1 December 1998

To: Distribution

Subject: Requirements Document for the JSIPS-N Concentrator Architecture (JCA) Version 1.1

The attached document is entitled Requirements Document for the JSIPS-N Concentrator Architecture (JCA) Version 1.1, 01 December 1998. The previous requirements document was titled JSIPS-N System Concept and Requirements for Imagery Related Intelligence Dissemination. Those requirements that can be met after system IOC are annotated as Effectivity xxx (Exxx). This is not to mean that if an Exxx requirement can be met at IOC it should be excluded from implementation. It does, however, mean that Exxx requirements take second priority to all baseline requirements and no conflicting effort should be expended to include them at IOC.

This version of the requirements document, as approved by PMA-281, will be used as the baseline for the JCA. Any comments or corrections should be sent to Max Conte (JSIPS-N SI) by e-mail: max.conte@lmco.com , phone at (610)531-5775, fax (610) 531 1190.

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PMA-281

(DRAFT)
Requirements Document for the JSIPS-N Concentrator Architecture (JCA)

Version 1.1
1 December 1998

Prepared For:
Command and Control System Program (PMA 281)
Program Executive Office Cruise Missiles
Joint Unmanned Aerial Vehicles (PEO (CU))

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1.0 Scope

1.1 Identification

This document establishes the requirements for the JSIPS-N Concentrator Architecture (JCA). The baseline for this document is JCA System IOC. All requirements that are not mandatory for IOC are noted with an Effectivity of Exxx.

1.2 Purpose

The purpose of this document is to identify the user, system and component requirements by defining the functional, performance design and verification requirements for the JCA. This document also captures the interface requirements between the sub-components of the JCA.

1.3 Introduction

This document is organized into 5 sections. Section 1 contains the scope, which provides the rationale for conducting this effort. Section 2 contains a listing of all applicable documents. Section 3 defines the User required system functionality. The required functionality (recorded as User Needs) is essential for maintaining current and future operational capabilities for the purpose of supporting deployed Navy users operational missions. These requirements are considered "living" in that they may change in response to changing needs and an improved understanding of what can be achieved through the application of the latest information technology. Section 4 defines the set of architecture-independent System Requirements that will support the JSIPS-N concept but could be implemented within the NIMA USIGS architecture. The System Requirements are then broken down into Component Requirements (Section 5) that directly support the development and implementation of the JSIPS-N Concentrator Concept.

All imagery and geospatial products/data and associated support data, whether National, Commercial, or Tactical, required by users to fulfill operational requirement will be referred to as Operational Support Data (OSD). Any requirements identified with an (Exxx) designation are considered upgrades should they be unavailable from sources in a usable format or timeline at system IOC (31 March 1999). Otherwise requirements identified as (Exxx) are considered upgrades in the post IOC time frame should the capabilities become available in future builds.

1.4 JCA Concept Overview

The JSIPS-N dissemination architecture consists of four system components including the Sources, the Concentrator, the Sites and the Communications between them. This architecture is depicted in Figure 3-1.

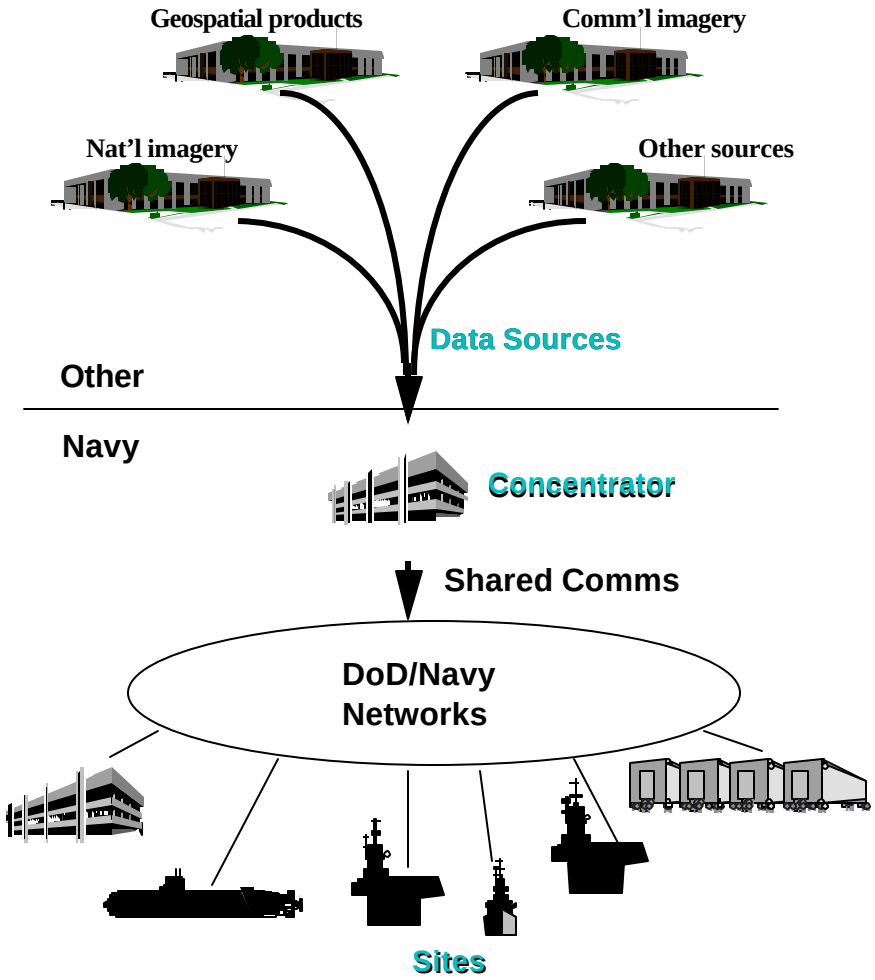

Figure 3-1

The Sources include the EPS, theater, tactical, and other commercial and government operations support data sources.

The Concentrator is essentially a gateway between the Sources and the Sites where data is collected and/or generated, stored, retrieved by profile or request, and disseminated electronically to the Sites. It is envisioned that multiple Concentrators will exist to support Sites across multiple Areas of Responsibility (AOR).

Sites include ships, which currently receive imagery via DDS, Rapid Deployment Suites (RDS), and other potential shore sites such as the Navy and Marine Corps Intelligence Training Center (NMITC).

Communications are relatively unstable with respect to afloat platforms and require special attention. The system security level will operate at the U.S. SECRET (non-SCI) level or lower and any SCI Sources will require the appropriate downgrading according to established procedures and policies. The availability of the system will be greater than or equal to standard Navy system requirements.

2.0 Applicable Documents

The following documents of specific issue form a part of this specification. It is the intent of this specification to utilize the listed documents only as referance and it is not the intent of this specification to modify the documents. In the event of conflict between the document referanced and the contents of this specification, the contents of this specification shall be considered the supersending requirement.

D3-RSHD-A	Defense Dissemination System III Receive Segment (DDSIII RS) to Host Data Base Systems (HDBS) Interface Control Document
D4-DE-A	Dissemination Element Specification for the Defense Dissemination System
D4-UCS-CR-B	Computer Room Addendum Specification to the Dissemination Element Specification for the Defense Dissemination System
IF20D08P	Defense Dissemination System Enhanced Processing Segment to Receive Segment / Transmission Segment Interface Control Document
IF200EAA	COMIREX – National PHOTINT Programs ICD
S2025P	Tape Format Requirements Document II
S2035A	National Imagery Transmission Format Implementation Requirements Document (NITFIRD)

3.0 User Needs

3.1 Overview

This section provides the requirements that are based upon the User needs for requests and dissemination of imagery, imagery products and support data. User needs provide the foundation for system and segment requirements.

3.2 User Needs for Data Interfaces and Protocols

3.2.1 The User needs access to Operations Support Data (OSD). Operational Support Data is defined as all of the data types listed in Table 3-1.

Table 3-1 Operations Support Data (OSD) Types

a. National Imagery with Support Data.
b. Processed Tactical Imagery with Support Data. (Exxx)
c. Commercial Imagery with Support Data. (Exxx)
d. Video Imagery with Support Data. (Exxx)
e. Digital Point Positioning Databases (DPPDB). (Exxx)
f. Digital Terrain Elevation Data (DTED). (Exxx)
g. Basic Targeting Graphics (BTGs). (Exxx)
h. Maps and Charts. (Exxx)
i. Target Folders. (Exxx)

3.2.2 The User needs a system that operates using existing and planned Navy communications in a non-dedicated (non-stovepipe) architecture.

3.2.3 The User needs secure (encrypted) communications.

3.2.4 The User needs a system that operates using commercial Internet protocols.

3.3 User Needs for Common Services and User Interfaces

3.3.1 The User needs a single System interface, using Internet web browser technology. (Exxx)

3.3.2 The User needs the capability to manage, access and trouble shoot any internal component.

3.4 User Needs for Ordering

3.4.1 The User needs access to OSD via a single source.

3.5 User Needs for Receipt

3.5.1 The User needs the capability to receive OSD in near real time.

3.6 User Needs for Dissemination

3.6.1 The User needs the capability to manage automated dissemination of OSD.

3.6.2 The User needs the capability to electronically transfer OSD to any interfacing systems within the Site.

3.6.3 The User needs the capability to electronically transfer OSD to any other User Site.(Exxx)

3.7 User Needs for Archiving and Data Management

3.7.1 The User needs the capability to electronically access all centrally archived OSD.

3.7.2 The User needs the capability to manage locally stored OSD.

3.8 User Needs for Processing

3.8.1 The User needs the capability to process OSD.

3.8.2 The User needs the capability to expand compressed OSD from the formats defined in Table 3-2.

3.9 User Needs for System Availability Requirements

3.9.1 The User needs a system that is capable of providing National Imagery to a User Site with a 85% or better system availability.

3.10 User Needs for Operating Environment Requirements

3.10.1 The User needs the system to operate in a U.S. SECRET-only (Non-SCI) environment.

3.10.2 The User needs a system that can be fully operational on deployed platforms including ships and ground transportable vehicles.

4.0 System Requirements

4.1 Overview

Section 4 establishes the System Requirements for the JSIPS-N Concentrator Architecture (JCA). The System Requirements in this section are derived from the User Needs that were defined in Section 3.0 of this Requirements Document. All references in section 4 toward User will be defined as all personnel within the JCA architecture (Concentrator and Sites).

4.2 System Requirements for Data Interfaces and Protocols

4.2.1 The System shall interface with the Enhanced Processing Segment (EPS) as a National Imagery source.

4.2.2 The System shall interface with Low Cost Media format for tape transfer / ingest.

4.2.3 The System shall interface with the Tactical Input Segment (TIS) as a Processed Tactical Imagery source. (Exxx)

4.2.4 The System shall interface with the (TBR) as Commercial Imagery sources. (Exxx)

4.2.5 The System shall interface with (TBR) as Digital Point Positioning Database (DPPDB) sources. (Exxx)

4.2.6 The System shall interface with (TBR) as Digital Terrain Elevation Data (DTED) sources. (Exxx)

4.2.7 The System shall interface with (TBR) as Basic Targeting Graphics (BTG) sources.(Exxx)

4.2.8 The System shall interface with the Demand Driven Direct Digital Dissemination (5D) system. (Exxx)

4.2.9 The System shall interface with NIMA libraries. (Exxx)

4.2.10 The System shall interface with Custom Product Network sources (Exxx).

4.2.11 The System shall support the transmission of data from the Concentrator to Sites utilizing Navy Communication systems.

