of the services. Depending on the type of account, you may see the **AKO Home** or the **DKO Home** page at login. If you see the **AKO Home**, simply click the Defense Knowledge Online under “Key Links” to go to the **DKO Home** page (See Figure 2-2)

Welcome, John Sullivan
My Account | Create a Site | Help | Logout

Home My Workspace Site Map My Favorites Quick Links Self Service

Tuesday, 20 November 2007

AKO News **Army Wide Announcements** **Early Bird News** **Safety News**

ARMY WIDE ANNOUNCEMENTS

16 Nov 2007 - Franks Award for Cavalry and Armor Nominations Being Accepted
Nominations are now being accepted for the Annual General Frederick M. Franks, Jr. Award for significant contributions t... [more]
[Visit the AKO News Center for more news](#)

19 Nov 2007 - Long Hard Road - NCO Experiences in Afghanistan and Iraq Now Available for Download in PDF Format
The U.S. Army Sergeants Major Academy has just published the "Long Hard Road - NCO Experiences in Afghanistan and I... [more]
[Visit the Career Opportunities page on AKO](#)

19 Nov 2007 - 4th Joint Communications Squadron (USAR) Conducts First Airborne Operation
The Army Reserve's only Airborne Joint Communications Squadron conducted its first airborne operation at MacDill Air For... [more]
[Visit the Slick Deals for Service Members page on AKO](#)

MY WEATHER
View personalized weather

NEW NOTIFICATIONS
New post in subscribed topic
Document from sharea.bose
View all notifications (4 new)

NEW IN MY FILES
dynamicLinking ()
dynamicLinking ()
View all new files

My Forms Alert!
Please accept our apologies. We are in the process of implementing enhancements to the system that will increase performance and capacity. The system will be operational on 26 November. Users will be re-directed to the Green Pages site within AKO for access to forms and the USAPA site on the Army Home Page for publications and forms. Thank you for your patience. If you have any questions in the meantime, please feel free to contact the help desk at 703.428.0545 or APDFCMP@hqda.army.mil07.

Send Holiday Greetings with Video Messaging!
This holiday season don't forget to use AKO/DKO Video Messaging to contact your loved ones that are deployed. The AKO Video Messaging System is designed to keep military families and troops stationed around the world connected using personal video messages. The program is easy-to-use, secure, and accessible through the Video icon at the top of the portal home page. All you need is a webcam and an Internet connection to send high-quality personal video messages to other AKO/DKO users.

Operation Rising Star Finalists Need Your Support!
The twelve semi-finalists need your help to advance to the MWR Operation Rising Star finals. Click the "View and Vote" link on the Rising Star Web site to learn more about each semi-finalist and to vote for your favorite. 12 singers - only 6 move on. Vote from November 13 - 26 until 11:59 PM EST.

Key Links

- Defense Knowledge Online
- Joint Knowledge Online
- DoD IA Portal (CAC Authentication Required for DoD IA Portal)
- 2007 Strategic Communication Guide
- Improvised Explosive Device - Defeat Resources
- mTBI/PTSD Chain Teaching Program

Defense Knowledge Online

Figure 2-2 Navigate to DKO

Tip: You may set your preferences to view the **DKO Home** at login. Go to My Account, and change the **Homepage** setting.

On the **DKO Home** page (see Figure 2-3), there are two sections dedicated to NCES.

- **DoD Enterprise Services** is the gateway to the services. From here, one may access end user services as well as the **NCES Developer Community**, which is the portal for developers of service consumers, service and data providers.
- **DISA NCES Announcements** contains the latest news from the NCES program.




Figure 2-3 DKO Home Page

2.4 NCES Developer Community

The **NCES Developer Community** is the central location for finding documentation, resources, tools to support developers involved in creating net-centric services. The site contains developer guide pages, links to key external sites and documents, how-to guides for implementing the Net-Centric Data Strategy, developer information for each NCES service, developer forums, and other developer centric information (see Figure 2-4).

NCES Developer Community [\(view related content\)](#) Admin/Editor View

[Click here](#) to access this web site in a separate browser window.



- About NCES ▾
- Developer Guide ▾
- Data Strategy ▾
- Products ▾
- Support ▾
- Training ▾
- Forums ▾

Send Feedback
Get Help

Developer Guide

1 Get Access
2 Learn
3 Develop
4 Test
5 Share

Find information and tools to support your development process

Designing for Net-Centricity

- See [technical guidance](#) for architects of net-centric data providers.
- Get a [high level view](#) of an NCES data provider environment.
- Learn about [NCES Services](#).

[Learn much more about Net-Centricity and using NCES.](#)

Exposing your Data using NCES

Enable website for Google crawler

Register with the Enterprise Catalog

Implement Federated Search interface

Implement a custom web service

Learn about approaches to exposing your data and following the Net-Centric Data Strategy using NCES.

