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Common Geopositioning Services (CGS) Technical Requirements Document

16 July 2004

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Executive Summary

The Services have a mission need to rapidly produce a high volume of precise and accurate mensurated geolocation coordinates to support the employment of precision-guided munitions. This capability must be seamlessly integrated with the other targeting and mission planning functions to fit within the Joint Targeting Cycle.

Precise geopositioning is the process of accurately locating a point relative to the Earth's surface and deriving latitude, longitude, and elevation information with associated valid error estimates. A common precise geopositioning process is a key prerequisite for successful employment of precision-guided munitions (PGMs) across all of the Services.

The Common Geopositioning Services Project (CGSP) will address this need by providing a flexible, open architecture based software solution that can be hosted within a J2EE environment (DCGS DIB) or bundled with a COTS or GOTS imagery viewer (ELT). When hosted as a J2EE services CGS will provide geopositioning services to a variety of existing and future applications that require rigorous photogrammetric calculation of coordinates from imagery. When integrated into an image viewer CGS will enable these applications to provide rigorous photogrammetric calculation of coordinates, based on integration to the specific tools GUI and workflow capability.

1 Interoperability, Standards, Security and References

1.1 Interoperability

References in this section are applicable to both the CGS as a service and services packaged with a viewer. CGS shall comply with the following standards:

1.1.1 CGS shall support addition or replacement of sensor models without software interruption (without restart of software).

1.1.2 CGS shall use no unique xml tags without express consent from the Govt.

1.1.3 CGS shall be capable of Joint Interoperability Test Command (JITC) certification for NITF compliance.

1.2 Standards

References in this section are applicable to both the CGS as a service and services packaged with a viewer. CGS shall comply with the following standards:

1.2.1 Department of Defense, MIL-STD-600001: Mapping, Charting & Geodesy Accuracy, 26 February 1990.

1.2.2 CGS shall comply with the DCGS Data Integration Backbone environment when installed as a DIB compliant J2EE service

1.2.3 Joint Technical Architecture, version 6.0 (3 October 2003)

1.2.4 Military Standard National Imagery Transmission Format (NITF) Version 2.0, Department of Defense, September 1998 (MIL-STD-2500A+CN 3)

1.2.5 Military Standard National Imagery Transmission Format (NITF) Version 2.1, Department of Defense, October 1998 (MIL-STD-2500B+CN 1)/ STANAG 4545 NATO Secondary Imagery Format

1.2.6 Support Data Extensions (SDE) for National Imagery Transmission Format (Version 2.0) for the National Imagery Transmission Format Standards (NITF) STDI-0001, version 1.3 (SDE V1.3)

1.2.7 United States Imagery System Standards Profile for Image Archives (SPIA), CIO ASD SIA 0590000, Version 2.0, December 1995

1.2.8 National Imagery Transmission Format Standard, version 2.0 (NITFS PIAE V2.0)

1.2.9 Joint Photographic Experts Group (JPEG) Image Compression for the National Imagery Transmission Format (NITF) Standard (MIL-STD-188-198A through Change Notice 3)

1.2.10 NITF Implementation Requirements Document S2035(A) (NITFRD)

1.2.11 NGA FIA Dataset Definition Document (NFDDD), STDI-0004-D

1.2.12 Military Performance Specification for Digital Point Positioning Data Base (DPPDB) (MIL-PRF-89034), dated 23 March 1999 including Amendment 1, dated 27 June 2000

1.2.13 Military Performance Specification for Digital Terrain Elevation Data (DTED) (MIL-D-89020B), dated 23 May 2000

1.2.14 IF300EAA: National Systems Program Interface Control Document

1.2.15 Military Standard National Imagery Transmission Format (NITF), Department of Defense, draft (MIL-STD-2500C) STANAG 4545 NATO Secondary Imagery Format

1.2.16 ISO/IEC IS15444-1:2000, Information Technology--JPEG 2000 Image Coding System

1.2.17 STDI-0002, The Compendium of Controlled Extensions (CE) for NITF, V2.1, 16 Nov. 00

1.2.18 Intelligence Data Interface Control Document (ICD) for the Joint Mission Planning System (JMPS), Version 1.1, dated 16 April 2004

1.3 Security

1.3.1 CGS shall be capable of SCI accreditation.

1.3.2 CGS shall be capable of GENSER SECRET accreditation.

1.3.3 CGS shall comply with the following documents and standards:

1.3.4 CGS shall be compatible with both SCI and SECRET systems configured to the Joint Enterprise

DoD Intelligence Information System (DoDIIS) Infrastructure (JEDI).