4.2.12 The System shall provide the capability to allow for the Navy Communications to dynamically change bandwidth allotment without affecting system operations other than timeline and throughput. (Exxx)

4.2.13 The System shall operate in an open architecture within DII / COE standards.

4.2.14 The System shall have the capability to operate utilizing an asymmetric duplex long or short latency communications environment (Appendix H) from the Concentrator location to the Sites.

4.2.15 The System shall utilize standard peripheral devices that adhere to SCSI II and SCSI III (fast and wide) interfaces.

4.2.16 The System shall interoperate via a Communications System that provides for secure (encrypted) communications.

4.2.17 The System shall provide for interfaces utilizing standard commercial network connections and Internet protocols.

4.3 System Requirements for Common Services and User Interfaces

4.3.1 The System shall be graphically oriented using web page technology.

4.3.2 The System shall provide the capability to access any internal user interface from any internal user interfaces. (Exxx)

4.3.3 The System shall be capable of limiting user access within any internal system component.

4.3.4 The System shall be capable of limiting external users access to internal system components.

4.3.5 The System shall provide a remote software maintenance capability.

4.3.6 The System shall provide maximum automation for its operation and support.

4.4 System Requirements for Ordering

4.4.1 The System shall have the capability to manually order OSD from the sources.

4.4.2 The System shall have the capability to automatically order OSD from the sources based on attributes contained in profiles.

4.4.3 The System shall provide the capability to order any identified portion of OSD. (Exxx)

4.4.4 The System shall provide the status of OSD ordered by the System from all sources interfacing with the System.

4.4.5 The System shall support the ordering of OSD from within the System based upon the desired image quality requirement. Image quality requirements will be satisfied through the original image or the Reduced Resolution Data Set closest in quality to the image requirement. (Exxx).

4.4.6 The System shall have the capability to filter OSD based upon profiled attributes that have been sent from a source.

4.4.7 The System shall have the capability to browse source component catalogs for the purpose of ordering OSD.

4.4.8 The System shall have the capability to prioritize OSD.

4.5 System Requirements for Receiving

4.5.1 The System shall have the capability to receive OSD.

4.6 System Requirements for Dissemination

4.6.1 The System shall be capable of disseminating OSD.

4.6.2 The System shall support the dissemination of Reduced Resolution Imagery with corresponding support data based on an image quality requirement. (Exxx)

4.6.3 The System shall provide dissemination management functions for OSD.

4.6.4 The System shall have the capability to disseminate sub-images with corresponding support data.

4.6.5 The System shall contain shore based Points of Presence (POP's) (see Appendix H) at one or more locations as the focal points for all data sources supplying OSD to the Site.

4.6.6 The System shall support up to 22 concurrently active Site POP's at user locations.(Exxx)

4.6.7 The System shall provide the capability to transfer OSD throughout the System.

4.6.8 The System shall be capable of disseminating files to External Systems in accordance with the Concentrator to External Systems Interface. (Appendix F)

4.6.9 The System shall be capable of disseminating files to External Systems utilizing standard NIMA UIP and commercial standards for data formats.

4.7 System Requirements for Archiving and Data Management

4.7.1 The System shall provide an archive for OSD.

4.7.2 The System shall provide a User-local OSD archive.

4.7.3 The System shall store and manage OSD on-line and off-line using hierarchical storage management techniques.

4.7.4 The System shall provide for the archiving of data in searchable, global indexes compatible with USIGS Logical Data Model.

4.7.5 The System shall have the capability to manage OSD.

4.7.6 All data that resides on the System shall exist as files.

4.7.7 All data transferred across system interfaces shall be file based.

4.8 System Requirements for Processing

4.8.1 The System shall be capable of processing and disseminating stored National Imagery within a median time of 45 minutes from time of request. (Image size defined as 151 megapixels).

4.8.2 The System shall support the production of Reduced Resolution Imagery with corresponding support data based on an image quality requirement.(Exxx)

4.8.3 The System shall have the capability to produce sub-images with corresponding support data.

4.8.4 The System shall have the capability to perform support data interpretation on files for catalog indexing in NITF 2.0 format with associated support data extensions in accordance with S2035.(Exxx)

4.8.5 The System shall have the capability to perform data interpretation of the NITF Header data on files for catalog indexing in NITF 2.0 Format.(Exxx)

4.8.6 The System shall have the capability to perform data interpretation of the NITF Sub-Header data on files for catalog indexing in NITF 2.0 Format.(Exxx)

4.8.7 The System shall have the capability to perform support data interpretation on files for catalog indexing in NITF 2.1 format with associated support data extensions in accordance with S2035. (Exxx)

4.8.8 The System shall have the capability to perform data interpretation of the NITF Header data on files for catalog indexing in NITF 2.1 Format. (Exxx)

4.8.9 The System shall have the capability to perform data interpretation of the NITF Sub-Header data on files for catalog indexing in NITF 2.1 Format. (Exxx)

4.8.10 The System shall be capable of processing imagery from the EPS source at a minimum of 5 Mpps.

4.8.11 The System shall provide support for the compression of NITF 2.0 imagery with 8 and 12 bit Precision JPEG as defined in S2035.(Exxx)

4.8.12 The System shall provide support for the compression of NITF 2.1 imagery with 8 and 12 bit Precision JPEG as defined in S2035. (Exxx)

4.8.13 The System shall provide the capability to compress imagery into 1.29 bpp TFRD format.

4.8.14 The System shall provide the capability to perform lossless ZIP, or equivalent, compression on files in any data type or format with an intended use for but not limited to non-operational support data.

4.8.15 The System shall provide support for the expansion of NITF 2.0 imagery with 8 and 12 bit Precision JPEG as defined in S2035.(Exxx)

4.8.16 The System shall provide support for the expansion of NITF 2.1 imagery with 8 and 12 bit Precision JPEG as defined in S2035. (Exxx)

4.8.17 The System shall provide the capability to expand 1.29 and 4.3 bpp TFRD imagery.

4.8.18 The System shall provide the capability to perform lossless ZIP, or equivalent, expansion on files in any data type or format with an intended use for but not limited to non-operational support data.

4.9 System Requirements for Performance

4.9.1 The System shall support a transmission bandwidth range of 32 Kbps to 0.768 Mbps from the Concentrator to Sites. (32Kbps to 6.176 Mbps @ Exxx)

4.9.2 The System Concentrator location shall support the reception of data from the EPS source utilizing a Communications system that will support a bandwidth range from 0.8 Mbps to 20 Mbps.

4.9.3 The System shall provide the capability to transfer imagery from the EPS source to a Site with a median time of 60 minutes from time of imaging to complete receipt at the Site.

4.9.4 The System shall provide the capability to disseminate OSD from the Concentrator to the Site with a median time of 60 minutes from time of request to complete receipt at the Site.

4.9.5 The System shall support up to 45 active Site POP's at user locations with a pro-rated timeline performance equivalent to 22 concurrently active Site POP's.(Exxx)

4.9.6 The System shall be capable of receiving a minimum of 122 GB per day. (This is equivalent to 22 Sites receiving 65 prod / day @ 151 FAF / product at 4.3 bpp)

4.9.7 The System shall be capable of disseminating a minimum of 37 GB per day. (This is equivalent to disseminating to 22 Sites, 65 prod / day @ 151 FAF / product at 1.29 bpp)

4.9.8 The System shall provide a User-local OSD archive with the storage size of at least 6 months of nominal Site receipt volume of National Imagery OSD (equivalent to 300 GB of storage for 65 prod / day @ 151 FAF @ 1.29 bpp).

4.9.9 The System shall provide a User-local OSD archive with an access time of up to 5 seconds from request to start of access at System Site(s).

4.9.10 The System shall provide a System archive with the storage size of at least 5 years (equivalent to 3 TB of storage per site for 65 prod / day @ 151 FAF @ 1.29 bpp) of nominal System receipt volume of National Imagery OSD.

4.9.11 The System shall provide a System archive with an access time no greater than 5 seconds from request to start of transmission to the Site for a rapid access category of data equivalent to 6 months of nominal System receipt volume of National Imagery OSD.

4.9.12 The System shall provide a System archive with an access time no greater than 30 minutes from request to start of transmission to the Site for a normal access category of data comprising the remainder of the archival data.

4.10 System Requirements for System Availability

4.10.1 The System shall operate at a minimum 85% level of availability, from images existing at EPS to Site Receipt.

4.11 System Requirements for Operating Environment

4.11.1 The System shall operate in a U.S. SECRET- (Non-SCI) only environment.

4.11.2 The System shall contain elements that are deployable on naval ships, transportable ground vehicles, and at selected land-based Sites with consideration for Site-specific operational and non-operational environmental requirements.

5.0 Component Requirements

5.1 Overview

Section 5 establishes the segment requirements for the JSIPS-N Concentrator Architecture (JCA). The section is segmented into Source, Concentrator, Site, and Communication component requirements.

5.2 Source Component Requirements

5.2.1 Source Requirements for Data Interfaces and Protocols

5.2.1.1 The EPS Source will support IF20D08P for National image data generation.

5.2.1.2 The Source will comply with the data interface as defined in the Source to Communications to Concentrator interface. (Appendix A)

5.2.2 Source Requirements for Dissemination

5.2.2.1 The Source shall provide imagery in NITF 2.0 in accordance with S2035.(Exxx)

5.2.2.2 The Source shall provide imagery in NITF 2.1 in accordance with S2035. (Exxx)

5.2.2.3 The Source shall provide National imagery in 1.29 TFRD in accordance with IF20D08P.

5.2.2.4 The Source shall provide National imagery in 4.3 TFRD in accordance with IF20D08P.

5.2.3 Source Requirements for Processing

5.2.3.1 The EPS Source shall provide support for the compression of NITF 2.0 with 12 bit Precision JPEG.(Exxx)

5.2.3.2 The EPS Source shall provide support for the compression of NITF 2.1 with 12 bit Precision JPEG. (Exxx)

5.2.4 Source Requirements for Performance

5.2.4.1 The EPS Source will support the transfer of data over a communications system or systems that will support a bandwidth range from .8 to 20 Mbps.