Core Enterprise Services

Collaboration	CD&D	SOAF
Collaboration	Content Delivery Content Discovery	Enterprise Service Management Mediation Messaging Metadata People Discovery Service Discovery Service Security

Key Links

- [Net-Centric Services Strategy](#)
- [Net-Centric Data Strategy](#)
- [NCES on disa.mil](#)

Key Documents

- [NCES Overview](#)
- [NCES User Guide](#)
- [Net-Centric Services Strategy document](#)
- [Net-Centric Data Strategy document](#)

Announcements

Oct 15, 2007

The People Discovery White pages are now available! The white pages are supported by the Joint Enterprise Directory Service (JEDS) which has been designed and operated by PEO-IAN. NCES and PEO-IAN have worked together to develop this enterprise level service.

[» Go to the White Pages](#)

Oct 11, 2007

The NCES Developer Community site has a new look. We have updated our format and content to better serve our development community. Please let us know how we are doing.

[» Send Feedback on the new site](#)

Current « Previous | Next » Archived

Developer Feedback

[Click to Display/Hide Feedback Entry Box](#)

Share

- DKO Forge
 Share your code with the DoD community. Reuse in your project code already developed by the community.
- NCES Service Discovery
 Publish your services to the UDDI directory. Discover services that you can use.
- DoD Metadata Registry
 The DoD's authoritative source for structural metadata. Find schema you can use to structure your services. Publish your metadata for reuse by the community.

Figure 2-4 NCES Developer Community

3 End User

As an end user, you can directly access certain NCES services, including the following:

- User Access (Portal)
- Collaboration
- Federated Search
- People Discovery White Pages
- Messaging
- Service Discovery

3.1 User Access (Portal)

The DKO is the DoD Enterprise Portal (<https://www.dko.dod.mil/> [NIPRNet] or <https://www.dko.dod.smil.mil/> [SIPRNet]). It provides a personalized, user-defined, web-based presentation that enables secure access to various enterprise services (including information retrieval and posting), knowledge management, collaboration tools, and working groups.

3.1.1 Search

From any page, you can perform simple searches for people or information by using the search bar at the top right.

3.1.2 Sites and Knowledge Centers

You may create your own site with a knowledge center to enable you to collaborate with other portal users by using the Create Site function on the My Workspace page. Total file storage is restricted to 50 megabytes per user. DoD organizations may request creation of organizational sites, which have unlimited space. You may access other sites under Site Map or by searching for sites using the Search function.

3.1.3 Training

AKO, as the infrastructure provider for DKO, provides numerous online training guides, as well as classroom style training opportunities. The starting point for learning about the portal is **Inside AKO**, which can be found from the **Quick Links** item at the top of any page, under *AKO Tips & Training*.

3.2 Collaboration

The NCES Collaboration service enables synchronous and asynchronous communication using instant messaging, low-bandwidth text chat, and web conferencing. Instant messaging and web conferencing both include text-based communication, while web conferencing adds shared whiteboards, desktop & application sharing, and the ability to invite non-DoD personnel into collaboration sessions.

There are two instances of the Collaboration service, E-CollabCenter and Defense Connect Online (DCO). These competitive offerings rely on different underlying technology and provide varying advantages in different environments. Users are free to use either or both services.

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Access to E-CollabCenter and DCO Collaboration is available via the NCES web page (<http://www.disa.mil/nces/>) and the **DKO Home** page (<https://www.dko.dod.mil>). Accompanying registration information is provided for each service by following the links. A valid CAC PKI certificate is required for access for NIPRNet.

3.3 Federated Search

Federated Search is used to query existing data sources, such as databases, catalogs, and search engines, to quickly find stored information. To retrieve content from data sources, submit queries using the NCES Content Discovery Federated Search Portlet. *The Federated Search Portlet is being migrated from the Defense Online portal to the DKO. Until that migration is complete, the portlet will be inaccessible. This guide will be updated once the migration is completed.*

The NCES Content Discovery Federated Search Portlet User Guide provides the steps you need to retrieve content from the GIG and other data sources. The portlet enables you to submit queries to the Federated Search service that will retrieve results from existing data sources. The Advanced Search capability of the Federated Search Portlet enables you to create complex queries to reduce the number of data sources to search, limit searches to certain DoD Discovery Metadata Specification (DDMS) fields, limit the dates of the documents retrieved, and limit the document types returned.

To download the NCES Content Discovery Federated Search Portlet User Guide, go to the NCES Developer Community site at <https://www.us.army.mil/suite/page/384284>. Looking under Core Enterprise Services on the main page, click on Content Discovery. The document titled “[NCES Search User Interfaces Steps](#)” will be listed under Documentation and can be downloaded.