1.3.4.1 DoD 5105.21-M-1, Sensitive Compartmented Information Administrative Security Manual (U), August 1998

1.3.4.2 Joint DoD Intelligence Information Systems (DoDIIS)/Cryptologic SCI Information Systems Security Standards

1.3.4.3 DCID 6/3, Director of Central Intelligence (DCI) Directive (DCID) 6/3, Protecting Sensitive Compartmented Information within Information Systems, 6 June 1999, Administratively updated 3 May 2002 (policy), and 12 April 2002 (manual)

1.3.4.4 Defense Intelligence Management Document DS-2610-142-01, DoD Intelligence Information System (DoDIIS) Security Certification and Accreditation Guide April 2001

1.3.4.5 Policy for the Use of Mobile Code in the Intelligence Community System for Information Sharing Environment, 8 August 2002

1.3.4.6 Top Secret/Sensitive Compartmented Information (SCI) and Below Interoperability Policy (TSABI), 7 February 2000

1.3.4.7 DIAM 50-4, DoD Intelligence Information System (DoDIIS) Information Systems Security (INFOSEC) Program

1.3.4.8 Policy for the Use of Application, Services, and Protocols (ASP) in the Intelligence Community System for Information Sharing (ICSIS), v1.10

1.3.4.9 DoD Directive 8500.1, "Information Assurance," October 24, 2002

1.3.4.10 DoD Instruction 8500.2, "Information Assurance Implementation," February 6, 2003

2 Technical Performance

2.1 Computing Environment

The CGSP delivered software components are expected to meet the following requirements to enable compatibility with expected CGS host computing environment. Requirements contained in this section (2.1 and subsections) are applicable to both the CGS as a service and services packaged with a viewer.

2.1.1 Operating System Compatibility

2.1.2 CGS shall be developed to be a platform independent service.

2.1.2.1 CGS shall be compatible with both the Sun Solaris 8 and Solaris 9 (SPARC) Operating System.

2.1.2.2 CGS shall be compatible with both Windows 2000 Professional and Windows XP Professional Operating System.

2.1.3 System Compatibility

2.1.3.1 CGS shall be compatible with the TBMCS operating systems.

2.1.3.2 CGS shall be configurable as a COE segment.

2.1.4 Hardware Compatibility

2.1.4.1 CGS shall be hardware independent to the maximum extent possible.

2.1.4.2 CGS shall minimize the use of additional or new hardware.

2.1.4.3 CGS shall rely on the computer resources associated with the host/core systems.

2.1.5 Software Design

2.1.5.1 CGS shall be based on an Open Architecture design.

2.1.5.2 CGS shall provide a modular architecture capable of supporting plug-and-play addition and replacement of functions.

2.1.5.3 CGS shall be compatible with both single and multiple processor systems.

2.1.6 Software Installation and Logistics

2.1.6.1 CGS software components shall be capable of distribution on CD-ROM.

2.1.6.2 CGS software components shall be installable through the use of a GUI driven installation wizard, in accordance with the standard for the operating system being installed upon (Windows and Solaris).

2.1.6.2.1 CGS shall be user installable.

2.1.6.2.1.1 CGS shall be capable of being installed remotely (over LAN and WAN).

2.1.6.2.2 CGS shall provide a diagnostic capability supporting troubleshooting by local sysadmin personnel.

2.1.6.2.2.1 CGS diagnostic capability shall be accessible via both LAN and WAN.

2.1.6.2.2.2 CGS shall provide the capability to disable WAN based access to diagnostic capabilities.

2.1.6.2.3 CGS shall provide remote (over LAN and WAN) upgrade capability.

2.1.6.2.3.1 CGS shall provide the capability to disable WAN access to upgrade capability.

2.1.6.3 CGS shall provide the capability to allow users to designate the specific capabilities to be supported within a service or workstation deployment.