5.2.5 Source Requirements for System Availability

5.2.5.1 The EPS Source shall operate at a 98% level of availability and reliability.

5.3 Concentrator Segment Requirements

5.3.1 Concentrator Requirements for Data Interfaces and Protocols

5.3.1.1 The Concentrator shall support IF20D08P for national image data receipt.

5.3.1.2 The Concentrator shall support ingest and production of tapes which comply with the data interface as defined in the JSIPS-N Tape Interface. (Appendix G)

5.3.1.3 The Concentrator shall interface with the Tactical Input Segment (TIS) as a Processed Tactical Imagery source. (Exxx)

5.3.1.4 The Concentrator shall interface with the (TBD) as Commercial Satellite Imagery sources. (Exxx)

5.3.1.5 The Concentrator shall interface with the (TBD) as Digital Point Positioning Data Base (DPPDB) sources. (Appendix F) (Exxx)

5.3.1.6 The Concentrator shall interface with the (TBD) as Digital Terrain Elevation Data (DTED) source. (Appendix F) (Exxx)

5.3.1.7 The Concentrator shall interface with the (TBD) as Basic Targeting Graphics (BTG) source. (Exxx) (Appendix F)

5.3.1.8 The Concentrator shall interface with the Demand Driven Direct Digital Dissemination (5D) system. (Exxx) (Appendix F)

5.3.1.9 The Concentrator shall interface with the United States Imagery and Geospatial Information System (USIGS) NIMA Libraries. (Exxx) (Appendix F)

5.3.1.10 The Concentrator shall interface with the Custom Product Network (CPNET). (Exxx) (Appendix F)

5.3.1.11 The Concentrator shall provide the capability to allow for the Navy Communications to dynamically change bandwidth allotment without affecting system operations other than timeline and throughput.

5.3.1.12 The Concentrator shall operate in an open architecture within DII / COE standards.

5.3.1.13 The Concentrator shall have the capability to operate having been provided an asymmetric duplex long or short latency communications environment to the Sites (High Bandwidth From Concentrator to Site, and Low Bandwidth from Site to Concentrator).

5.3.1.14 The Concentrator shall support standard peripheral devices that adhere to SCSI II and SCSI III (fast and wide) interfaces for source data input.

5.3.1.15 The Concentrator shall support standard peripheral devices that adhere to SCSI II and SCSI III (fast and wide) interfaces for source data output.

5.3.1.16 The Concentrator shall interoperate via Communications that provides for secure (encrypted) communications from the EPS source.

5.3.1.17 The Concentrator shall interoperate with Navy Communications that provides for secure (encrypted) communications from the Concentrator to the Site.

5.3.1.18 The Concentrator shall provide for interfaces to the Navy Systems at User Sites utilizing standard commercial network connections and protocols.

5.3.1.19 The Concentrator shall utilize commercial Internet protocols for all forms of data input.

5.3.1.20 The Concentrator shall utilize commercial Internet protocols for all forms of data output.

5.3.1.21 The Concentrator shall comply with the data interface as defined in the Source to Communications to Concentrator Interface. (Appendix A)

5.3.1.22 The Concentrator shall comply with the data interface as defined in the Concentrator to Communications to Site Interface. (Appendix B)

5.3.1.23 The Concentrator shall comply with the data interface as defined in the External Exploitation Support Systems to Communications to Concentrator. (Appendix D)

5.3.1.24 The Concentrator shall be capable of receiving and disseminating files from and to systems outside of JSIPS-N in accordance with the Concentrator to Communications to External Systems Interface. (Appendix E)

5.3.2 Concentrator Requirements for Common Services and User Interfaces

5.3.2.1 The Concentrator shall be graphically oriented using Web Page Technology.(Exxx)

5.3.2.2 The Concentrator shall have the ability to provide Internet Post Office Protocol (POP) e-mail / e-mail server functionality.

5.3.2.3 The Concentrator shall provide a file transfer capability.

5.3.2.4 The Concentrator shall provide web page server (HTTP) functionality.(Exxx)

5.3.2.5 The Concentrator shall provide at a minimum the web page based user interfaces shown in Table 5-1.(Exxx)

Table 5-1 Concentrator User Interfaces

a. System (Combined Sites + Concentrators) Archive Browse
b. Local Concentrator Archive Browser
c. Source Browse
d. Concentrator to Site Dissemination Management
e. Concentrator to Concentrator Dissemination Management (Exxx)
f. Source To Concentrator Dissemination Management
g. Concentrator User Interface Access Control
h. Concentrator Hierarchical Storage Manager Parameters

5.3.2.6 The Concentrator shall be capable of having any user interface accessible from any other internal system component.(Exxx)

5.3.2.7 The Concentrator shall be capable of performing any function from any Site location. (Exxx)

5.3.2.8 The Concentrator shall be capable of limiting user access to any internal Concentrator component.

5.3.2.9 The Concentrator shall be capable of limiting external users access to any internal Concentrator component.

5.3.2.10 The Concentrator shall provide a remote software maintenance capability.

5.3.2.11 The Concentrator shall provide a diagnostic workstation that shall perform the functions listed in Table 5-2.

Table 5-2 Concentrator Workstation

a. Display Imagery
b. Mensuration
c. Geospatial Location
d. Roam
e. Zoom
f. Image Enhancement

5.3.2.12 The Concentrator shall provide a diagnostic workstation that shall display formats in accordance with Table 5-3.

Table 5-3 OSD Formats

a. NITF 2.0 (Exxx)
b. NITF 2.1 (Exxx)
c. 1.29 bpp TFRD
d. 4.3 bpp TFRD

5.3.2.13 The Concentrator shall provide maximum automation for its operation and maintenance support.

5.3.3 Concentrator Requirements for Ordering

5.3.3.1 The Concentrator shall provide the capability to manually order OSD from Sources in the formats listed in Table 5-3.

5.3.3.2 The Concentrator shall provide the capability to automatically order OSD in the formats listed in Table 5-3 from Sources based on attributes contained in User profiles.

5.3.3.3 The Concentrator shall provide the capability to order any specific portion of full frame imagery that is identified by the User.

5.3.3.4 The Concentrator shall provide the status of OSD ordered by the system from all sources supported by the system.

5.3.3.5 The Concentrator shall provide the capability to order OSD based upon a desired image quality requirement.

5.3.3.6 The Concentrator shall have the capability to filter, by profiled attributes, OSD that have been sent from a Source.

5.3.3.7 The Concentrator shall have the capability to browse catalogs and order OSD from all sources interfacing with the system.

5.3.3.8 The Concentrator shall have the capability to prioritize OSD from Source in the formats listed in Table 5-3.

5.3.3.9 The Concentrator shall provide automated closing of tasks upon the dissemination or archiving of ordered OSD.

5.3.4 Concentrator Requirements for Receiving

5.3.4.1 The Concentrator shall provide the capability to receive OSD from interfacing Sources in the formats listed in Table 5-3.

5.3.5 Concentrator Requirements for Dissemination

5.3.5.1 The Concentrator shall provide the capability to disseminate OSD to the Sites.

5.3.5.2 The Concentrator shall support the dissemination of Reduced Resolution Imagery with corresponding support data based on an image quality requirement. (Exxx)

5.3.5.3 The Concentrator shall provide dissemination management functions for OSD.

5.3.5.4 The Concentrator shall provide the capability to disseminate sub-images with corresponding support data.

5.3.5.5 The Concentrator shall function as a Point of Presence (POP) and shall be the focal point for all data sources supplying OSD to the Site.

5.3.5.6 The Concentrator shall support up to 22 active Sites.(Exxx)

5.3.5.7 The Concentrator shall provide the capability to transfer imagery from the EPS source to the Site.

5.3.5.8 The Concentrator shall provide the capability to transfer OSD to or from any component within the system.(Exxx)

5.3.5.9 The Concentrator shall be capable of disseminating files to systems connected to the Concentrator in accordance with the Concentrator to External Systems Interface. (Appendix F)(Exxx)

5.3.5.10 The Concentrator shall be capable of disseminating files to external systems utilizing standard NIMA UIP and commercial standards for data formats. (Exxx)

5.3.6 Concentrator Requirements for Archiving and Data Management

5.3.6.1 The Concentrator shall provide a 5-year archive for OSD.

5.3.6.2 The Concentrator shall store and manage OSD on-line and off-line using hierarchical storage management techniques.

5.3.6.3 The Concentrator shall provide for the archiving of data in searchable, global indexes compatible with standard profiles for imagery archives (USIGS Logical Data Model). (Exxx)

5.3.6.4 The Concentrator shall have the capability to manage OSD in the formats listed in Table 5-3.

5.3.6.5 All data that resides on the Concentrator shall exist as files.

5.3.6.6 All data transferred across Concentrator interfaces shall be file based.

5.3.7 Concentrator Requirements for Processing

5.3.7.1 The Concentrator shall be capable of processing and disseminating stored National Imagery within a median time of 45 minutes from time of Site request. (Image size defined as 151 megapixels).

5.3.7.2 The Concentrator shall be capable of producing Reduced Resolution Imagery with corresponding support data based on image quality requirements. (Exxx)

5.3.7.3 The Concentrator shall be capable of producing sub-images with corresponding support data.

5.3.7.4 The Concentrator shall have the capability to perform support data interpretation on files for catalog indexing in NITF 2.0 format with associated support data extensions in accordance with S2035.(Exxx)

5.3.7.5 The Concentrator shall have the capability to perform data interpretation of the NITF Header data on files for catalog indexing in NITF 2.0 format.(Exxx)

5.3.7.6 The Concentrator shall have the capability to perform data interpretation of the NITF Sub-Header data on files for catalog indexing in NITF 2.0 format.(Exxx)

5.3.7.7 The Concentrator shall have the capability to perform support data interpretation on files for catalog indexing in NITF 2.1 format with associated support data extensions in accordance with S2035. (Exxx)

5.3.7.8 The Concentrator shall have the capability to perform data interpretation of the NITF Header data on files for catalog indexing in NITF 2.1 format. (Exxx)

5.3.7.9 The Concentrator shall have the capability to perform data interpretation of the NITF Sub-Header data on files for catalog indexing in NITF 2.1 format. (Exxx)

5.3.7.10 The Concentrator shall be capable of compressing imagery at a minimum of 5 Mpps.

5.3.7.11 The Concentrator shall compress imagery into NITF 2.0 format with 8 and 12 bit Precision JPEG as defined in S2035.(Exxx)

5.3.7.12 The Concentrator shall compress imagery into NITF 2.1 format with 8 and 12 bit Precision JPEG as defined in S2035. (Exxx)

5.3.7.13 The Concentrator shall compress imagery into 1.29 bpp TFRD format.

5.3.7.14 The Concentrator shall provide the capability to perform lossless ZIP (or equivalent) compression on files in any data type or format with an intended use for but not limited to non-operational support data.

5.3.7.15 The Concentrator shall be capable of expanding imagery at a minimum of 5 Mpps.

5.3.7.16 The Concentrator shall expand NITF 2.0 imagery with 8 and 12 bit Precision JPEG as defined in S2035.(Exxx)

5.3.7.17 The Concentrator shall expand NITF 2.1 imagery with 8 and 12 bit Precision JPEG as defined in S2035. (Exxx)

5.3.7.18 The Concentrator shall expand 1.29 bpp TFRD format National imagery .

5.3.7.19 The Concentrator shall expand 4.3 bpp TFRD format National imagery.

5.3.7.20 The Concentrator shall provide the capability to perform lossless ZIP (or equivalent) expansion on files in any data type or format with an intended use for but not limited to non-operational support data.

5.3.8 Concentrator Requirements for Performance

5.3.8.1 The Concentrator shall support the transmission of data to the Sites utilizing Navy Communication systems that will support a bandwidth range from 32 Kbps to 0.768 Mbps (6.176 Mbps @ E1).