3.4 People Discovery White Pages

People Discovery provides services to publish and find information on GIG users and connected devices. User information is provided by the Information Assurance/NetOps Program Executive Office (PEO-IAN) Joint Enterprise Directory Services (JEDS), which aggregates a number of DoD repositories of user information. This capability is currently available only on the NIPRNet. A White Pages application is available to search for users. The White Pages are linked within DKO or are accessible directly at <https://jeds.gds.disa.mil/>. A valid DoD PKI certificate or ECA certificate is required for access.

Joint Enterprise Directory Services

For Official Use Only

Enter your search criteria

Last Name	Exactly Matches	<input type="text"/>
First Name	Exactly Matches	<input type="text"/>
Email	Exactly Matches	<input type="text"/>
DoD Component	Exactly Matches	<input type="text"/>

Search

For Official Use Only

Figure 3-1 White Pages Interface

3.5 Service Discovery

Service Discovery enables users to search for service information in a service registry. This capability is helpful to developers who want to consume services.

To use this service, access the **DKO Home**, as shown in Section 2.3. Navigate to the NCES Developer Community. There is a link to NCES Service Discovery on the right side of the page, within the Share section. There is supporting documentation on the developer page for Service Discovery, which can be found under Products > SOAF > Service Discovery. Registration for the service is described in the document “NCES Service Discovery & Publishing Process Document,” to be found on that page.

The screenshot shows the NCES Service Registry web application. At the top, there is a navigation bar with tabs: Home, Browse By Service Provider, Browse By Category, Administration, Advanced Search, and Tools. The 'Home' tab is selected. Below the navigation bar, the main content area is titled 'Welcome to NCES Service Registry'. It includes a logo on the left and a paragraph of introductory text. A 'Quick Search' box is centered, containing a text input field labeled 'Service Offer Name:' and a 'Find' button. Below the search box, there is a note: 'You may use % as wildcard.' To the left of the search box, there are two sections: 'My Account' and 'My Subscription Results', each with a brief description. To the right of the search box, there are six tabs: 'Home Tab', 'Browse By Service Provider Tab', 'Browse By Category Tab', 'Administration Tab', 'Advanced Search Tab', and 'Tools Tab'. Each tab has a brief description of its functionality. The NCES logo and tagline 'Informed. Aware. Ready.' are in the top left corner. The page also includes 'Online Help' and 'NCES UDDI Node (Developer Profile)' links in the top right corner, and a 'Welcome John Sullivan' message in the top right corner.

Figure 3-2 NCES Service Registry

The NCES Service Registry provides a configurable user interface, permitting you to work with the registry at an appropriate level of technical depth. The Home, Browse by Service Provider, Browse by Category, and Advanced Search tabs provide several ways to browse for services. To perform a quick search for service offers, click on the Home tab and enter the service offer name in the Quick Search box or click on the Advanced Search tab to perform an advanced search based on a combination of the service offer name and other attributes. Clicking on the Browse by Service Provider tab or Browse by Category tab enables you to browse service offers by the service provider name under which they are published or by category, respectively.

Note: The percent symbol % may be used as the wildcard character while filling the search criteria fields.

4 Service Consumer

This section provides information for users who participate in the NCES Program as service consumers. To participate in the program, you must first register as described in Section 1.3.2.

Note: For SIPRNet users, you must be registered as a user on DKO-S in order to access the SIPR UDDI registry.

4.1 Security Enable Your Consuming Application

If your application will consume an enterprise service that implements the NCES Service Security specification, such as the Messaging or Federated Search services, it must format its SOAP requests to comply with the specification. The NCES Service Security SDK provides support for invoking such services. The following steps are for downloading and deploying a sample application that uses the Service Security Software Development Kit (SDK). These steps prepare you, as a service consumer, for developing applications using the Service Security SDK.

Note: The SDK has been deprecated by NCES, which will not maintain the software in the future. The SDK will be released as part of an open source Government Off-The-Shelf (GOTS) security solution.

Step 1. Open the NCES Developer Community Site on DKO

Go to <https://www.us.army.mil/suite/page/384284>

Step 2. Navigate to Products > SOAF

Step 3. Select Service Security

This page contains extensive information on Service Security and The Links section contains a link to the NCES Service Security Spiral 1.1, which includes an SDK (including Java and .Net SDKs), the NCES Service Security SDK User's Guide, the Data Gathering Checklist, and other documents.

4.2 Consuming or Integrating with SOA Foundation Services

This section describes how you, as a service consumer, can consume or integrate with SOA Foundation Services.

4.2.1 Mediation Service

The NCES Mediation Service provides the capability to perform eXtensible Markup Language (XML) translations using eXtensible Stylesheet Language Translation (XSLT) stylesheets. The capability is oriented to software developers who are interested in using the service. The original NCES Early Capabilities Baseline mediation capability is no longer available. The mediation capabilities outlined above are being developed by the NCES SOAF Managed Service Provider and are expected to be available during the first half of 2008. The following steps will guide you to the Mediation page on the NCES Developer Community site for the latest information.

