NOTICE OF CHANGE

INCH-POUND

MIL-STD-188-176
NOTICE 1
20 Oct 97

DEPARTMENT OF DEFENSE
INTERFACE STANDARD

STANDARDIZED PROFILE FOR ASYNCHRONOUS TRANSFER MODE (ATM)

TO ALL HOLDERS OF MIL-STD-188-176:

1. THE FOLLOWING PAGES OF MIL-STD-188-176 HAVE BEEN REVISED AND SUPERSEDE THE PAGES LISTED:

NEW PAGE	DATE	SUPERSEDED PAGE	DATE
vii	20 Oct 97	vii	21 May 96
viii	20 Oct 97	viii	21 May 96
29	20 Oct 97	29	21 May 96
30	20 Oct 97	30	21 May 96
30A	20 Oct 97	New Page	20 Oct 97
45-48	20 Oct 97	New pages	20 Oct 97
49/50	20 Oct 97	45/46	21 May 96

2. RETAIN THIS NOTICE AND INSERT BEFORE TABLE OF CONTENTS.

3. Holders of MIL-STD-188-176 will verify that page changes and additions indicated above have been entered. This notice page will be retained as a check sheet. This issuance, together with appended pages, is a separate publication. Each notice is to be retained by stocking points until the standard is completely revised or canceled.

Custodians:

Army - CR
Navy - EC
Air Force - 90
DISA - DC
NSA - NS

Preparing activity:

DISA (JIEO) DC

(Project IXMP-00381)

AMSC N/A

AREA TCSS

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

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5.1.2.4 Preassigned header field values. Preassigned virtual path indicator (VPI) and virtual channel indicator (VCI) values reserved for unassigned cells shall be in accordance with AF UNI specification, section 3.4.3.

5.1.2.5 Traffic control and congestion control. Traffic control and congestion control shall be in accordance with the AF UNI specification, section 3.6.

5.1.3 Signaling ATM Adaptation Layer (SAAL). SAAL conveys signaling information between layer 3 entities across the UNI. SAAL consists of two parts: a common part and a service-specific part. The service-specific part, called the *service-specific convergence sublayer* (SSCS), is divided into two sublayers: the service-specific coordination function (SSCF) and the service-specific connection-oriented protocol (SSCOP). The SSCF shall map the services of SSCOP to the needs of the layer 3 entity, in accordance with ANSI T1.638, sections 7 through 11. SSCOP shall provide assured data delivery for the signaling PDUs by means of selective retransmission, in accordance with ANSI T1.637, sections 6 through 8. SSCOP uses the services of the common part protocol, the SAR and CPCS, which shall be in accordance with ITU-T I.363, section 6.

5.1.4 UNI signaling. Signaling at the UNI shall be in accordance with the AF UNI specification, section 5. The signaling function supports point-to-point and point-to-multipoint network connections. ATM signaling permits users on B-ISDN to connect to users on N-ISDN. ATM signaling also permits users on different N-ISDNs to interconnect via B-ISDN (see 5.5.2.1).

5.1.4.1 Connection control. Connection at the UNI shall be in accordance with the AF UNI specification. The AF UNI 3.1 specification provides deviations from ITU-T Q.2931, which specifies the procedures for establishing, maintaining, and clearing point-to-point connections at the ATM UNI.

5.1.4.2 Addressing. UNI signaling shall support the ICD address format specified in AF UNI specification, section 5.1.3 and Annex A. The addressing plan for DoD is presented in Appendix A. For the Defense System Information Network, the numbering plan specified in DCAC 370-175-13, the section titled *DSN Worldwide Numbering and Dialing Plan* (WNDP), shall be supported.