5.3.8.2 The Concentrator shall support the reception of data from the EPS source utilizing Communication systems that will support a bandwidth range from 0.8 Mbps to 20 Mbps.

5.3.8.3 The Concentrator shall provide the capability to transfer imagery from the EPS source to the Site with a median time of 60 minutes from time of imaging to complete receipt at the Site.

5.3.8.4 The Concentrator shall provide the capability to disseminate OSD to the Site with a median time of 60 minutes from time of request to complete receipt at the Site.

5.3.8.5 The Concentrator shall be capable of processing and disseminating stored National Imagery within a median time of 45 minutes from time of User request.

5.3.8.6 The Concentrator shall be capable of supporting 45 active Sites with a pro-rated time line performance equivalent to 22 concurrently active Sites.(Exxx)

5.3.8.7 The Concentrator shall be capable of receiving a minimum of 122 GB per day.

5.3.8.8 The Concentrator shall be capable of disseminating a minimum of 37 GB per day.

5.3.8.9 The Concentrator shall provide an archive with the storage size of 60 TB (equivalent to 5 years of nominal concentrator receipt volume of National Imagery OSD plus Rsets at 1.29 bpp). (Exxx)

5.3.8.10 The Concentrator 5 year archive shall have an access time no greater than 5 second from request to start of transmission to the Site for imagery OSD for a rapid access category of data equivalent to 6 months of nominal system receipt volume of National imagery OSD.

5.3.8.11 The Concentrator 5 year archive shall have an access time no greater than 30 minutes from request to start of transmission to the Site for a normal access category of data comprising the remainder of the archival data.

5.3.9 Concentrator Requirements for System Availability

5.3.9.1 The Concentrator shall operate at a 99% level of availability.

5.3.10 Concentrator Requirements for Operating Environment

5.3.10.1 The Concentrator shall be capable of operating in a U.S. SECRET only (non-SCI) security environment.

5.3.10.2 The Concentrator shall operate in a stationary computer room environment.

5.4 Site Component Requirements

5.4.1 Site Requirements for Data Interfaces and Protocols

5.4.1.1 The Site shall support ingest and production of tapes which comply with the data interface as defined in the JSIPS-N Tape Interface. (Appendix G)

5.4.1.2 The Site shall provide the capability to allow for Navy Communications to dynamically change bandwidth allotment without affecting system operations other than timeline and throughput.

5.4.1.3 The Site shall operate in an open architecture environment within DII / COE standards.

5.4.1.4 The Site shall have the capability to operate having been provided an asymmetric duplex long or short latency communications environment.

5.4.1.5 The Site shall support tape devices that adhere to SCSI II and SCSI III (fast and wide) interfaces for OSD input.

5.4.1.6 The Site shall support tape devices that adhere to SCSI II and SCSI III (fast and wide) interfaces for OSD output.

5.4.1.7 The Site shall interoperate with Navy Communications that provides for secure (encrypted) communications from the Concentrator to the Site.

5.4.1.8 The Site shall utilize commercial Internet protocols for all forms of data input.

5.4.1.9 The Site shall utilize commercial Internet protocols for all forms of data output.

5.4.1.10 The Site shall comply with the data interface as defined in the Concentrator to Communications to Site Interface. (Appendix B)

5.4.1.11 The Site shall comply with the data interface as defined in the Site to External Systems Interface. (Appendix C)

5.4.2 Site Requirements for Common Services and User Interfaces

5.4.2.1 The Site shall be graphically oriented using web page technology.(Exxx)

5.4.2.2 The Site shall provide Domain Name Service (DNS) elements local to the Site.

5.4.2.3 The Site shall provide Internet e-mail / e-mail server functionality.

5.4.2.4 The Site shall provide a file transfer capability.

5.4.2.5 The Site shall provide web page server (HTTP) functionality.(Exxx)

5.4.2.6 The Site shall provide, at a minimum, the web page based user interfaces shown in Table 5-4.(Exxx)

Table 5-4 Site User Interfaces

a. Site Archive Browse
b. Site To External System Dissemination Management
c. Site Hierarchical Storage Manager Parameters
d. Site User Interface Access Control

5.4.2.7 The Site shall be capable of having any User interface accessible from any internal system component.

5.4.2.8 The Site shall be capable of limiting User access to user interfaces and data.

5.4.2.9 The Site shall be capable of limiting external User access to user interfaces and data.

5.4.2.10 The Site shall be capable of remote software maintenance performed from any location within the system.

5.4.2.11 The Site shall provide maximum automation for its operation and support.

5.4.3 Site Requirements for Ordering

5.4.3.1 The Site shall provide the capability to manually order OSD from the Concentrator.

5.4.3.2 The Site shall provide the capability to automatically order OSD from the Concentrator based on attributes contained in User profiles.

5.4.3.3 The Site shall provide the capability to order any specific portion of full frame imagery.

5.4.3.4 The Site shall provide the status of OSD ordered.

5.4.3.5 The Site shall provide the capability to order OSD based upon a desired image quality requirement.

5.4.3.6 The Site shall have the capability to filter, by profiled attributes, OSD that have been sent from a Source.

5.4.3.7 The Site shall have the capability to browse catalogs and order OSD from all sources interfacing with the system.

5.4.3.8 The Site shall have the capability to prioritize OSD from Source in the formats listed in Table 5-3.

5.4.4 Site Requirement for Receiving

5.4.4.1 The Site shall support the receipt of data from the Concentrator utilizing Navy Communication systems.

5.4.4.2 The Site shall provide the capability to receive OSD from the Concentrator in the formats listed in Table 5-3.

5.4.5 Site Requirements for Dissemination

5.4.5.1 The Site shall have the capability to transfer OSD in the formats listed in Table 5-3.

5.4.5.2 The Site shall provide dissemination management functions for OSD local to the Site.

5.4.5.3 The Site shall have the capability to transfer OSD to all systems interfacing with the Site.(Exxx)

5.4.5.4 The Site shall support standard NIMA UIP and commercial standards for data formats.

5.4.6 Site Requirements for Archiving and Data Management

5.4.6.1 The Site shall provide a 6 month archive for OSD.

5.4.6.2 The Site shall store and manage OSD on-line and off-line using hierarchical storage management techniques.

5.4.6.3 The Site shall provide for the archiving of data in searchable global indexes, compatible with standard profiles for imagery archives (USIGS Logical Data Model).

5.4.6.4 The Site shall have the capability to manage OSD in the formats listed in Table 5-3.

5.4.6.5 All data that resides at the Site shall exist as files.

5.4.6.6 All data transferred across Site interfaces shall be file based.

5.4.7 Site Requirements for Processing

5.4.7.1 The Site shall have the capability to perform support data interpretation on files for catalog indexing in NITF 2.0 format with associated support data extensions in accordance with S2035.(Exxx)

5.4.7.2 The Site shall have the capability to perform data interpretation of the NITF Header data on files for catalog indexing in NITF 2.0 format in accordance with S2035.(Exxx)

5.4.7.3 The Site shall have the capability to perform data interpretation of the NITF Sub-Header data on files for catalog indexing in NITF 2.0 format in accordance with S2035.(Exxx)

5.4.7.4 The Site shall have the capability to perform support data interpretation on files for catalog indexing in NITF 2.1 format with associated support data extensions in accordance with S2035. (Exxx)

5.4.7.5 The Site shall have the capability to perform data interpretation of the NITF Header data on files for catalog indexing in NITF 2.1 format in accordance with S2035. (Exxx)

5.4.7.6 The Site shall have the capability to perform data interpretation of the NITF Sub-Header data on files for catalog indexing in NITF 2.1 format in accordance with S2035. (Exxx)

5.4.7.7 The Site shall perform decompression on imagery from a Source at a minimum of 2 Mpps.

5.4.7.8 The Site shall provide the capability to perform lossless ZIP (or equivalent) compression on files in any data type or format with an intended use for but not limited to non-operational support data.

5.4.7.9 The Site shall provide support for the expansion of NITF 2.0 imagery with 8 and 12 bit Precision JPEG in accordance with S2035.(Exxx)

5.4.7.10 The Site shall provide support for the expansion of NITF 2.1 imagery with 8 and 12 bit Precision JPEG in accordance with S2035. (Exxx)

5.4.7.11 The Site shall expand 1.29 bpp TFRD format National imagery

5.4.7.12 The Site shall provide the capability to perform lossless ZIP (or equivalent) expansion on files in any data type or format with an intended use for but not limited to non-operational support data.

5.4.8 Site Requirements for Performance

5.4.8.1 The Site shall support the receipt of data from the Concentrator utilizing Navy Communication systems that will support a bandwidth range from 32Kbps to 0.768 Mbps (6.176 Mbps @ Exxx).

5.4.8.2 The Site shall support a capability to ingest a continuous burst stream up to 0.768 Mbps (6.176 Mbps @ Exxx) through the defined interfaces.

5.4.8.3 The Site shall be capable of processing the equivalent of 65 images of a 151 FAF size per day.

5.4.8.4 The Site shall provide an OSD archive with the storage size of at least 300 GB data of nominal Site receipt volume of National Imagery OSD .

5.4.8.5 The Site archive shall have no greater than an access time of up to 5 seconds from request to start of access.

5.4.9 Site Requirements for System Availability

5.4.9.1 The Site shall operate at a 98% level of availability.

5.4.10 Site Requirements for Operating Environment

5.4.10.1 The Site shall be capable of operating in a U.S. SECRET only (non-SCI) security environment.

5.4.10.2 The Site shall be deployable on naval ships, transportable ground vehicles, and at selected land-based Sites with consideration for Site-specific operational and non-operational environmental requirements.

5.5 Communication Component Requirements

5.5.1 Communication Requirements for Data Interfaces and Protocols

5.5.1.1 The Communications shall comply with the data interface as defined in the Source to Communications to Concentrator Interface. (Appendix A)

5.5.1.2 The Communications shall comply with the data interface as defined in the Concentrator to Communications to Site Interface. (Appendix B)

5.5.1.3 The Communications shall comply with the data interface as defined in the Concentrator to Communications to External Exploitation Support Systems Interface. (Appendix D)

5.5.1.4 The Communications shall comply with the data interface as defined in the Concentrator to Communications to External Systems Interface. (Appendix E)

5.5.2 Communication Requirements for Common Services and User Interfaces

5.5.2.1 The Communications shall provide access to the following networks as defined in Table 5-5.

Table 5-5 Networks Accessible by the Communications Segment

(TBD)

5.5.2.2 The Communication system shall provide maximum automation for its operation and maintenance support.

5.5.3 Communication Requirements for Operating Environment

5.5.3.1 The Communications shall provide for secure (encrypted) communications between components.

6.0 Verification

6.1 Verification Matrix

6.1.1 The Verification Matrix (Table 6-1) was developed to provide a traceable path between User Needs, System requirements, and Component requirement for the purpose of requirement verification. All System requirements listed below a User need were developed to fulfill that specific User need. All Component requirements listed below a System requirement were developed to fulfill that specific System requirement. In addition to traceability between requirements, the Verification Matrix provides the method or methods to which each requirement will be verified. Any requirement not available for IOC verification will be designated as Exxx.

