APPENDIX H

OPEN SYSTEMS ADDRESSING

1   PURPOSE

This Appendix establishes the policy for the management and use of Open Systems Network Service Access Point (NSAP) addresses and X.400 Message Handling System (MHS) Originator/Recipient (O/R) names within the United States Department of Agriculture (USDA).

2   BACKGROUND

Open systems utilize hardware and software based on industry standards that allow interoperability among the equipment of different vendors. To permit interoperability, each component in an open system must be uniquely identified with an assigned address that is in accordance with a national or international standard. The address is a coded label assigned to an object, device, or item of data to identify its location or to designate the originating and receiving terminals for data transmission purposes. Generally, names are the addresses assigned to electronic mail or message handling systems users.

3   REFERENCES

Source	Publication	Title/Subject
ITU-TSS Recommendation Messaging Handling X.400 MHS System Model Service Elements		Systems (MHS):
GSA Applicants	Electronic Messaging Services	Instructions to (E-Mail) Registration
NIST Technologies (POSIT)	FIPS Pub 146-2	Profiles For Open Systems Internetworking
NIST Specification	Special Pub 500-217	IGOSS-Industry/Government Open Systems

4 ABBREVIATIONS

ADMD   -   Administrative Management Domain

AFI   -   Authority and Format Identifier

ANSI   -   American National Standards Institute

AR   -   Area

CIO   -   Chief Information Officer

DDA   -   Domain-Defined Attribute

DSP   -   Domain Specific Part

ES   -   End Section

GSA   -   General Services Administration

IDI   -   Initial Domain Identifier

IDP   -   Initial Domain Part

ISO   -   International Standards Organization

ISSTD   -   Information Systems Security Telecommunications
Division

ITU-TSS   -   International Telecommunications Union-
Telecommunications Standards Sector

NFC   -   National Finance Center

NIST   -   National Institute for Standards and Technology

NSAP   -   Network Service Access Point

NSD   -   Network Services Division

NSEL   -   Network Selector

OCFO   -   Office of the Chief Financial Officer

OCIO   -   Office of the Chief Information Officer

PRMD   -   Private Management Domain

PTT   -   Postal Telephone and Telegraph

RD   -   Routing Domain

TSO   -   Telecommunication Services and Operations

USDA   -   United States Department of Agriculture

5   POLICY

 a   This directive augments other internal and external regulations that establish general policies governing all telecommunications networks, systems, hosts, and routers using Open Systems protocols. When a conflict exists, this directive takes precedence.

(1)   The Office of the Chief Information Officer (OCIO) is the GSA-designated Open Systems registration authority for all USDA NSAP addresses and X.400 MHS O/R names by delegation from the Secretary of Agriculture. The Chief Information Officer, has redelegated the following registration authority responsibilities to OCIO-Telecommunications Services and Operations (TSO):

(a)   Assignment of USDA NSAP addresses and X.400 O/R names, and

(b)   Administration and maintenance of required databases for managing these addresses and names.

(2)   All USDA NSAP addresses and X.400 MHS O/R names shall comply with FIPS PUB 146-2, POSIT, and NIST Special PUB 500-217, IGOSS.

(3)   All existing and future NSAP addresses and X.400 MHS O/R names shall be registered with OCIO-TSO.

(4)   All USDA NSAP addresses shall comply with the values identified in Table H-1 of this directive.

(5)   The Office of the Chief Financial Officer (OCFO) /National Finance Center (NFC) code for each agency, as listed in Table H-2, shall be included in the Routing Domain (RD) component of the NSAP address in order to uniquely identify the agency except for the agency codes AW, DB, ES, FA, NA, OA, OU, and PP which must be changed to the substitute codes as indicated. This accommodates the requirements for the NSAP DSP to contain only hexadecimal characters.

(6)   All USDA X.400 MHS O/R names shall comply with the values identified in Table H-3 of this directive, with the only exceptions enumerated in items (7), (8), and (9) of this section.

(7)   The OCFO/NFC Agency Name Abbreviation from Table H-2 shall be used for the Organization Name in the X.400 MHS O/R name, except for the use of specially registered Organization Names requested by an agency. Requests for use of special Organization Names shall be coordinated by OCIO-TSO for approval by the registration authority.