5.2 ATM adaptation layer (AAL). The AAL supports user plane functions and information transfer between and among ATM end systems. Several AAL protocols are available to support different types of users. The AAL is subdivided into sublayers, as shown in Figure 7. The common part (CP) sublayer consists of the segmentation and reassembly (SAR) sublayer, and the common part convergence sublayer (CPCS). The CPCS functions include delineation and transparency of user information, and error detection. The SAR sublayer handles (1) the segmentation of data units so that they can be mapped into fixed-length payloads of the ATM cells, and (2) the reassembly of data units from ATM cells. The SSCS provides the specific service-related functions of the AAL. Variable bit rate (VBR) services include data service for a range of applications from bursty data to compressed video. Constant bit rate (CBR) services include voice and video (circuit emulation). AAL protocols AAL 1-5 for user services are described below.

5.2.1 AAL 1. AAL 1 shall be implemented in accordance with ANSI T1.630. AAL 1 provides a 47-octet user payload, with a 1-octet header to support timing and sequence integrity. AAL 1 supports CBR applications in which a timing relationship is required between source and destination, such as voice or video (circuit emulation). The CBR service clock may be synchronous or asynchronous to the B-ISDN network clock. The normal mode shall be synchronous. Bit count integrity (BCI) shall be ensured in either mode, in conformance with ANSI T1.630, section 9. For the asynchronous mode, clock timing regeneration shall be by adaptive clock recovery as described in AF-SAA-0032.000, section 3.4.2. This method uses local procedures to compensate for jitter, with no timing information carried through the network. Adaptive clock recovery methods are not subject to standardization. AAL-1 shall support circuit emulation for DS1 and E1 for both unstructured and structured data transfer, in accordance with AF-SAA-0032.000. Adaptive clock recovery is not effective against wander (low frequency component to the cell delay variation). For the asynchronous mode, SRTS as defined in 3.4 of AF-SAA-0032.000 may be used where excessive cell delay variation may be experienced.

5.2.2 AAL 2. AAL 2 supports VBR applications in which a timing relationship is required to exist between source and destination, such as compressed video. This service has not yet been standardized.

5.2.3 AAL 3/4. AAL 3/4 supports VBR data transfer. AAL 3/4 shall comply with ANSI T1.629, which defines the SAR and CPCS. AAL 3/4 shall provide message mode and streaming mode service, in both assured and non-assured operations, in accordance with ANSI T1.629, section 6. For non-assured operations, optional error discard allows corrupted PDUs to be delivered to the user. For assured operations, a reliable link protocol is required in the SSCS. For non-assured operations the SSCS is null. Specific AAL 3/4 requirements are given in 5.2.3.1 and 5.2.3.2.

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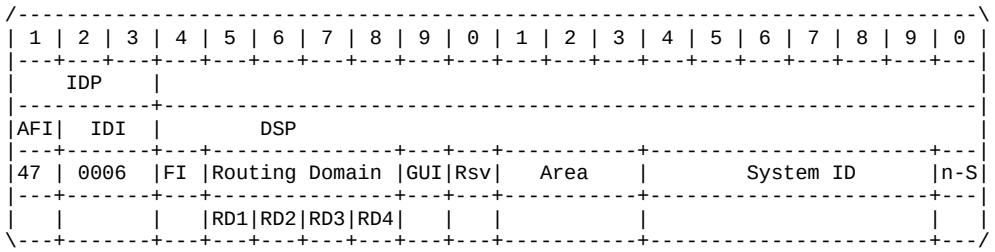
APPENDIX A

DOD ATM ADDRESSING FORMAT

1.0 Description

The following diagram depicts the fields of the DoD ATM NSAP Address format.

DoD ATM NSAP Address



2.0 DOD ATM NSAP Field Semantics.

IDP — Initial Domain Part, an NSAP address structure specified by the International Standards Organization (ISO), contains the subfields AFI and IDI.

AFI — Authority and Format Identifier, the value of 47 indicates that the IDI part is interpreted as a four decimal digit ICD and that the DSP is represented in binary.