2.2 CGSP Core Services

CGSP will deliver a set of services to be referred to as Common Geopositioning Services (CGS) that can be run as J2EE service architecture, or as a plug in module within a COTS or GOTS imagery viewer. The J2EE capability will allow CGS to be provided with DCGS environments, and other environments where compatible J2EE servers exist. When deployed as a J2EE service CGSP services will hold JSM compatible sensor models to be used to perform rigorous geopositioning functions. CGS will hold geopositioning services that are compatible with the JSM API standard and are compliant with the CGS documented API for client systems. CGS will combine these two components, sensor models and geopositioning functions to provide complete geopositioning services required to calculate valid geolocations when provided measured point information and imagery references. In addition to these

sensor model and photogrammetric services CGS will also provide data input services to enable location of mission required imagery and support data (DPPDB, NTM, DEM, DTED, etc.) and data output services to report calculated geolocation information in a variety of formats.

2.2.1 Geoposition Calculation

2.2.1.1 Imagery Sources

CGS shall provide the capability to calculate precision coordinates from the following data sources (sensor types and geospatial data) (table 2.2.1.1)

Data Sources Table 2.2.1.1

Sensor/Data Sources
Digital Point Positioning Database (DPPDB)
Controlled Imagery Base
NTM
U2 Optical Bar Camera (digitized film)
U2 SYERS
U2 SYERS 2
U2 ASARS IIA
Global Hawk SAR
Global Hawk EO
Global Hawk IR
Predator EO Legacy (captured video frame)
Predator MTS
SHARP EO
SHARP IR
ATARS MAEO
ATARS LAEO
ATARS IR
ATARS AN/APG-73 (SAR)
P3 SAR (AN/APY-6)
JSTARS SAR
IKONOS (Commercial)
Quick Bird (Commercial)
TARS EO
GRIDLOCK Smart Images
Images with no support data

2.2.1.2 CGS shall support calculation of accurate geographic coordinates with associated rigorous error estimates, using sources listed within the Data Sources Table (table 2.2.1.1), within the time limits provided within section,2.3.1, within the following scenarios:

2.2.1.2.1 Point measurement from DPPDB only

2.2.1.2.2 Point measurement when target is present within a single image, when there is no suitable DPPDB and DEM coverage available

2.2.1.2.3 Point measurement when target is present within a single image, when there is DEM, but no suitable DPPDB coverage available

2.2.1.2.4 Point measurement when target is present within a single image, with suitable (covers target area) DPPDB coverage available

2.2.1.2.5 Point measurement when target is present within a single image, with additional images available that image the target area but do not contain the target

2.2.1.2.6 Point measurement when target is present within multiple (2-4) images, when there is no suitable DPPDB and DEM coverage available

2.2.1.2.7 Point measurement when target is present within multiple (2-4) images, when there is DEM, but no suitable DPPDB coverage available

2.2.1.2.8 Point measurement when target is present within multiple (2-4) images, with suitable (covers target area) DPPDB coverage available

2.2.1.2.9 Point measurement when target is present within multiple (2-4) images, with additional images available that image the target area but do not contain the target

2.2.1.3 CGS shall provide imagery resection capability.

2.2.1.4 CGS shall calculate coordinates using the WGS-84 reference including EGM-96 (Earth Gravity Model).

2.2.1.5 CGS shall utilize all available image support data required to derive precision geolocation.

2.2.1.6 CGS shall provide a common workflow GUI to control geopositioning functions, across all installation environments.

2.2.1.6.1 CGS shall provide user selectable level of workflow assistance ranging between a basic minimal GUI to a full step-by-step wizard that guides the user through all possible geopositioning scenarios.

2.2.1.6.2 CGS shall provide the capability to utilize the NGA distributed DPPDB catalog to identify required DPPDB cell (known as title or stock number).

2.2.1.6.2.1 CGS shall accept updated versions of the NGA distributed DPPDB catalog.

2.2.1.6.2.2 CGS shall prompt the user to update the DPPDB catalog when located DPPDB data is more recent than the listings within the currently held DPPDB catalog.

2.2.1.6.2.3 CGS shall notify the user, while allowing geopositioning to continue, when located DPPDB data is listed as superceded within the DPPDB catalog.