(8)   The OCFO/NFC Agency Name Abbreviation from Table H-2 with a leading delimiter of "." shall be appended to the end of the PRMD name identified in Table H-3 for any X.400 MHS O/R name registered with the FTS2000 MHS service in accordance with the General Services Administration (GSA) E-Mail Registration Services Instructions to Applicants. For agencies or staff offices with multiple PRMDs, a numeric suffix shall be included to distinguish the PRMDs. An agency or staff office shall request a technical waiver to use a special PRMD name which shall be coordinated with GSA by OCIO/Network Services Division (NSD) for approval by the registration authority. The special PRMD name will be valid only during the life of the FTS2000 contract.

(9)   Under the current FTS2000 X.400 MHS O/R addressing constraint, a temporary waiver has been granted to those agencies identified in Table H-4 who have established O/R naming conventions that do not meet the X.400 MHS O/R naming requirements of this directive. This waiver is valid for only these existing PRMDs identified in Table H-4 and during the life of the FTS2000 contract.

(10)   To allow for an orderly transition from FTS2000, in both cases above (8) and (9), the agency or staff office shall submit a detailed transition plan to OCIO/Telecommunications Services and Operations (TSO). The plan will include the agency's plan for a final transition to compliance with X.400 including major milestones and completion dates.

6   RESPONSIBILITIES

a   <u>Office of the Chief Information Officer will</u>:

(1)   Develop and maintain Department-wide policies and guidelines for implementing NSAP addresses and X.400 O/R names in accordance with FIPS, ANSI, OSI, and ITU-TSS recommendations and standards; and

(2)   Review and provide comments on all agency supplements and agency-unique directives relating to this policy.

b   <u>Office of the Chief Information Officer-Telecommunications Services and Operations will</u>:

(1)   Assist the agencies in specifying the unique value to be used in the NSAP address RD field. This value will include the two digit OCFO/NFC agency code from Table H-2;

(2)   Assist the agencies in defining general conventions for the allocation of the AR, ES, and NSEL fields of the NSAP address which meet agency requirements;

(3)   Assist the agencies in defining general conventions for the allocation of the Organizational Unit(s), Personal Name and Domain-Defined attributes for the X.400 MHS O/R name;

(4)   Coordinate agency and staff office requests to use special PRMD names with GSA for approval by the registration authority;

(5)   Maintain electronic NSAP Address and O/R Name registration request forms which solicit important information from an agency when an NSAP address or an X.400 MHS O/R name allocation is requested;

(6)   Receive and process agency registration request forms for NSAP addresses and X.400 MHS O/R names. The pertinent NSAP address components and O/R name attributes will be assigned according to the agency defined conventions;

(7)   Coordinate agency and staff office requests to use special organization names for approval by the registration authority;

(8)   Coordinate agency and staff office requests for technical waivers of the X.400 MHS O/R naming requirements of this directive for approval by the registration authority; and

(9)   Maintain a data base of NSAP Addresses and X.400 MHS O/R names which is accessible to all USDA agencies and other Administrative Authorities.

c   <u>Agencies and Staff Offices will</u>:

(1)   Comply with the NSAP addressing and X.400 MHS O/R naming convention identified in this directive;

(2)   Request assistance from OCIO-TSO, as necessary, in defining conventions for allocating the NSAP RD, AR, ES, and NSEL fields and the O/R organizational Unit(s), Personal Names, and Domain-Defined attributes;

(3)   Complete and submit a request form for each NSAP Address or O/R Name allocation requested. The completed request form will be submitted preferably by electronic mail to OCIO-TSO; and

(4)   Submit a detailed plan to OCIO/TSO for the transition of the use of an unofficial O/R Naming convention or special PRMD name(s) to full compliance with X.400.

7   FORMS

a   Obtain X.400 O/R Names by submitting form "USDA X.400 MHS O/R Name Registration Request Form".

b   Obtain NSAP addresses by submitting form "USDA NSAP Address Registration Form".