Step 1. Open the NCES Developer Community Site on DKO

Go to <https://www.us.army.mil/suite/page/384284>

Step 2. Navigate to Products > SOAF

Step 3. Select Mediation

This page contains the latest information on the Mediation capability, as well as links to legacy documentation and SDK.

4.2.2 Messaging

This section describes the steps for using the Messaging capabilities.

Step 1. Open the NCES Developer Community Site on DKO

Go to <https://www.us.army.mil/suite/page/384284>

Step 2. Navigate to Products > SOAF

Step 3. Select Messaging

The “Downloads” section contains the Messaging SDK.

Step 4. Download Package

The Messaging SDK package contains documentation about the NCES Messaging service and a set of sample applications demonstrating its functionality. The documentation includes an overview of the Messaging service, a developer’s guide that discusses technical details (such as the service specifications used), and a guide to the Messaging SDK that provides details on the sample applications. The sample applications, which exercise the functionality of the Messaging service, are already integrated with NCES service security and only require a valid certificate and configuration of the proper roles for the certificate’s domain name.

Step 5. Install Messaging SDK

Unzip the Messaging SDK in a directory on the host machine. The sample applications are written in Java and will run on most operating systems. For convenience, a set of Microsoft Windows batch scripts is provided for running the various applications.

Step 6. Deploy Sample Application

The sample applications may be used to publish messages and subscribe to message channels. The applications enable developers to understand the operation of the Messaging service before integration into new applications.

Step 7. Test Sample Application

You may use the sample applications to test the configuration of the Messaging SDK. A valid PKI certificate must be obtained and installed for the applications to operate correctly. In addition, the NCES identity store must be configured with the proper roles for the certificate’s domain name. Testing these configurations using the sample applications provides a controlled means to test your environment.

Step 8. Integrate Messaging SDK with Consuming Application

The Messaging SDK provides source code for the sample applications. The sample applications provide examples for the development of new consumer applications or the integration of messaging functionality into existing consumer applications.

4.3 Consuming or Integrating with NCES Content Discovery Services

This section describes how you, as a service consumer, can consume or integrate with NCES Content Discovery services.

4.3.1 Federated Search

The section describes the steps for using the Federated Search capabilities of NCES services.

Step 1. Open the NCES Developer Community Site on DKO

Go to <https://www.us.army.mil/suite/page/384284>

Step 2. Navigate to Products > CD&D

Step 3. Select Content Discovery

The **Downloads** section contains the Content Discovery SDK.

Step 4. Download Package

The package contains documentation and sample applications for the NCES Content Discovery services, which includes both the NCES Federated Search and NCES Enterprise Catalog services. The documentation consists of an overview of the NCES Content Discovery services, a developer's guide that discusses the details of the service specifications, and an SDK guide that discusses installation and utilization of the sample applications in the SDK.

Step 5. Install Content Discovery Service SDK

Unzip the SDK in a directory. The sample applications have been tested using Java JDK 1.4.2.

Step 6. Deploy Sample Application

The SDK documentation outlines how to configure and utilize the sample applications to access the NCES Content Discovery service.

Step 7. Test Sample Application

Once configured, you can use the sample NCES Content Discovery applications to submit queries to the enterprise. A successful test of the application demonstrates the correct configuration of the certificates and roles for NCES security services.

Step 8. Integrate Federated Search Service SDK with Consuming Application

The sample applications provide source code, which enables you to develop new applications or integrate Content Discovery capabilities into existing applications.

4.3.2 Enterprise Catalog

This section describes the steps for using the Enterprise Catalog service.

Step 1. Open the NCES Developer Community Site on DKO

Go to <https://www.us.army.mil/suite/page/384284>

Step 2. Navigate to Products > CD&D

Step 3. Select Content Discovery

The **Downloads** section contains the Content Discovery SDK.

Step 4. Download Package

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The package contains documentation and sample applications for the NCES Content Discovery services, which includes both the NCES Federated Search and NCES Enterprise Catalog services. The documentation consists of an overview of the NCES Content Discovery services, a developer's guide that discusses the details of the service specifications, and an SDK guide that discusses installation and utilization of the sample applications in the SDK.

Step 5. Install Content Discovery Service SDK

The SDK may be unzipped in a directory. The sample applications have been tested using Java JDK 1.4.2.

Step 6. Deploy Sample Application

The SDK documentation outlines how to configure and utilize the sample applications to access the NCES Content Discovery service.

Step 7. Test Sample Application

Once configured, the Service Consumer can use the sample NCES Content Discovery applications to submit queries to the enterprise. A successful test of the application demonstrates the correct configuration of the certificates and roles for the NCES security services.

Step 8. Integrate Enterprise Catalog SDK with Consuming Application

The sample applications provide source code, which allows the Service Consumer to develop new applications or integrate Enterprise Catalog capabilities into existing applications.