1. When a requirement specifies a number (e.g. bit error rate, time, frequency, data rate, etc.) which can be measured, the verification method allocated will be TEST.
2. When a requirement is specified as a functional capability without a specific value, the verification method will be DEMONSTRATION (DEMO).
3. When a requirement is specified with an attendant probability, an analysis is needed to set test conditions and performance limits. The verification method will be ANALYSIS.
4. When a requirement can be verified through a visual investigation of design, production, or test documentation to determine compliance, the verification method will be EXAMINATION (EXAM).

Following the Verification Matrix is a Requirement Summary (Table 6-2). Table 6-2 contains a brief explanation of each requirement followed by the JCA component accountable for each segment level requirement. The specific Component / Subcomponent Contractor associated with each requirement as well as the documentation required to be submitted by the Component / Subcomponent Contractor for verification is specified within the JCA Test Plan.

Table 6-1 Verification Matrix

User Needs	Requirement		Verification Method			
	System	Comp.	Test/Demo	System Demo	Analysis	Examination
3.2.1						
	4.2.1					
		5.2.1.1	X			
		5.2.1.2	X			
		5.3.1.1	X			
		5.5.1.1	X			
	4.2.2					
		5.3.1.2	X			
		5.4.1.1	X			
	4.2.3					
		5.3.1.3	Exxx			
	4.2.4					
		5.3.1.4	Exxx			

User Needs	Requirement		Verification Method			
	System	Comp.	Test / Demo	System Demo	Analysis	Examination
	4.2.5					
		5.3.1.5	Exxx			
	4.2.6					
		5.3.1.6	Exxx			
	4.2.7					
		5.3.1.7	Exxx			
	4.2.8					
		5.3.1.8	Exxx			
	4.2.9					
		5.3.1.9	Exxx			
	4.2.10					
		5.3.1.10	Exxx			
3.2.2						
	4.2.11					
		5.3.1.18				X
	4.2.12					
		5.3.1.11	X			
		5.4.1.2	X			
	4.2.13					
		5.3.1.12	X			X
		5.4.1.3	X			X
	4.2.14					
		5.3.1.13	X			
		5.4.1.4	X			
	4.2.15					
		5.3.1.14				X
		5.3.1.15				X
		5.4.1.5				X
		5.4.1.6				X
3.2.3						
	4.216					
		5.3.1.16	X			
		5.3.1.17	X			
		5.4.1.7	X			
		5.5.3.1	X			
3.2.4						
	4.2.17					
		5.3.1.19				
		5.3.1.20				
		5.3.1.21				X
		5.3.1.22				X
		5.3.1.23	Exxx			
		5.3.1.24				
		5.4.1.8				
		5.4.1.9				

User Needs	Requirement		Verification Method			
	System	Comp.	Test / Demo	System Demo	Analysis	Examination
		5.4.1.10	X			
		5.4.1.11	X			
		5.5.1.2	X			
		5.5.1.3				
		5.5.1.4				
		5.5.2.1				
3.3.1						
	4.3.1					
		5.3.2.1				Exxx
		5.3.2.2	X			
		5.3.2.3	X			
		5.3.2.4				Exxx
		5.3.2.5				Exxx
		5.4.2.1				Exxx
		5.4.2.2	X			
		5.4.2.3	X			
		5.4.2.4	X			
		5.4.2.5				Exxx
		5.4.2.6				Exxx
3.3.2						
	4.3.2					
		5.3.2.6	Exxx			
		5.3.2.7	Exxx			
		5.4.2.7				X
	4.3.3					
		5.3.2.8	X			
		5.4.2.8	X			
	4.3.4					
		5.3.2.9	X			
		5.4.2.9	X			
	4.3.5					
		5.3.2.10	X			
		5.3.2.11	X			
		5.3.2.12	X			
		5.4.2.10	X			
	4.3.6					
		5.3.2.13			X	X
		5.4.2.11			X	X
		5.5.2.2			X	X
3.4.1						
	4.4.1					
		5.3.3.1	X			
		5.4.3.1	X			

User Needs	Requirement		Verification Method			
	System	Comp.	Test / Demo	System Demo	Analysis	Examination
	4.4.2					
		5.3.3.2	X			
		5.3.3.9	X			
		5.4.3.2		X		
	4.4.3					
		5.3.3.3	X			
		5.4.3.3		X		
	4.4.4					
		5.3.3.4	X			
		5.4.3.4		X		
	4.4.5					
		5.3.3.5	X			
		5.4.3.5		X		
	4.4.6					
		5.3.3.6	X			
		5.4.3.6		X		
	4.4.7					
		5.3.3.7	X			
		5.4.3.7	X			
	4.4.8					
		5.3.3.8	X			
		5.4.3.8	X			
3.5.1						
	4.5.1					
		5.2.2.1	Exxx			
		5.2.2.2	Exxx			
		5.2.2.3	X			
		5.2.2.4	X			
		5.3.4.1	X			
		5.4.4.1	X			
		5.4.4.2	X			
	4.9.1					
		5.3.8.1	X			
		5.4.8.1	X			
		5.4.8.2	X			
	4.9.2					
		5.2.4.1	X			
		5.3.8.2	X			
	4.9.3					
		5.3.8.3		X		
	4.9.4					
		5.3.8.4		X		
		5.3.8.5		X		

User Needs	Requirement		Verification Method			
	System	Comp.	Test / Demo	System Demo	Analysis	Examination
	4.9.5					
		5.3.8.6			Exxx	
	4.9.6					
		5.3.8.7	X			
	4.9.7					
		5.3.8.8	X			
		5.4.8.3	X			
	4.9.9					
		5.4.8.5	X			
	4.9.11					
		5.3.8.10	X			
	4.9.12					
		5.3.8.11	X			
3.6.1						
	4.6.1					
		5.3.5.1	X			
	4.6.2					
		5.3.5.2	Exxx			
	4.6.3					
		5.3.5.3	X			
		5.4.5.2	X			
	4.6.4					
		5.3.5.4	X			
	4.6.8					
		5.3.5.9	X			
	4.6.9					
		5.3.5.10				Exxx
		5.4.5.4				X
3.6.2						
	4.6.5					
		5.3.5.5				X
	4.6.6					
		5.3.5.6			Exxx	
3.6.3						
	4.6.7					
		5.3.5.7		X		
		5.3.5.8	Exxx			
		5.4.5.1	X			
		5.4.5.3	Exxx			
3.7.1						
	4.7.1					
		5.3.6.1			X	

User Needs	Requirement		Verification Method			
	System	Comp.	Test / Demo	System Demo	Analysis	Examination
	4.7.2					
		5.4.6.1			X	
	4.7.3					
		5.3.6.2	X			
		5.4.6.2	X			
	4.7.4					
		5.3.6.3	Exxx			
		5.4.6.3	X			
	4.9.10					
		5.3.8.9			Exxx	
3.7.2						
	4.7.5					
		5.3.6.4	X			
		5.4.6.4	X			
	4.7.6					
		5.3.6.5	X			
		5.4.6.5	X			
	4.7.7					
		5.3.6.6	X			
		5.4.6.6	X			
	4.9.8					
		5.4.8.4			X	
3.8.1						
	4.8.1					
		5.3.7.1	X			
	4.8.2					
		5.3.7.2	Exxx			
	4.8.3					
		5.3.7.3	X			
	4.8.4					
		5.3.7.4	Exxx			
		5.4.7.1	Exxx			
	4.8.5					
		5.3.7.5	Exxx			
		5.4.7.2	Exxx			
	4.8.6					
		5.3.7.6	Exxx			
		5.4.7.3	Exxx			
	4.8.7					
		5.3.7.7	Exxx			
		5.4.7.4	Exxx			

User Needs	Requirement		Verification Method			
	System	Comp.	Test / Demo	System Demo	Analysis	Examination
	4.8.8					
		5.3.7.8	Exxx			
		5.4.7.5	Exxx			
	4.8.9					
		5.3.7.9	Exxx			
		5.4.7.6	Exxx			
	4.8.10					
		5.3.7.10	X			
		5.3.7.15	X			
		5.4.7.7	X			
	4.8.11					
		5.2.3.1	Exxx			
		5.3.7.11	Exxx			
	4.8.12					
		5.2.3.2	Exxx			
		5.3.7.12	Exxx			
	4.8.13					
		5.3.7.13	X			
	4.8.14					
		5.3.7.14	X			
		5.4.7.8	X			
	4.8.15					
		5.3.7.16	Exxx			
		5.4.7.9	Exxx			

User Needs	Requirement		Verification Method			
	System	Comp.	Test / Demo	System Demo	Analysis	Examination
	4.8.16					
		5.3.7.17	Exxx			
		5.4.7.10	Exxx			
	4.8.17					
		5.3.7.18	X			
		5.3.7.19	X			
		5.4.7.11	X			
	4.8.18					
		5.3.7.20	X			
		5.4.7.12	X			
3.9.1						
	4.10.1					
		5.2.5.1			X	
		5.3.9.1			X	
		5.4.9.1			X	
3.10.1						
	4.11.1					
		5.3.10.1				X
		5.4.10.1				X
3.10.2						
	4.11.2					
		5.3.10.2				X
		5.4.10.2				X

Table 6-2 Requirements Summery

User Needs	Requirement		Requirement Summary	Resp. Subcomp.	Effec.
	System	Comp.			
3.2.1			User access to Operational Support Data		
	4.2.1		Interface with EPS		
		5.2.1.1	EPS support IF20D08P	EPS	
		5.2.1.2	Source comply with Appendix A	EPS	
		5.3.1.1	Concentrator support IF20D08P	DE	
		5.5.1.1	Communication comply with Appendix A	Comms	
	4.2.2		Interface with Low Cost Media		
		5.3.1.2	Concentrator ingest and produce Tapes	COPS	
		5.4.1.1	Site ingest and produce Tapes	IPL	
	4.2.3		Interface with Tactical Input Segment		Exxx
		5.3.1.3	Concentrator interface with Tactical Input Segment	COPS	Exxx
	4.2.4		Interface with Commercial Imagery Sources		Exxx
		5.3.1.4	Concentrator interface with Commercial Imagery Sources	COPS	Exxx
	4.2.5		Interface with DPPDB Sources		Exxx
		5.3.1.5	Concentrator interface with DPPDB Sources	COPS	Exxx
	4.2.6		Interface with DTED Sources		Exxx
		5.3.1.6	Concentrator interface with DTED Sources	COPS	Exxx
	4.2.7		Interface with BTG Sources		Exxx
		5.3.1.7	Concentrator interface with BTG Sources	COPS	Exxx
	4.2.8		Interface with 5D Systems		Exxx
		5.3.1.8	Concentrator interface with 5D Systems	COPS	Exxx
	4.2.9		Interface with NIMA Libraries		Exxx
		5.3.1.9	Concentrator interface with NIMA Libraries	COPS	Exxx
	4.2.10		Interface with Custom Product Network		Exxx
		5.3.1.10	Concentrator interface with Custom Product Network	COPS	Exxx
3.2.2			Operate using existing and planned Navy Comms		
	4.2.11		Concentrator to Site Navy Comms		
		5.3.1.18	Concentrator to Site Navy Comms	Comms	
	4.2.12		Navy changing bandwidth allotment		Exxx
		5.3.1.11	Concentrator changing bandwidth allotment	Comms	
		5.4.1.2	Site changing bandwidth allotment	Comms	
	4.2.13		Open architecture with DII/COE standards		
		5.3.1.12	Concentrator architecture with DII/COE standards	COPS, DE, IESS, GAL, Peripheral	
		5.4.1.3	Site architecture with DII/COE standards	IPL	
	4.2.14		Asymmetric duplex communication environment		
		5.3.1.13	Concentrator asymmetric duplex communication environment	Comms	
		5.4.1.4	Site asymmetric duplex communication environment	Comms	