These forms are available from OCIO-TSO and may be obtained electronically by sending a request to:

"addman@tasc.usda.gov" (Internet Address) or

These forms are available on-line and are located on the following computer host:

"http://www.net.usda.gov/email/index.html" (Internet WWW URL)

8   DEFINITIONS

a   <u>Address</u>. The uniquely coded label assigned to an object, device, or item of data to identify its location.

b   <u>Administration Management Domain</u>. A Message Handling System (MHS) management domain owned and managed by an administration. An

administration is either the central Postal Telephone and Telegraph (PTT) service in a country or, in the U.S., a common carrier recognized by the ITU-TSS (e.g., AT&T, Sprint, MCI).

c   Area. A two-octet value in the NSAP address which allows delegation of naming authority below the Routing Domain authority.

d   Domain. A defined set of applications, systems, users, or organizations interrelated by virtue of being administered by a common authority.

e   End System. A six-octet value in the NSAP address which allows the definition of unique systems within an Area authority.

f   Network Selector. A one-octet value in the NSAP address which specifies transport layer service. This value is usually fixed by vendor implementations of OSI protocol products.

g   Octet. A sequence of eight adjacent binary digits (byte), usually operated upon as a discrete unit.

h   Private Management Domain. A MHS management domain owned and managed by a private organization.

i   Registration Authority. The Chief Information Officer (CIO) for executive departments, establishments, and government corporations, as identified in the United States Government Manual. The CIO may appoint a senior registration official to represent his/her organization. The registration official will register, through delegation of registration authority from GSA, its own subordinate address space, maintain a database of MHS addresses within its management domain, and shall make this data base available to other registered authorities upon request. The assignment of USDA NSAP addresses and X.400 O/R names and the administration and maintenance of required databases have been redelegated to OCIO-TSO.

j   Routing Domain. A two-octet value in the NSAP address which allows delegation of naming authority below the Administrative Authority. The OCFO/NFC code for the requesting agency from Table H-2 will be included in the value.

k   X.400 MHS. The set of ITU-TSS, recommendations approved in 1984 and revised in 1988 and 1993, that describe the system model and service elements of a message handling system. X.400 MHS is the mandatory Open Systems electronic mail standard.

9   COPIES OF RELATED DOCUMENTS

    a   Copies of FIPS are available from:

            National Technical Information Service (NTIS)ATTENTION:
            Sales Office, Sills Building, 5285 Port Royal Road, Springfield,
            VA 22161,TEL (703) 487-4650

    b   Copies of the specifications and related documents can be obtained from:

    ANSI and ISO American National Standards Institute Documents,11 West 42nd
    Street, New York, NY 10036, TEL (212) 642-4900, FAX (212) 302-1286

    ITU-TSS and National Technical Information Service CCITT, ATTENTION:
    Sales Office, Sills Building Recommendations,5285 Port Royal Road,Springfield,
    VA 22161, TEL (703) 487-4650

Table H-1

USDA NSAP Address Structure

An NSAP address is an identifier that uniquely distinguishes one end system from
another in a network of systems. The NSAP address consists of two major parts. The
Initial Domain Part (IDP), consisting of the Authority and Format Identifier (AFI) and the
Initial Domain Identifier (IDI), have been defined and values of 47 and 0005 have been
assigned by the International Standards Organization (ISO). The remaining portion of the
NSAP is the Domain Specific Part (DSP). In IGOSS, NIST defined a seventeen-octet
structure for the DSP. GSA has assigned a value of 80 for the DSP Format Identifier
(DFI). GSA has assigned an AAI value of 000500 for USDA. NIST has assigned a two-
octet null value of 0000 to the Reserved component of the DSP. A detailed description of
the address structure is given in Section 4.1.1 of the IGOSS-Industry/Government Open
Systems Specification (NIST Special Publication 500-217).

NSAP ADDRESS*								
IDP		DSP						
AFI	IDI	DFI	AAI	Rsvd	RD	AR	ES	NSEL
1	2	1	3	2	2	2	6	1
47	0005	80	000500	0000	Agency Code See Table H-2	xxxx	xxxxxxxxxxxx	xx

Legend

*   Field size are in octets.

*   Component values are hexadecimal, except AFI & IDI, which are binary coded decimal digits.

NSAP - Network Service Access Point

AAI   - Administrative Authority Identifier

IDP   - Initial Domain Part

Rsvd   - Reserved for future use

DSP   - Domain Specific Part

RD   - Routing Domain (See Table H-2)

AFI   - Authority and Format Identifier

AR   - Area

IDI   - Initial Domain Identifier

ES   - End System

DFI   - DSP Format Indicator

NSEL   - Network Selector

Table H-2

USDA OCFO/NFC Agency Listing

The current agency abbreviation and agency code as defined by the USDA OCFO/NFC. The OCFO/NFC Agency Code is required in the RD field of the NSAP address. The Agency Name Abbreviation is required to specify the Organization Name and, as an exception, to extend the PRMD name of the X.400 MHS O/R name.