4.4 Consuming Customer-Provided Services

Customer-provided services will be identified through Service Discovery and consumed via the WSDL-defined interface or the integration of Service Provider SDKs.

5 Service Provider

This section provides information for individuals who participate in the NCES Program as service providers. To participate in the program, you must first register as described in Section 1.3.3.

Note: For SIPRNet users, you must be registered as a user on DKO-S in order to access the SIPR UDDI registry.

5.1 Publish, Use, and Integrate with SOA Foundation Services

5.1.1 Service Discovery

The following steps describe how you, as a Service Provider, can get started with Service Discovery.

Step 1. Open the NCES Developer Community Site on DKO

Go to <https://www.us.army.mil/suite/page/384284>

Step 2. Navigate to Products > SOAF

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Step 3. Select Service Discovery

The Documentation section contains the “NCES Service Discovery & Publishing Process Document.”

Step 4. Download Process Document

The NCES Service Discovery & Publishing Process Document contains detailed descriptions of how to get access to Service Discovery and register as a publisher of services.

Step 5. Establish NCES Service Registration Account

Follow the steps described in the NCES Service Discovery & Publishing Process Document to establish a service registration account.

After the NCES Administrator establishes your account, he or she will perform the following tasks:

- Create security roles (Service Discovery Administrators, Security Administrators, and/or Analysts) in the Service Security LDAP server
- Create your business entity in universal description discovery and integration (UDDI) registry
- Establish permissions so that you can publish and manage your services

Step 6. Access NCES Service Registry User Interface

Follow the workflow in Section 3.5 to go to the NCES Service Registry, which is shown in Figure 5-1.

Step 7. Click on Administration Tab

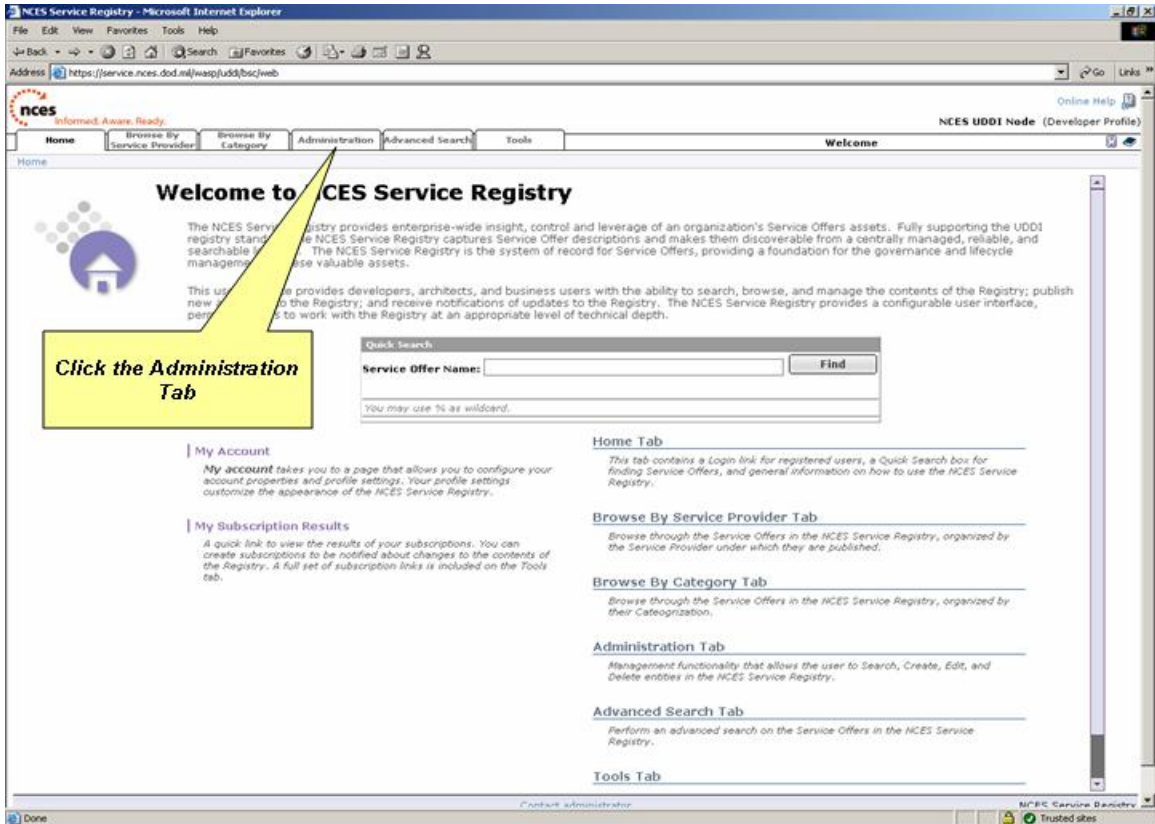


Figure 5-1 NCES Service Registry

Step 8. Click on “Service Offers”

- Click on “Service Offers” in the NCES Service Registry User Interface, which is shown in Figure 5-2.