User Needs	Requirement		Requirement Summary	Resp. Sub comp.	Effec.
	System	Comp.			
	4.2.15		SCSI interfaces		
		5.3.1.14	Concentrator SCSI interfaces	COPS, DE, IESS, GAL	
		5.3.1.15	Concentrator SCSI interfaces	COPS, DE, IESS, GAL	
		5.4.1.5	Site SCSI interfaces	IPL	
		5.4.1.6	Site SCSI interfaces	IPL	
3.2.3			Secure encrypted communications		
	4.216		Secure encrypted communications		
		5.3.1.16	Concentrator secure encrypted communications	Comms	
		5.3.1.17	Concentrator secure encrypted communications	Comms	
		5.4.1.7	Site secure encrypted communications	Comms	
		5.5.3.1	Communication secure encrypted	Comms	
3.2.4			Operates using commercial Internet protocols		
	4.2.17		Operates using commercial Internet protocols		
		5.3.1.19	Concentrator Internet protocols input	COPS, DE	
		5.3.1.20	Concentrator Internet protocols output	COPS, DE	
		5.3.1.21	Concentrator to Source interface	Comms	
		5.3.1.22	Concentrator to Site interface	Comms	
		5.3.1.23	Concentrator to External Systems interface	Comms	
		5.3.1.24	Concentrator to External Systems interface	Comms	
		5.4.1.8	Site commercial Internet protocols	IPL	
		5.4.1.9	Site commercial Internet protocols	IPL	
		5.4.1.10	Site to Concentrator interface	IPL	
		5.4.1.11	Site to External Systems interface	IPL	
		5.5.1.2	Communication interface	Comms	
		5.5.1.3	Communication interface	Comms	
		5.5.1.4	Communication interface	Comms	
		5.5.2.1	Communication access	Comms	
3.3.1			Single system interface		Exxx
	4.3.1		Graphically oriented using web page technology		
		5.3.2.1	Concentrator web page technology	COPS, DE, IESS, GAL	Exxx
		5.3.2.2	Concentrator Internet Post Office Protocol	Firewall	
		5.3.2.3	Concentrator file transfer capability	COPS	
		5.3.2.4	Concentrator web page server	COPS, Firewall	Exxx
		5.3.2.5	Concentrator web based user interface	COPS, DE, IESS, GAL	Exxx
		5.4.2.1	Site web page technology	IPL, COPS, IESS	Exxx
		5.4.2.2	Site Domain Name Services	IPL	
		5.4.2.3	Site Internet e-mail	IPL	
		5.4.2.4	Site file transfer	IPL	
		5.4.2.5	Site web page server	IPL	Exxx
		5.4.2.6	Site web based user interface	IPL, COPS, IESS	Exxx

User Needs	Requirement		Requirement Summary	Resp. Sub comp.	Effec.
	System	Comp.			
3.3.2			Manage, access, troubleshoot any internal component		
	4.3.2		Access to internal user interfaces		Exxx
		5.3.2.6	Concentrator access to internal user interfaces	COPS, DE, IESS, GAL	Exxx
		5.3.2.7	Concentrator performing remote operations	COPS, DE, IESS, GAL	Exxx
		5.4.2.7	Site performing remote operations	IPL	
	4.3.3		Limit user access within internal components		
		5.3.2.8	Concentrator limiting user access	COPS, DE, IESS, GAL	
		5.4.2.8	Site limiting user access	IPL	
	4.3.4		Limit external user access to internal components		
		5.3.2.9	Concentrator limiting external user access	Firewall	
		5.4.2.9	Site limiting external user access	IPL	
	4.3.5		Remote software maintenance		
		5.3.2.10	Concentrator remote software maintenance	COPS, DE, IESS, GAL	
		5.3.2.11	Concentrator diagnostic workstation	Peripheral	
		5.3.2.12	Concentrator workstation formats	COPS, DE, Peripheral	
		5.4.2.10	Site remote software capability	IPL	
	4.3.6		Maximum automation for operations support		
		5.3.2.13	Concentrator maximum automation	COPS, DE, IESS, GAL	
		5.4.2.11	Site maximum automation	IPL	
		5.5.2.2	Communication maximum automation	Comms	
3.4.1			Access to OSD via single source		
	4.4.1		Manually order OSD		
		5.3.3.1	Concentrator manually order OSD	DE, IESS	
		5.4.3.1	Site manually order OSD	COPS, IESS, IPL	
	4.4.2		Automatically order OSD		
		5.3.3.2	Concentrator automatically order OSD	DE, IESS	
		5.3.3.9	Concentrator automated closing of tasks	IESS	
		5.4.3.2	Site automatically order OSD	IESS	
	4.4.3		Order portions of OSD		Exxx
		5.3.3.3	Concentrator order portions of OSD	DE, IESS	
		5.4.3.3	Site order portions of OSD	IESS	
	4.4.4		Provide status of ordered OSD		
		5.3.3.4	Concentrator provide status of OSD	DE, IESS	
		5.4.3.4	Site providing status of OSD	IESS	
	4.4.5		Ordering on desired quality		Exxx
		5.3.3.5	Concentrator ordering on desired quality	DE, IESS	
		5.4.3.5	Site ordering on desired quality	IESS	
	4.4.6		Filter OSD		
		5.3.3.6	Concentrator filtering OSD	DE, IESS	
		5.4.3.6	Site filtering OSD	IESS	

User Needs	Requirement		Requirement Summary	Resp. Sub comp.	Effec.
	System	Comp.			
	4.4.7		Brows catalogs to order OSD		
		5.3.3.7	Concentrator brows catalogs to order OSD	COPS, DE, IESS	
		5.4.3.7	Site browsing catalogs to order OSD	COPS, IESS	
	4.4.8		Prioritize OSD		
		5.3.3.8	Concentrator prioritizing OSD	DE, IESS	
		5.4.3.8	Site prioritizing OSD	IESS	
3.5.1			Receive OSD in near real time		
	4.5.1		Receive OSD		
		5.2.2.1	Source provide imagery in NITF 2.0	EPS	Exxx
		5.2.2.2	Source provide imagery in NITF 2.1	EPS	Exxx
		5.2.2.3	Source provide imagery in 1.29 TFRD	EPS	
		5.2.2.4	Source provide imagery in 4.3 TFRD	EPS	
		5.3.4.1	Concentrator receiving OSD	COPS, DE	
		5.4.4.1	Site utilizing Navy Comms	Comms	
		5.4.4.2	Site receiving OSD	IPL	
	4.9.1		32Kbps to 0.768Mbps Concentrator to Site		
		5.3.8.1	Concentrator transmission of 32Kbps to 0.768Mbps	COPS, Comms	
		5.4.8.1	Site receipt of 32Kbps to 0.768Mbps	IPL, Comms	
		5.4.8.2	Site ingest of 0.768 Mbps stream	IPL	
	4.9.2		0.8Mbps to 20Mbps EPS to Concentrator		
		5.2.4.1	0.8Mbps to 20Mbps EPS to Concentrator	EPS, Comms	
		5.3.8.2	Concentrator 0.8Mbps to 20Mbps from EPS	DE, Comms	
	4.9.3		60 minute timeline from EPS to Site		
		5.3.8.3	Concentrator 60 minute timeline	COPS, DE, IESS, Comms	
	4.9.4		60 minute timeline from Concentrator to Site		
		5.3.8.4	Concentrator 60 minute timeline	COPS, Comms	
		5.3.8.5	Concentrator 45 National Imagery timeline	COPS, Comms	
	4.9.5		System support up to 45 active Site POP's		
		5.3.8.6	Concentrator supporting 45 active Sites	COPS, Comms	Exxx
	4.9.6		Receive 122 GB per day		
		5.3.8.7	Concentrator receiving 122 GB per day	COPS, DE	
	4.9.7		Disseminating 37 GB per day		
		5.3.8.8	Concentrator disseminating 37 GB per day	COPS	
		5.4.8.3	Site processing 65 images per day	IPL	
	4.9.9		5 second request timeline for User archive		
		5.4.8.5	5 second access time for Site	IPL	
	4.9.11		5 second request timeline for System RAID archive		
		5.3.8.10	Concentrator 5 second RAID timeline	COPS	

User Needs	Requirement		Requirement Summary	Resp. Sub comp.	Effec.
	System	Comp.			
	4.9.12		30 minute request timeline for System archive		
		5.3.8.11	Concentrator 30 minute archive timeline	COPS	

User Needs	Requirement		Requirement Summary	Resp. Sub comp.	Effec.
	System	Comp.			
3.6.1			Manage automated dissemination		
	4.6.1		Disseminating OSD		
		5.3.5.1	Concentrator disseminating OSD	COPS	
	4.6.2		Disseminating Reduced Resolution Imagery		Exxx
		5.3.5.2	Concentrator disseminating Reduced Resolution Imagery	COPS	Exxx
	4.6.3		Dissemination management functions		
		5.3.5.3	Concentrator dissemination management functions	COPS, IESS	
		5.4.5.2	Site dissemination management functions	IESS	
	4.6.4		Disseminate Sub-Images		
		5.3.5.4	Concentrator disseminating Sub-Images	COPS	
	4.6.8		Disseminating files to External Systems		
		5.3.5.9	Concentrator to External Systems Interface	COPS, Comms	
	4.6.9		Disseminating files to External Systems, NIMA UIP		
		5.3.5.10	Concentrator – NIMA UIP	COPS	Exxx
		5.4.5.4	Site - NIMA UIP	IPL	
3.6.2			Electronically transfer OSD to internal interfacing system		
	4.6.5		POPs as focal point for OSD		
		5.3.5.5	Concentrator as POP	COPS, DE, IESS	
	4.6.6		22 concurrently active Site POPs		Exxx
		5.3.5.6	Concentrator supporting 22 users	COPS, Comms	Exxx
3.6.3			Electronically transfer OSD to external interfacing system		Exxx
	4.6.7		Transfer OSD through out system		
		5.3.5.7	Concentrator transferring imagery	COPS, DE, Comms	
		5.3.5.8	Concentrator transferring imagery between components	COPS, DE, IPL, GAL Comms	Exxx
		5.4.5.1	Site transferring OSD formats	IPL	
		5.4.5.3	Site transferring OSD through out system	IPL	Exxx
3.7.1			Access to centrally archived OSD		
	4.7.1		Archive for OSD		
		5.3.6.1	Concentrator 5 year archive	COPS	
	4.7.2		User local archive for OSD		
		5.4.6.1	Site 6 month archive	IPL	
	4.7.3		Hierarchical storage		
		5.3.6.2	Concentrator hierarchical storage	COPS	
		5.4.6.2	Site hierarchical storage	IPL	
	4.7.4		USIGS Logical Data Model		
		5.3.6.3	Concentrator USIGS Logical Data Model archive	COPS	Exxx
		5.4.6.3	Site USIGS Logical Data Model archive	IPL	
	4.9.10		5 Year archive		
		5.3.8.9	Concentrator 60 TB storage	COPS	Exxx