USDA ORGANIZATION		
Code	Abbreviation	Name
01	SEC	Office of the Secretary
02	AMS	Agricultural Marketing Service

03	ARS	Agricultural Research Service
07	RHS	Rural Housing Service
08	RMA	Risk Management Agency
10	FAS	Foreign Agricultural Service
11	FS	Forest Service
13	OC	Office of Communications
14	OGC	Office of the General Counsel
15	RUS	Rural Utility Service
16	NRCS	Natural Resources Conservation Service
18	ERS	Economic Research Service
20	NASS	National Agricultural Statistics Service
22	CSREES	Cooperative State Research, Education, and Extension Service

23	OIG	Office of Inspector General
30	FNS	Food and Nutrition Service
32	RBCS	Rural Business-Cooperative Service
34	APHIS	Animal and Plant Health Inspection Service
36	GIPSA	Grain Inspection, Packers and Stockyards Administration
37	FSIS	Food Safety and Inspection Service
38	OCE	Office of Chief Economist
42	OBPA	Office of Budget and Program Analysis
76	OCIO	Office of the Chief Information Officer
90	OCFO	Office of Chief Financial Officer
92	OALJ	Office of Administrative Law Judges
94	OCR	Office of Civil Rights

96	OHRM	Office of Human Resources Management
98	OO	Office of Operations
*AW	AARC	Alternative Agriculture Research and Commercialization Center
*DB	OSDBU	Office of Small and Disadvantaged Business Utilization
*ES	OES	Office of the Executive Secretariat
*FA	FSA	Farm Service Agency
*NA	NAD	National Appeals Division
*OA	OAS	Office of Administrative Support
*OU	OUT	Office of Outreach
*PP	OPPM	Office of Procurement and Property Management

* To meet the requirement for use of hexadecimal encoding of the NSAP, these alphabetical character agency codes must be substituted for as indicated below:

Assigned Code	Substitute Code
AW	04
DB	05
ES	17
FA	09
NA	12
OA	21
OU	24
PP	25

Table H-3

X.400 MHS O/R Name Attributes

The X.400 MHS O/R naming hierarchy has been defined to support globally unique Open Systems names for organizations and individuals. Form 1, Variant 1 of the ITU-TSS Recommendation X.400 MHS defines hierarchical attributes which can be used to construct an O/R name. As shown in the following table, the O/R name is formed by several required and optional fields that uniquely identify a user anywhere on a MHS. The first four hierarchical X.400 O/R attributes (Country name, ADMD, PRMD and Organization name) are assigned predefined values per this directive. The remaining X.400 MHS O/R attributes (Organization Unit names, Personal names and Domain-Defined attribute) are designated at the discretion of the agency.

X.400 MHS O/R NAME		
Attribute	Length*	Assigned Value
Country Name	3	'US'
Administration Management Domain (ADMD) Name	16	'ATTMAIL'
Private Management Domain (PRMD) Name	16	'GOV+USDA'
Organization Name	64	Agency Abbreviation

		(See Table H-2)
Organizational Unit Name(s) (Four possible unit attributes)	4 X 32	Agency Unit Abbreviated (Hierarchical)
Personal Name		
Surname	40	User's Surname
Given Name	16	User's Given Name
Initial(s)	5	User's Initial(s)

Generational Qualifier	3	User's Generational Qualifier
Domain-Defined Attribute (DDA)	Varies	System Domain Defined Type and Value

*   The value identified for each attribute is the maximum ASCII character length allowed by the X.400 MHS standard.

Table H-4

<u>USDA X.400 MHS PRMD Name Exceptions</u>

The following agencies have received temporary waivers for PRMDs that do not comply with the USDA X.400 MHS O/R naming convention. These PRMDs are only valid for the term of the FTS2000 contract. The agency abbreviations enclosed in parentheses identify the original agency abbreviation with which the PRMD is registered, before the Departmental organization of 1994 was achieved.

Agency Abbreviation	Private Management Domain (PRMD)
AMS	gov+amsdc
APHIS	gov+usda.aphis1

	gov+usda.aphis2
FSA (ASCS)	gov+usda.ascswa1
	gov+usda.fsa
FAS	gov+usda.fas
FSA (FCIC)	gov+usda.fcic.dc
FCS (FNS)	gov+usda.fns
FS	usda.fs.x400
	usda.fs.x400a
OCIO	gov+usda.oirmfc
	gov+usda