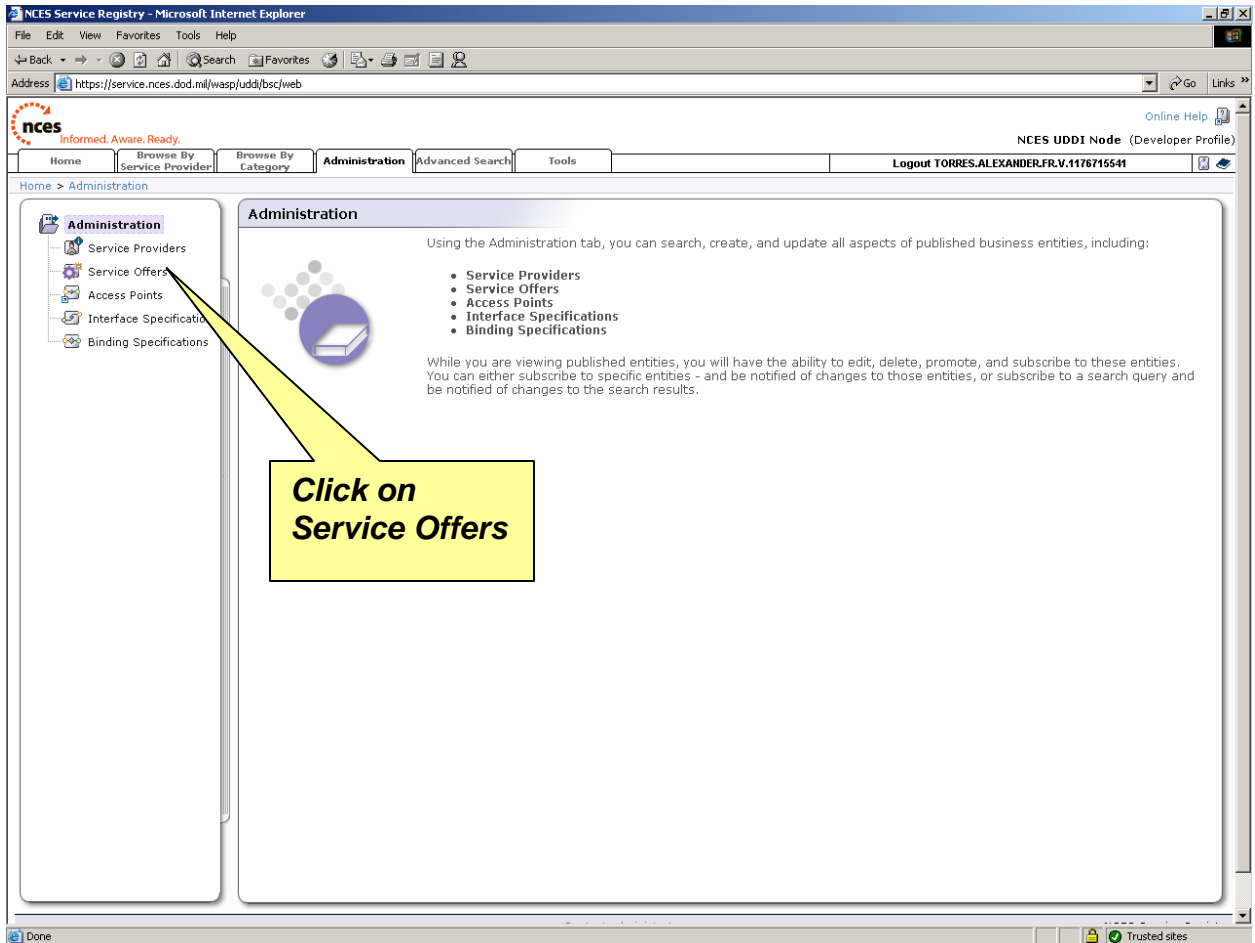


Figure 5-2 NCES Service Registry User Interface

In the “Service Offers” area, you can accomplish the following:

- View all published service offers
- Create a search query for service offers
- Manage (edit or delete) published services
- Publish a new service offer (see Step 7)

Step 9. Publish a New Service Offer

You may publish a new service offer by listing the appropriate endpoint in the NCES Service Registry. A unique name will be given to the service based on the Qualified Name (Qname) of the WSDL. Choose a name from the list of registered service providers and provide the WSDL location. The unique name will be the basis used by NCES Service Security to enforce security policies.

Note: The “NCES Service Discovery CONOPS [Concept of Operations]” (Section 4) is a useful reference for publishing new service offers and managing published service offers. To download this documents, go to the NCES Developer Community on DKO, and navigate to Products > SOAF > Service Discovery.