User Needs	Requirement		Requirement Summary	Resp. Sub comp.	Effec.
	System	Comp.			
3.7.2			Manage locally archived OSD		
	4.7.5		Manage OSD		
		5.3.6.4	Concentrator management of OSD	COPS, IESS	
		5.4.6.4	Site management of OSD	IESS	
	4.7.6		Data existing as files		
		5.3.6.5	Concentrator data existing as files	COPS	
		5.4.6.5	Site data existing as files	IPL	
	4.7.7		Data transferred as files		
		5.3.6.6	Concentrator data transferred as files	COPS	
		5.4.6.6	Site data transferred as files	IPL	
	4.9.8		6 Month archive		
		5.4.8.4	300 GB Site archive	IPL	
3.8.1			Capability to process OSD		
	4.8.1		45 minute timeline for processing and disseminating		
		5.3.7.1	Concentrator 45 minute timeline for processing and disseminating	COPS	
	4.8.2		Reduced Resolution Imagery		Exxx
		5.3.7.2	Concentrator producing Reduced Resolution Imagery	COPS	Exxx
	4.8.3		Produce Sub-Images		
		5.3.7.3	Concentrator producing Sub-Images	COPS	
	4.8.4		Perform support data interpretation on NITF 2.0		Exxx
		5.3.7.4	Concentrator performing support data interpretation on NITF 2.0	COPS	Exxx
		5.4.7.1	Site performing support data interpretation on NITF 2.0	IPL	Exxx
	4.8.5		Support data interpretation on NITF 2.0 Header Data		Exxx
		5.3.7.5	Concentrator data interpretation on NITF 2.0 Header Data	COPS	Exxx
		5.4.7.2	Site data interpretation on NITF 2.0 Header Data	IPL	Exxx

User Needs	Requirement		Requirement Summary	Resp. Sub comp.	Effec.
	System	Comp.			
	4.8.6		Support data interpretation on NITF 2.0 Sub Header Data		Exxx
		5.3.7.6	Concentrator data interpretation on NITF 2.0 Sub Header Data	COPS	Exxx
		5.4.7.3	Site data interpretation on NITF 2.0 Sub Header Data	IPL	Exxx
	4.8.7		Perform support data interpretation on NITF 2.1		Exxx
		5.3.7.7	Concentrator support data interpretation on NITF 2.1	COPS	Exxx
		5.4.7.4	Site support data interpretation on NITF 2.1	IPL	Exxx
	4.8.8		Support data interpretation on NITF 2.1 Header Data		Exxx
		5.3.7.8	Concentrator data interpretation on NITF 2.1 Header Data	COPS	Exxx
		5.4.7.5	Site data interpretation on NITF 2.1 Header Data	IPL	Exxx
	4.8.9		Support data interpretation on NITF 2.1 Sub Header Data		Exxx
		5.3.7.9	Concentrator data interpretation on NITF 2.1 Sub Header Data	COPS	Exxx
		5.4.7.6	Site data interpretation on NITF 2.1 Sub Header Data	IPL	Exxx
	4.8.10		5 Mpps processing timeline from EPS		
		5.3.7.10	Concentrator 5 Mpps compression timeline	COPS	
		5.3.7.15	Concentrator 5 Mpps expansion timeline	COPS	
		5.4.7.7	Site 2 Mpps expansion timeline	IPL	
	4.8.11		Compression of NITF 2.0		Exxx
		5.2.3.1	Source compression of NITF 2.0	EPS	Exxx
		5.3.7.11	Concentrator compression of NITF 2.0	COPS	Exxx
	4.8.12		Compression of NITF 2.1		Exxx
		5.2.3.2	Source compression of NITF 2.1	EPS	Exxx
		5.3.7.12	Concentrator compression of NITF 2.1	COPS	Exxx
	4.8.13		Compress National Imagery		
		5.3.7.13	Concentrator compression of 1.29 TFRD	COPS	
	4.8.14		Lossless ZIP compression		
		5.3.7.14	Concentrator lossless ZIP compression	COPS, DE, Peripheral	
		5.4.7.8	Site lossless ZIP compression	IPL	
	4.8.15		Expansion of NITF 2.0		Exxx
		5.3.7.16	Concentrator expansion of NITF 2.0	COPS	Exxx
		5.4.7.9	Site expansion of NITF 2.0	IPL	Exxx
	4.8.16		Expansion of NITF 2.1		Exxx
		5.3.7.17	Concentrator expansion of NITF 2.1	COPS	Exxx
		5.4.7.10	Site expansion of NITF 2.1	IPL	Exxx
	4.8.17		Expansion of National Imagery		
		5.3.7.18	Concentrator expansion of 1.29 TFRD	COPS	
		5.3.7.19	Concentrator expansion of 4.3 TFRD	COPS	
		5.4.7.11	Site expansion of 1.29 TFRD	IPL	
	4.8.18		Lossless ZIP expansion		
		5.3.7.20	Concentrator lossless ZIP expansion	COPS, Peripheral	

User Needs	Requirement		Requirement Summary	Resp. Sub comp.	Effec.
	System	Comp.			
		5.4.7.12	Site lossless ZIP expansion	IPL	

User Needs	Requirement		Requirement Summary	Resp. Sub comp.	Effec.
	System	Comp.			
3.9.1			85% system availability		
	4.10.1		85% system availability		
		5.2.5.1	Source 98% availability	EPS	
		5.3.9.1	Concentrator 99% availability	COPS, DE, IESS	
		5.4.9.1	Site 98% availability	IPL	
3.10.1			Operate in Secret only environment		
	4.11.1		Operate in Secret only environment		
		5.3.10.1	Concentrator operate in Secret only environment	COPS, DE, IESS, GAL, Comms, Peripheral	
		5.4.10.1	Site operate in Secret only environment	IPL	
3.10.2			Operational environment		
	4.11.2		Operational environment		
		5.3.10.2	Concentrator computer room environment	COPS, DE, IESS, GAL, Comms, Peripheral	
		5.4.10.2	Site operational environment	IPL	

7.0 Acronyms List

Ack / Nak	Acknowledgment / Not Acknowledgment
AOR	Area of Responsibility
ATM	Asynchronous Transfer Mode
bpp	bits per pixel
BTGs	Basic Targeting Graphics
CGI	Common Gateway Interface
COE	Common Operating Environment
CPNET	Custom Product Network
CSIL	Commercial Satellite Imagery Library
DDS	Defense Dissemination System
DII	Defense Information Infrastructure
DNS	Domain Name Service
DoD	Department of Defense
DPPDB	Digital Point Positioning Database
DTED	Digital Terrain Elevation Data
E1	Effectivity One
EPS	Enhanced Processing Segment
FAF	Fast Access Format
FDDI	Fiber Distributed Data Interface
FTP	File Transfer Protocol
GB	Giga Bite
HTTP	Hyper Text Transport Protocol
IESS	Imagery Exploitation Support System
IOC	Initial Operational Capability
IP	Internet Protocol
JCA	JSIPS Concentrator Architecture
JPEG	Joint Photographic Expert Group
JSIPS-N	Joint Service Imagery Processing System - Navy
Kbps	Kilo bits per second
Mbs	Mega bits per second
Mpps	Mega pixels per second
NIMA	National Imagery and Mapping Agency
NITF	National Imagery Transmission Format
NITFIRD	NITF Implementation Requirements Document
ONI	Office of Naval Intelligence
POP	Point of Presence
	Post Office Protocol
RDS	Rapid Deployment Suites
SCI	Sensitive Compartmented Information
SCSI	Small Computer Systems Interface
SIPRNET	Secure Internet Protocol Router Network
SMTP	Simple Mail Transfer Protocol
TAR files	Test Analysis Report Files
TB	Tera Bite
TBD	To Be Determined
TBR	To Be Resolved
TCP	Transmission Control Protocol
TFRD	Tape Format Requirements Document
TIS	Tactical Input Segment

USIGS	United States Imagery and Geospacial Information Systems
5D	Demand Driven Direct Digital Dissemination

APPENDICES

Appendix A - Interface for Source to Communications to Concentrator

A.1 The Source shall support any data type across the interface.

A.2 The Communications shall support any data type across the interface.

A.3 The Concentrator shall support any data type across the interface.

A.4 The Source shall support at minimum one of the physical network connections defined in Table A-1.

A.5 The Source shall support at minimum one of the logical protocols / interfaces defined in Table A-2.

A.6 The Concentrator shall support all of the physical networks defined in Table A-1.

A.7 The Concentrator shall support all of the logical protocols / interfaces defined in Table A-2.

A.8 The Communications shall support the Physical Network Interfaces-as defined in Table A-1.

A.9 The Communications shall support the Logical Protocols / Interfaces-as defined in Table A-2.

A.10 The Communications shall support an EPS interface of communication class 6d as defined in Table A-4 to the Concentrator locations defined in Table A-3

Table A-1 Physical Network Connections / Devices

1. ATM
2. FDDI
3. 100 Mbps 100baseT Ethernet
4. 10 Mbps 10baseT

Table A-2 Logical Protocols / Interfaces

1. FTP / TCP / IP and associated gateway protocols, HTTP (Web page server (Exxx)) and SMTP (EMAIL)
2. I / F20D08P
3. NIMA imagery storage / archive / library systems I / F
4. Remote Terminal (Xterm)

Table A-3 Concentrator to Location Designation

Concentrator Designation	Location
Concen-A	ONI, Suitland, Md
Concen-B	Wash. Plan. Ctr., Wash. Navy Yard

Table A-4 Communication Classes

Comm Class	Data Rate M bits / sec EPS to Concen	Data Rate M bits / sec. Concen to EPS	Bit Error Rate	Network Mean Latency milliseconds	Circuit Type Duplex/Simplex	Avail
Class 1d	0.056	0.056	$1x10^{-6}$	200	Duplex	.99
Class 2d	0.772	0.772	$1x10^{-6}$	200	Duplex	.95
Class 3d	1.544	1.544	$5x10^{-7}$	200	Duplex	.95
Class 4d	3.088	3.088	$2.5x10^{-7}$	200	Duplex	.95
Class 5d	6.176	6.176	$1.25x10^{-7}$	200	Duplex	.95
Class 6d	12.352	12.352	$6.25x10^{-8}$	200	Duplex	.95

Appendix B - Interface for Concentrator to Communications to Site

B.1 The Concentrator shall support any data type across the interface.

B.2 The Communications shall support any data type across the interface.