2.2.2 Sensor Model Use

2.2.2.1 By default CGS shall calculate geolocations using available verified sensor models.

2.2.2.2 CGS shall be capable of deriving geolocation from images where there is no available sensor model.

2.2.2.3 CGS shall interface with sensor models via the NGA approved sensor model software API (GFE). *NOTE: Expect the Joint Sensor Model API*

2.2.2.4 CGS shall support an NGA approved Sensor Model software plug-and-play architecture, allowing introduction and removal of sensor models by the operator. *NOTE: Expect the Joint Sensor Model API*

2.2.3 CGS installed as J2EE service

2.2.3.1 CGS shall be configurable as a J2EE enterprise service compatible with the AF DCGS 10.2 DIB.

2.2.4 CGS Viewer (ELT) API

2.2.4.1 CGS shall be capable of installation as a plug-in to COTS electronic light table software packages.

2.2.4.2 CGS shall provide a documented API to support integration by COTS electronic light table software vendors.

2.2.5 CGS Output

2.2.5.1.1 CGS shall output precision geolocations which includes both horizontal and vertical coordinates.

2.2.5.1.1.1 CGS shall output elevation in Height Above Ellipsoid (HAE), as defined in MIL-STD 600001, as the default.

2.2.5.1.1.2 CGS shall output elevation in height above Mean Sea Level (MSL) calculated through the use of the EGM-96 and expressed as defined in MIL-STD 600001.

2.2.5.2 CGS shall output geolocations in xml formatted precision geolocations reports.

2.2.5.2.1 CGS xml precision geolocation reports shall be formatted in accordance with the JMPS Intelligence Data Interface Control Document, version 1.1, dated 16 April 2004.

2.2.5.2.2 CGS shall output precision geolocations with valid error estimates.

2.2.5.2.2.1 CGS shall provide error estimates (Circular Error and Linear Error, CE and LE) for calculated geolocations at the 90th percent of probability.

2.2.5.2.3 CGS shall output precision geolocations in a tagged format containing both coordinate information and pedigree information suitable for providing a complete history of the coordinate generation activity.

2.2.5.2.3.1 CGS precision geolocations shall include a tag that specifies horizontal and vertical coordinates.

2.2.5.2.3.2 CGS precision geolocations shall include a tag that specifies CE/LE.

2.2.5.2.3.3 CGS precision geolocations shall include a tag that specifies relevant coordinate datums.

2.2.5.2.3.4 CGS precision geolocations shall include a tag that specifies ID of all images used to calculate the coordinate.

2.2.5.2.3.5 CGS precision geolocations shall include a tag that specifies the name of the operator who performed the measurement operation.

2.2.6 Save Geopositioning Session

2.2.6.1 CGS shall provide the capability to save a geopositioning scenario, to include the option to save scenario related image files, to allow the scenario to be completed later.

2.2.6.2 CGS shall provide an automatic session saving capability to prevent loss of critical work.

2.2.7 Validation Log Files

2.2.7.1 CGS shall generate log files that capture all necessary data to recreate all executed geopositioning calculations.

2.3 CGS with Integrated Viewer

The initial release of CGS will also include an integrated package that bundles the CGS with an imagery viewing capability to provide a standalone, easily distributed and user installed geopositioning capability. This package will be compatible with both UNIX and PC workstations, and will be tailorable upon install, depending upon the geopositioning capabilities required.

2.3.1 Geopositioning

2.3.1.1 CGS shall provide the capability to derive coordinate from images using all CGS services.

2.3.1.2 CGS shall provide a tailor-able image location capability to identify best available images for specified geopositioning tasks (provide estimated target location and CE/LE (.9 probability) goal).

2.3.1.2.1 CGS shall locate best available images for geopositioning, within 30 seconds when accessing a local IPL containing 5000 images with not less than 50 covering the target, using a GIAS interface.

2.3.1.2.2 CGS shall locate best available images for geopositioning, within 30 seconds when accessing host accessible local storage (3 devices for test) containing 3000 images, with not less than 10 covering the target.

2.3.1.2.3 CGS shall identify the best available images for geopositioning, within 5 seconds, when provided a user selected list of images (10 images for test), covering a common target.