IDI — Initial Domain Identifier, the ISO assigned the ICD value 0006 to be administered by the National Institute of Standards and Technology (NIST) which has then delegated all authority to the Department of Defense (DoD) under the title “USA DoD OSI Network.”

DSP — Domain Specific Part, authority for structure and assignment of DSP values is delegated by ISO to the organization defined by the IDP (in this case, to NIST and then to DoD). The Defense Communications Agency (DCA), renamed the Defense Information Systems Agency (DISA), is the named authority for DoD. The management responsibilities delegated by NIST to DoD require that DoD register the DSP structure for ICD 0006 with NIST.

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FI Format Identifier, identifies syntax and associated semantics encoded within an NSAP address. Administrative authority associated with specific FI code points currently applies only to DISA.

RD Routing Domain, uniquely identifies a Routing Domain within the Administrative Domain specified by ICD 0006 and FI. DISA assigns the RD values.

- RD1 Level 1 Routing Domain, a pre-identified non-overlapping geographic region, generally not attached to subscriber equipment.
- RD2 Level 2 Routing Domain, a pre-identified non-overlapping geographic RD1 subregion, associated with a MAN or concentration of DoD bases.
- RD3 Reserved for expansion of either the RD2 or RD4 domains.
- RD4 Level 4 Routing Domain, usually associated with a specific subscriber site.

GUI Globally Unique Identifier, uniquely identifies an administration authority for deployed networks. DISA assigns values and delegates authority for the GUI to the Deployed Networks Administration Authority.

Rsv Reserved for additional semantics or the expansion of the GUI or Area fields.

Area Area, uniquely identifies a subdomain of the RD/GUI, DISA delegates authority for administration and semantic assignment of the Area field to the Deployed Networks Administration Authority or to the Site Administration Authority.

System ID System Identifier, identifies a unique system within an Area.

n-S NSAP Selector, identifies a direct user of the network layer service, usually a Transport entity.

NSAP DSP Field Values and Semantics:

Field	Value (Hex)	Semantic
FI	1	Command & Control networks using ATM.

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RD1	00 - 0f	Reserved.
	10 - 7f	Major geographic regions such as the Middle Atlantic, Northeast, Southwest, Midwest, Southeast, Northwest, West Coast, Pacific, Europe, and Central/South America.
	80 - ff	Reserved
RD2	00 - ff	Subordinate geographic region, MAN or concentration of DoD bases. Shall not be further subdivided.
RD3	00 - ff	Reserved for expansion of either RD2 or RD4 domains
RD4	00 - ff	DISA assigns values sequentially from available space to uniquely identify DISN ATM Service Delivery Point edge switches in RD2 subregions.
GUI	00	DISA assigns this value to DISN ATM Service Delivery Point edge switches.
	01 - 0f	Reserved.
	10 - 1f	Available for subscriber networks in the process of transitioning to DISN.
	20 - 80	Reserved.
	81 - ff	DISA assigns values sequentially from the available space to identify an administration authority for deployable networks. The value is globally unique within the FI value equal to 1.
Area	any value	DISA delegates authority over the format and semantic content of the Area field to the Deployed Networks Administration Authority or the Site Administration Authority. The authority is responsible for ensuring uniqueness within an RD/GUI subdomain.
System ID	any value	The authority is responsible for ensuring uniqueness within an Area subdomain.

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n-S	any value	DISA delegates authority over the format and semantic content of the n-S ID field to the Deployed Networks Administration Authority or the Site Administration Authority for standard acceptable values.

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CONCLUDING MATERIAL

Custodians:

Army - CR

Navy - EC

Air Force - 90

Preparing Activity:

DISA (JIEO) - DC

(Project TCSS-7110)

Review Activities:

Army - SC

Navy - MC, SH, AS

Air Force - 02, 13, 17, 19, 93

NSA - NS

OASD - IR

DMA - MP

DIA - DI

DLA - DH

ECAC

Civilian Agency Coordinating Activities:

NCS

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