Step 10. Update Service Access Permissions

You are authorized to edit or delete your published services. Updating your service access permissions enables you to delegate the administration of your services to user groups. Five permissions are associated with service administration:

1. **Find Service:** To find the service in the registry
2. **Get Service:** To get detailed information on the service
3. **Save Service:** To update and save the service information
4. **Delete Service:** To delete the service and its endpoints from the registry
5. **Create Endpoints:** To create new endpoints for the service

6 Data Provider

This section provides information for individuals who participate in the NCES Program as data providers. To participate in the program, you must first register to become a Data Provider as described in Section 1.3.4.

Note: For SIPRNet users, you must be registered as a user on DKO-S in order to access the SIPR UDDI registry.

6.1 Content Discovery and Delivery

Content Discovery and Delivery is used to query existing data sources, such as databases, catalogs, and search engines, to quickly find stored information. As a data provider, you can use the Enterprise Catalog service to publish metadata about a data source, and the metadata can then be searched using the Content Discovery Federated Search Portlet. If a user wants to access your data, the data will be retrieved and delivered using Content Delivery. The Enterprise Catalog service can be accessed using the Web service client distributed with the NCES Content Discovery SDK. Alternatively, you may directly implement the Federated Search Web Service and integrate directly with the NCES Content Discovery service.

6.1.1 Publish Content Using NCES Content Discovery

The Enterprise Catalog service is capable of submitting and indexing DDMS metadata to data sources. As a data provider, you may submit metadata to the service, which stores the data for retrieval through the Content Discovery Federated Search Portlet. The Enterprise Catalog Web service can be utilized through the Enterprise Client provided with the Content Discovery SDK. Download the Content Discovery SDK from the NCES Developer Community at <https://www.us.army.mil/suite/page/384284>.

6.1.2 Expose Content Using NCES Content Discovery

The Federated Search Web Service specification provides a standard query interface allowing NCES Content Discovery Services to submit a query to a data provider. As a data provider, you may execute the query, which returns the results containing DDMS-compliant metadata. The results are then aggregated with results returned from other data providers and returned to the user through end-user applications such as the Content Discovery Federated Search Portlet. Sample implementations of a data provider for the Federated Search Web Service will be added to the Content Discovery SDK. The Content Discovery SDK can be downloaded from the NCES Developer Community at <https://www.us.army.mil/suite/page/384284>

6.2 DoD Metadata Registry Information

The DoD Metadata Registry enables you to publish metadata artifacts (e.g., schemas, stylesheets, and taxonomies) to a portal available to the DoD community. Making user metadata products visible to the community enables others to reuse the user's hard work and promotes interoperability between systems. To use the services provided, the user must be a registered user on the Metadata Registry Portal. The Metadata Registry Portal supports single sign-on with the DKO. Simply click on the Metadata Registry button from the DKO home page. Otherwise, to register as a user on the Metadata Registry Portal, follow the instructions at

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<https://metadata.dod.mil/mdr/register.htm> (NIPRNet) or <https://metadata.dod.smil.mil/mdr/register.htm> (SIPRNet). The account created will provide access to the data within the portal and the ability to register new data products. The account also will provide access to the runtime APIs for application access to the metadata products.

Metadata products are registered in the Metadata Registry by creating a submission package and submitting the package file. Details on building a submission package, using package creation tools, validating the package, and submitting a package are available at https://metadata.dod.mil/mdr/downloads/help/FAQ_PackageSubmission.doc (NIPRNet) or https://metadata.dod.smil.mil/mdr/downloads/help/FAQ_PackageSubmission.doc (SIPRNet). Please note that the user must log in to view the referenced document. If a user encounters problems accessing the DoD Metadata Registry, he or she can submit questions or provide feedback at <https://metadata.dod.mil/mdr/feedback.htm> (NIPRNet) or <https://metadata.dod.smil.mil/mdr/feedback.htm> (SIPRNet). Registered users of the Metadata Registry can access the DoD Metadata Registry Portal at <https://metadata.dod.mil>.

The DoD Metadata Registry also provides Web Services access to locate XSL translations between XML schemas at runtime. Section 4.2.1 describes the workflow for discovering and using a registered XSL translation. The WSDL for this service is available at <https://metadata.dod.mil/mediation/MediationService?WSDL> (NIPRNet) or <https://metadata.dod.smil.mil/mediation/MediationService?WSDL> (SIPRNet).

6.3 Developer Technical Guidance

The NCES TechGuide is the place to find out how to share information across the DoD and beyond using capabilities provided by the Net-Centric Enterprise Services (NCES) Program. NCES provides an infrastructure comprised of Core Enterprise Services (CES) to support the goals of the DoD Net-Centric Data Strategy. This site focuses on the technical and procedural information Developers, Architects and Program Managers need to create and deploy services which are visible, accessible and understandable to other GIG participants. It is available on the Metadata Registry Portal at <https://metadata.dod.mil/mdr/ns/ces/techguide/>, and is also linked from the NCES Developer Community.