2.3.1.2.4 CGS shall use the CE/LE requirements of the JDAM as the default CE/LE (at .9 probability) goal.

2.3.1.2.5 CGS shall select images for geopositioning based on preference for using a single image that meets the user CE and LE goal over multiple images.

2.3.1.2.6 CGS shall select images for geopositioning based on preference for using multiple images that meets the user CE and LE goal over methods requiring registration.

2.3.1.3 CGS shall support precision geolocation from a single displayed image, within 5 seconds of point selection.

2.3.1.4 CGS shall support precision geolocation from multiple displayed images (2 for test), within 5 seconds of point selection on both images.

2.3.1.5 CGS shall support precision geolocation from a single displayed image, within 3 minutes when combined with stereo DPPDB data.

2.3.1.6 CGS shall support precision geolocation from multiple (2 for test) displayed images, within 4 minutes when combined with stereo displayed DPPDB data, to include location of required DPPDB data.

2.3.1.7 CGS shall locate and display required DPPDB data within 30 seconds, when accessing DPPDB on a geospatial file server containing full DPPDB coverage, with a known file structure.

2.3.1.8 CGS shall be capable of using multiple (2-10) network file locations to obtain DPPDB data.

2.3.1.9 CGS shall support precision geolocation from DPPDB within 5 seconds of point selection on a stereo pair.

2.3.2 Integrated Viewer Tasking

2.3.2.1 CGS shall receive tasking from the Joint Targeting Toolbox (JTT) in accordance with the Interface Control Document for Joint Targeting Toolbox (JTT), Version 3.0, dated 12 December 2003.

2.3.3 Geolocation Result Display

2.3.3.1 CGS shall allow user selected report and display format for horizontal coordinates, from the following options:

Geographic Format Choices	Latitude format	Longitude format	Hemisphere Notation (N/S E/W)
Decimal Seconds (2 places)	DD MM SS.SS	DDD MM SS.SS	User selectable; leading or trailing
Decimal Minutes (4 places)	DD MM.MMMM	DDD MM.MMMM	User selectable; leading or trailing
Decimal Degrees (4 places)	DD.DDDD	DD.DDDD	User selectable; leading or trailing
Additional Formats	**Format Details**		
Military Grid Reference System (MGRS)	Grid Zone Designation followed by 100,000 meter square letter identification, followed by grid or rectangular coordinates (numerical reference) as 12 digits, example: 18SUU123456123456		
Universal Transverse Mercator (UTM)	North-South Digits: 7 East-West Digits: 6		

2.3.3.2 CGS shall provide user selectable (toggle) report and display of elevation in both HAE and MSL.

2.3.3.3 CGS shall provide user selectable (toggle) report and display of error estimates in both CE/LE (.9 probability) and CEP/LEP (.5 probability).

2.3.4 Display

2.3.4.1 CGS shall display images in a windowing environment.

2.3.4.2 CGS shall provide a graphic display capability in a windowing environment.

2.3.4.3 CGS shall provide the capability to display multiple images, each within a single window.

2.3.4.4 CGS shall display text in a windowing environment.

2.3.4.5 CGS shall support single or dual monitor workstation configurations.

2.3.4.6 CGS shall provide the capability to display a full image overview.

2.3.4.7 CGS shall support geopositioning using both monoscopic and stereoscopic displays.

2.3.4.7.1 CGS shall provide the capability to conduct geopositioning with DPPDB in stereo.

2.3.4.7.2 CGS shall provide the capability to conduct geopositioning when NTM is available in stereo

pairs.

2.3.4.8 CGS shall provide a monoscopic overview displaying the full image area of a displayed stereo image pair.

2.3.4.9 CGS shall support JPEG 2000 formatted NITF imagery.

2.3.4.10 CGS shall provide the capability to display images for geopositioning within 5 seconds.

2.3.4.11 CGS shall provide the capability to locate and display DPPDB data for geopositioning (reference requirement 2.2.1.8.3.1) to the stereo display within 30 seconds.