B.3 The Site shall support any data type across the interface.

B.4 The Concentrator shall support all of the physical network interfaces defined in Table B-1.

B.5 The Communications shall support all of the physical network interfaces defined in Table B-1.

B.6 The Communications shall support all of the logical protocols / interfaces defined in Table B-1.

B.7 The Site shall support at least one of the physical network connections defined in Table B-1.

B.8 The Concentrator shall support all of the logical protocols defined in Table B-2.

B.9 The Site shall support the logical protocols defined in Table B-2.

B.10 The Communications shall support connectivity between the Concentrators and Sites as defined by communication class as defined in Table B-3, according to the Tables B-4 (Concentrator to Location Designation), B-5 (Site to Location Designation) and B-6 (Site To Concentrator To Communication Class Designation).

Table B-1 Physical Network Connections

Network Types
1. ATM
2. FDDI
3. 100 Mbps 100baseT Ethernet
4. 10 Mbps 10baseT

Table B-2 Logical Protocols

Logical Protocols
1. FTP / TCP / IP and associated gateway protocols, HTTP (Web page server (Exxx)) and SMTP (EMAIL)
2. Remote Terminal (Xterm)

Table B-3 Communication Classes

Comm Class	Data Rate M bits / sec. Concen to Site	Data Rate M bits / sec. Site to Concen	Network Mean Latency milliseconds	Bit Error Rate	Circuit Type Duplex/Simplex	Avail
Class 1d	0.056	0.056	500	$1x10^{-6}$	Duplex	.99
Class 2d	0.772	0.772	500	$1x10^{-6}$	Duplex	.95
Class 3d	1.544	1.544	500	$5x10^{-7}$	Duplex	.95
Class 4d	3.088	3.088	500	$2.5x10^{-7}$	Duplex	.95
Class 5d	6.176	6.176	500	$1.25x10^{-7}$	Duplex	.95
Class 6d	12.352	12.352	500	$6.25x10^{-8}$	Duplex	.95

Table B-4 Concentrator to Location Designation

Concentrator Designation	Location
Concen-A	ONI, Suitland, Md.
Concen-B	Wash. Plan. Ctr., Wash. Navy Yard

Table B-5 Site To Location Designation (TBR)

Site Designation	Fixed Or Mobile or Afloat	Location
Site-1	F	Coronado
Site-2	F	TBD
Site-3	F	“
Site-4	M	“
Site-5	M	“
Site-6	M	“
Site-7	M	“
Site-8	A	CV / CVN Atlantic AOR (TBR)
Site-9	A	CV / CVN Pacific AOR (TBR)
Site-10	A	LHA / D Atlantic AOR (TBR)
Site-11	A	LHA / D Pacific AOR (TBR)
Site-12	A	TBR
Site-13	A	“
Site-14	A	“
Site-15	A	“
Site-16	A	“
Site-17	A	“
Site-18	A	“
Site-19	A	“
Site-20	A	“
Site-21	A	“
Site-22	A	“
Site-23	A	“
Site-24	A	“
Site-25	A	“
Site-26	A	“
Site-27	A	“
Site-28	A	“
Site-29	A	“
Site-30	A	“

Table B-6 Site To Concentrator To Communication Class Designation

Site	Concentrator	Comm Classes
Site-1	Concen-A	2d

Appendix C - Interface for Site to External Systems

C.1 The Site shall support all of the physical networks defined in Table C-1.

C.2 The Site shall support all of the logical protocols defined in Table C-2.

C.3 The External systems shall support at least one of the physical network interfaces defined in Table C-1.

C.4 The External systems shall support at least one of the groups of logical protocols / interfaces defined in Table C-2.

Table C-1 Physical Network Connections

1. ATM, FORE Systems
2. FDDI
3. 100 Mbps 100baseT Ethernet
4. 10 Mbps 10baseT

Table C-2 Logical Protocols

1. FTP / TCP / IP and associated gateway protocols, HTTP (Web page server (Exxx)) and SMTP (EMAIL)
2. Remote Terminal (Xterm)

Appendix D - Interface for External Exploitation Support Systems to Communications to Concentrator

D.1 The Concentrator shall support any data type across the interface.

D.2 The Communications shall support any data type across the interface.

D.3 The Concentrator shall support all of the physical networks defined in Table D-1.

D.4 The Concentrator shall support all of the logical protocols defined in Table D-2.

D.5 The Communications shall support all of the physical network interfaces defined in Table D-1.

D.6 The Communications shall support all of the logical protocols / interfaces defined in Table D-2.

D.7 The External Exploitation Support System(s) shall support at least one of the physical network connections defined in Table D-1.

D.8 The External Exploitation Support System(s) shall at minimum support the logical protocols defined in Table D-2, item 1.

D.9 The Communications shall support connectivity between the Concentrators and External Exploitation Support Systems as defined by communication class as defined in Table D-3, according to the Tables D-4 (Concentrator to Location Designation), D-5 (External Exploitation Support Systems to Location Designation) and D6 (External Exploitation Support System To Concentrator To Communication Class Designation).

Table D-1 Physical Network Connections

Network Types
1. ATM
2. FDDI
3. 100 Mbps 100baseT Ethernet
4. 10 Mbps 10baseT

Table D-2 Logical Protocols

Logical Protocols
1. FTP / TCP / IP and associated gateway protocols, HTTP (Web page server (Exxx)) and SMTP (EMAIL)

Table D-3 Communication Classes

Communication Class	Data Rate M bits / sec	Bit Error Rate	Circuit Type Duplex/Simplex	Availability
Class 1d	0.056	$1x10^{-6}$	Duplex	.99
Class 2d	0.772	$1x10^{-6}$	Duplex	.95
Class 3d	1.544	$5x10^{-7}$	Duplex	.95
Class 4d	3.088	$2.5x10^{-7}$	Duplex	.95
Class 5d	6.176	$1.25x10^{-7}$	Duplex	.95
Class 6d	12.352	$6.25x10^{-8}$	Duplex	.95

Table D-4 Concentrator to Location Designation

Concentrator Designation	Location
Concen-A	ONI Suitland, Md
Concen-B	Wash. Plan. Ctr., Wash. Navy Yard

Table D-5 External Exploitation Support System to Location Designation (TBR)

Extern Exploit Support System	Fixed Or Mobile or Afloat	Location
TBD	TBD	TBD

Table D-6 External Exploitation Support System to Concentrator to Communication Class Designation (TBR)

Extern Exploit Support System	Concentrator	Comm Classes
TBD	TBD	TBD

Appendix E - Interface for Concentrator to Communications to External Systems

E.1 The Concentrator shall support any data type across the interface.

E.2 The Communications shall support any data type across the interface.

E.3 The Concentrator shall support all of the physical networks defined in Table E-1.

E.4 The Concentrator shall support all of the logical protocols defined in Table E-2.

E.5 The Communications shall support all of the physical network interfaces defined in Table E-1.

E.6 The Communications shall support all of the logical protocols / interfaces defined in Table E-2.

E.7 The External System(s) shall support at least one of the physical network connections defined in Table E-1.

E.8 The External System(s) shall at minimum support the logical protocols defined in Table E-2, item 1.

E.9 The Communications shall support connectivity between the Concentrators and External Systems as defined by communication class as defined in Table E-3, according to the Tables E-4 (Concentrator to Location Designation), E-5 (External Systems to Location Designation) and E6 (External System To Concentrator To Communication Class Designation).

Table E-1 Physical Network Connections

Network Types
1. ATM
2. FDDI
3. 100 Mbps 100baseT Ethernet
4. 10 Mbps 10baseT

Table E-2 Logical Protocols

Logical Protocols
1. FTP / TCP / IP and associated gateway protocols, HTTP (Web page server (Exxx)) and SMTP (EMAIL)
2. Remote Terminal (Xterm)

Table E-3 Communication Classes

Communication Class	Data Rate M bits / sec	Bit Error Rate	Circuit Type Duplex/Simplex	Availability
Class 1d	0.056	$1x10^{-6}$	Duplex	.99
Class 2d	0.772	$1x10^{-6}$	Duplex	.95
Class 3d	1.544	$5x10^{-7}$	Duplex	.95
Class 4d	3.088	$2.5x10^{-7}$	Duplex	.95
Class 5d	6.176	$1.25x10^{-7}$	Duplex	.95
Class 6d	12.352	$6.25x10^{-8}$	Duplex	.95

Table E-4 Concentrator to Location Designation

Concentrator Designation	Location
Concen-A	ONI Suitland, Md.
Concen-B	Wash. Plan. Ctr., Wash. Navy Yard

Table E-5 External System to Location Designation (TBR)

External System	Fixed Or Mobile or Afloat	Location
Demand Driven Direct Digital Dissemination (5D) (Exxx)	N / A	N / A
Custom Product Network (CPNET) (Exxx)	N / A	N / A
NIMA USIGS reference libraries (Exxx)	N / A	N / A

Table E-6 External System to Concentrator to Communication Class Designation (TBR)

External System	Concentrator	Comm Classes
TBD	TBD	TBD

Appendix F - Interface for Concentrator to External Systems

F.1 The Concentrator shall support interfaces with externals defined in Table F-1.

Table F-1 External System Interfaces

1. Demand Driven Direct Digital Dissemination (5D) (Exxx)
2. Digital Terrain Elevation Data (DTED) (Exxx)
3. Digital Point Positioning Data Base (DPPDB) (Exxx)
4. Custom Product Network (CPNET) (Exxx)
5. USIGS NIMA reference libraries (Exxx)
6. TBD

Appendix G - Interface for JSIPS-N Tape Interface Document

G.1 The JSIPS-N shall support the Physical Devices as defined in Table G-1.

G.2 The JSIPS-N shall support the formats as defined in Table G-2.

Table G-1 Physical Devices

1. Metrum 2150 Tapes
2. Exabyte 8500 Tapes

Table G-2 Formats

1. Files written on tape as defined In S2035 (NITFIRD)
2. TAR Files

Appendix H - Definitions

Point of Presence (POP) -- A physical location where communications networks are expected to interface.

System -- Defined to comprise the following internal and external Components:

National Data Source(s) (External Component)

EPS to System-Shore Communications (External Component)

System-Shore based Points of Presence (POPs) which shall be the focal point for all data sources supplying OSD to the user. (Internal Component)

Navy Communications Network Connecting the Shore location(s) to Sites (External Component)

System-Site -- User Site based POPs which nominally receive and order data from the Shore based POPs. (Internal Component)

Internal Components - Equipment and Software which make up the System-Concentrator and System-Site portions of the JSIPS N Dissemination system.

Concurrently Active -- Receiving or Requesting Data At The Same Time.

Latency -- The amount of time between the starting emission of data from a transmitter of data into a communications network to the starting receipt of data at a source from a communications network. Sometimes also used as a term for the delay for an acknowledgment / not-acknowledgment (ACK / NAK) sequence for duplex communication channels.

Long Latency Communications -- Where the ACK / NAK sequence median time is on the order of 1 - 10 (TBR) seconds

Very Long Latency Communications -- Where the ACK / NAK sequence median time is on the order of 60 - 1200 (TBR) seconds