7 For More Information

For general information about NCES, go to the following:

- NIPRNet: <https://www.dko.dod.mil> or <https://www.disa.mil/nces>
- SIPRNet: <https://www.dko.dod.smil.mil> or <http://www.disa.smil.mil/nces>

For technical support, contact the NCES Technical Assistance Center, which operates 24 hours a day, 7 days a week. NCES users may contact the GISMC by the following means:

- Toll Free: 1-800-447-2457
- Commercial: 614-692-3136
- DSN: 850-3136
- Unclassified Fax: 614-692-4040
- Classified email: ncescolumnbus@nocc.disa.smil.mil
- Unclassified email: nces@csd.disa.mil

DoD PKI Help Desk:

- (800) 490-1643, option 5 (toll free)
- Unclassified Email: weblog@chamb.disa.mil

Appendix A. Acronyms

AKO	Army Knowledge Online
API	Application Program Interface
ASD(NII)	Assistant Secretary of Defense for Networks and Information Integration
ATC	Authority to Connect
ATO	Authority to Operate
CAC	Common Access Card
CD&D	Content Discovery and Delivery
CL	Confidentiality Level
COI	Community of Interest
DAA	Designated Approval Authority
DCO	Defense Connect Online
DDMS	Department of Defense Discovery Metadata Specification
DISA	Defense Information Systems Agency
DKO	Defense Knowledge Online
DoD	U.S. Department of Defense
DOL	Defense Online
DSN	Defense Switched Network
ECA	External Certificate Authority
ESM	Enterprise Service Management
EUT	Early User Test
GES	Global Information Grid Enterprise Services
GIG	Global Information Grid
GISMIC	GIG Infrastructure Services Management Center
GOTS	Government Off-The-Shelf
IM	Instant Messaging
JEDS	Joint Enterprise Directory Services
JDK	Java Developer Kit
JKO	Joint Knowledge Online
LDAP	Lightweight Directory Access Protocol
M2M	Machine-to-Machine
MAC	Mission Assurance Category
MDR	Metadata Registry
NCES	Net-Centric Enterprise Services
NIPRNet	Unclassified but Sensitive Internet Protocol Router Network
PIN	Personal Identification Number
PKI	Public Key Infrastructure
POR	Program of Record
QName	Qualified Name
QRG	Quick Reference Guide
RSS	Rich Site Summary
SDK	Software Development Kit
SIPRNet	Secret Internet Protocol Router Network
SOA	Service-Oriented Architecture
SOAF	Service-Oriented Architecture Foundation
SSO	Single Sign-On

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UDDI	Universal Description Discovery and Integration
WG	Working Group
WIPT	Working-level Integrated Product Team
WSDL	Web Services Description Language
XML	eXtensible Markup Language
XSD	XML Schema Definition
XSL	eXtensible Stylesheet Language
XSLT	eXtensible Stylesheet Language Translation

Appendix B. Mission Assurance Categories and Confidentiality Levels

The following definitions of Mission Assurance Category (MAC) and Confidentiality Level (CL) are taken from DODI 8500.2.

Confidentiality Level. Applicable to U.S. Department of Defense (DoD) information systems, the confidentiality level (CL) is primarily used to establish acceptable access factors, such as requirements for individual security clearances or background investigations, access approvals, and need-to-know determinations; interconnection controls and approvals; and acceptable methods by which users may access the system (e.g., intranet, Internet, wireless). DoD has three CLs: classified, sensitive, and public.

Mission Assurance Category. Applicable to DoD information systems, the Mission Assurance Category (MAC) reflects the importance of information to the achievement of DoD goals and objectives, particularly the Warfighters' combat mission. MACs are primarily used to determine availability and integrity requirements. DoD has three MACs:

- **MAC I.** This category consists of systems that handle information that is vital to the operational readiness or mission effectiveness of deployed and contingency forces in terms of both content and timeliness. The consequences of loss of integrity or availability of a MAC I system are unacceptable and could include the immediate and sustained loss of mission effectiveness. MAC I systems require the most stringent protection measures.
- **MAC II.** This category consists of systems that handle information that is important for supporting deployed and contingency forces. The consequences of loss of integrity are unacceptable. Loss of availability is difficult to deal with and can be tolerated for a short time only. The consequences could include delay or degradation in providing important support services or commodities, which could seriously impact mission effectiveness and/or operational readiness. MAC II systems require additional safeguards beyond best practices to ensure mission assurance.
- **MAC III.** This category consists of systems that handle information that is necessary for the conduct of day-to-day business but that does not materially affect support to deployed or contingency forces in the short term. The consequences of loss of integrity or availability can be tolerated or overcome without significant impacts on mission effectiveness or operational readiness. The consequences could include the delay or degradation of services or commodities enabling routine activities. MAC III systems require protective measures, techniques, or procedures generally commensurate with commercial best practices.

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