2.3.5 Graphics

2.3.5.1 CGS shall provide the capability to overlay graphics (text and symbols) over displayed imagery.

2.3.5.2 CGS shall provide the capability to annotate imagery with text.

2.3.5.3 CGS shall be capable of annotating images with lines, triangles, squares, and circles.

2.3.5.4 CGS shall provide the capability to save graphics as overlays.

2.3.5.5 CGS shall provide the capability to automatically annotate images with correctly oriented North Arrow graphics placed on user selected areas of displayed imagery.

2.3.5.6 CGS shall provide the capability to select annotation color.

2.3.5.7 CGS shall provide the capability to select thickness of annotation lines.

2.3.5.8 CGS shall provide the capability to select the font size of annotation text.

2.3.5.9 CGS shall provide the capability to annotate images with arrow graphics.

2.3.5.10 CGS shall provide the capability to select line annotation types to include dashed, dotted, dash-dotted, and solid.

2.3.5.11 CGS shall provide the capability to place a solid background behind text annotation, of users selected color.

2.3.5.12 CGS shall be capable of annotating images with collateral damage estimate range rings.

2.3.6 Geopositioning with Smart Images

2.3.6.1 CGS shall provide the capability to exploit GRIDLOCK generated NITF images to derive aimpoints.

2.3.6.2 CGS shall report precision geolocation with rigorous error estimates from Smart Images in less than 1 second after single mouse click.

2.3.7 Multiple Point Calculation

2.3.7.1 CGS shall provide the capability to automatically generate a user defined number of evenly distributed aimpoints within a user defined polygon.

2.3.7.2 CGS shall provide the capability to automatically generate a user defined number of evenly distributed aimpoints on the perimeter of a user defined circle.

2.3.7.3 CGS shall provide the capability to automatically generate a user defined number of evenly distributed aimpoints within sections of a user defined circle.

2.3.7.4 CGS shall provide the capability to automatically generate a user specified number of equally spaced aimpoints on a line defined by user selected points on imagery.

2.3.8 Spatial Measurement

2.3.8.1 CGS shall interface with NGA Ruler software to provide mensuration services, to include:

2.3.8.1.1 CGS shall provide the capability to calculate distances between user-selected points within an image.

2.3.8.1.2 CGS shall provide bearing when calculating distance between user-selected points on an image.

2.3.8.1.3 CGS shall provide the capability to calculate the relative height (vertical length) of objects defined by user-selected points on an image.

2.3.8.1.4 CGS shall provide the capability to calculate relative height based on shadow measurement.

2.3.8.1.5 CGS shall have the capability to calculate horizontal area based on user defined shapes on imagery.

2.3.8.1.6 CGS shall have the capability to provide image mensuration for zenith angle on imagery containing sufficient support data.

2.3.8.1.7 CGS shall provide the capability to calculate separation angle.

2.3.8.1.8 CGS shall output mensuration results in user selectable feet or meters.

2.3.9 Image Saving and Chipping

2.3.9.1 CGS shall provide the capability to save NITF Images annotated with measured geolocation information (aimpoint witness mark, coordinate, elevation, CE/LE and North Arrow) as a graphic overlay.

2.3.9.2 CGS shall provide the capability to save full images with all image support data extensions, to include data needed for geopositioning, history data, and chipping data, in accordance with the Joint Technical Architecture (JTA), section 2.2.2.1 "Still Imagery Data Exchange".

2.3.9.3 CGS shall provide the capability to save a user-defined rectangular chip, with all image support data extensions, to include data needed for geopositioning, history data, and chipping data, in accordance with the Joint Technical Architecture (JTA), section 2.2.2.1 "Still Imagery Data Exchange" from a displayed image.

2.3.9.4 CGS shall provide the user selected capability to save images (chips and full images) with graphics embedded in the image pixel layer. This is referred to as saving with graphics "burned in".

2.3.9.5 CGS shall save image chips with all original image geopositioning support data extension (SDE) as required by the Joint Technical Architecture (JTA), Para. 2.2.2.1, Still Imagery Data Interchange.

2.3.9.6 CGS shall save images with all applied image enhancements.

2.3.9.7 CGS shall provide the capability to save images in the NITF format (2.0 and 2.1 in valid compressions).

2.3.9.8 CGS shall provide the capability to save images in JPEG format (full range of valid compression).

2.3.9.9 CGS shall provide the capability to save images with changes in the same NITF format as the original file, with no loss of support data.

2.3.9.10 CGS shall provide the capability to save image chips in the JPEG format, with lossy compression choices.

2.3.9.11 CGS shall provide the ability to select image area for chipping with a user designated rectangle (rubber band tool).

2.3.9.12 CGS shall provide the ability to select image area for chipping through user selected chip size.

2.3.10 Product Output

2.3.10.1 CGS shall provide the capability to output aimpoint information as xml precision geopositioning reports, as required for use within the Targeting Database (PGMTDB) as defined in the JMPS Intelligence Data Interface Control Document, version 1.1, dated 16 April 2004.

2.3.10.1.1 CGS shall provide the capability to transfer (post) xml precision geopositioning reports to the JMPS.

2.3.10.1.2 CGS shall provide the capability to transfer (post) xml precision geopositioning reports to the JTT.

2.3.10.2 CGS shall provide the capability to output precision geolocation reports in human readable plain text.

2.3.10.3 CGS shall provide the capability to output an HTML graphic containing jpeg imagery annotated with measured geolocation information (aimpoint witness mark, coordinate, elevation, CE/LE and North Arrow).

2.3.10.4 CGS shall provide the capability to output aimpoint graphics in the Microsoft PowerPoint format, containing imagery graphics, coordinates of measured point(s), elevation of measured points (s) in HAE, image ID for all imagery used with line and sample of measured point, name of analyst, DTG (date time group), geopositioning technique used, and identification of an DTED or DEM used to calculate the point.

2.3.10.4.1 CGS shall provide the capability to allow the user to modify the format of information within the PowerPoint product in accordance with section 2.3.3, Geolocation Result Display.

2.3.10.5 CGS shall provide the capability to output annotated jpeg graphic with measured geolocation information (aimpoint witness mark, coordinate, elevation, CE/LE and North Arrow).

2.3.10.6 CGS shall provide the capability to output aimpoint information in the following formats: Link-16 compatible file format, ASCI text file (flat file), and xml output file.

2.3.10.7 CGS shall provide the capability to output Link-16 compatible 9 Line messages containing aimpoint information.

2.3.11 Data Access

2.3.11.1 CGS shall interface to any GIAS compliant imagery server to obtain imagery and imagery metadata.

2.3.11.2 CGS shall interface to the DCGS 10.2 NITF store to obtain imagery and imagery metadata.

2.3.11.3 CGS shall be capable of both LAN and WAN communication to access GIAS imagery services.

2.3.11.4 CGS shall be capable of accessing data from host workstation storage devices.

2.3.11.5 CGS shall be capable of accessing network drives accessible from its host workstation.

2.3.11.6 CGS shall access imagery held on host accessible storage.

2.3.11.7 CGS shall utilize NGA geospatial products (DTED and DPPDB) without conversion, in the native format.

2.3.11.8 CGS shall utilize NGA geospatial products (DTED and DPPDB) with no change to filenames.

2.3.11.9 CGS shall require no unique GI&S support.

2.3.12 Image Identification and Staging

2.3.12.1 CGS shall provide the capability to identify appropriate DPPDB data (stereo pair) required for image control for single and multiple targets.

2.3.12.2 CGS shall identify the best available support data (DPPDB or other) within 30 seconds when provided a single image to be used in a geopositioning solution. Images and DPPDB searched shall include all locally (LAN) accessible data.

2.3.13 Validation of Aimpoints

2.3.13.1 CGS shall support identification of images required to plot target icons based on parsed target locations.

2.3.13.2 CGS shall provide the capability to center the image display upon a user entered coordinate within the coverage area of a displayed image.

2.3.13.3 CGS shall provide the capability to plot target icons on appropriate imagery based on parsed target locations.

2.3.13.4 CGS shall support identification of line and sample locations on imagery for plotting target icons based on parsed target locations.

2.3.14 User Support and Documentation

2.3.14.1 CGS shall provide online help supporting all functionality.

2.3.14.2 CGS shall provide a CBT capability.

2.3.14.3 CGS shall be supported by documentation tailored to meet the foreign releasibility standards for the US and releasable versions.

----------End----------