



**DEFENSE INFORMATION SYSTEMS AGENCY**  
P.O. BOX 4502  
ARLINGTON, VIRGINIA 22204-4502

DISA CIRCULAR 310-130-2\*

21 April 2000

*Last Change 14 November 2005*

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COMMUNICATIONS REQUIREMENTS

Management Thresholds and Performance Objectives

1. **Purpose.** This Circular prescribes the performance measurement standards in terms of management thresholds (MTs) and performance objectives (POs) that DISA will use for the telecommunications portion of the *Global Information Grid (GIG)*.
2. **Applicability.** This Circular applies to DISA, military departments (MILDEPs), other activities of DOD or governmental agencies, and contractors responsible for the operation and maintenance (O&M) of the telecommunications portion of the *GIG*.
3. **Authority.** This Circular is published in accordance with the authority contained in DOD Directive 5105.19, Defense Information Systems Agency (DISA), 25 June 1991.
4. **Performance Measurement Terms.**
  - 4.1 MTs, as contained in [enclosure 1](#), are numerical baselines or levels against which operational performance is measured to highlight those *GIG* telecommunications facilities which require more intensive management action. The specific MTs contained in this Circular will be applied by DISA. The overall concept of MTs includes the intention that successively lower management elements will establish their thresholds at an increasingly higher baseline so that ultimately, at the operational station level, the highest possible operational level is achieved.
  - 4.2 POs, as contained in [enclosure 1](#), reflect the peak performance that can be expected of a given communications system, subsystem, switch, facility, equipment component, or

transmission path under optimum conditions of supply, maintenance, personnel training, and other operational and maintenance factors.

5. **Scope.** The scope of MTs and POs encompasses all *GIG* telecommunications facilities on which performance measurements are made and management actions are taken to improve customer service. MTs and POs should be applied at all echelons of management and operations within the telecommunications portion of the *GIG* and will be continuously refined as use, experience, and the state-of-the-art dictate.

6. **Objectives.**

6.1 The objectives in using the MTs are to:

6.1.1 Provide an indicator for identifying substandard performance and thus enhance the management by exception philosophy, as applied to the telecommunications portion of the *GIG*.

6.1.2 Provide a level of measurement which, if not met, will require intensive management action at the appropriate echelon.

6.1.3 Provide an indicator against which customer service can be measured.

6.2 The objectives in using the POs are to:

6.2.1 Provide an indicator of peak performance.

6.2.2 Establish a goal for operational excellence.

6.2.3 Provide an indicator of the service a customer can expect under optimum conditions.

7. **Revalidation.** MTs and POs, contained in [enclosure 1](#), will be periodically reviewed and adjusted in order to continuously identify for management those telecommunications elements of the *GIG* which are operating least effectively.

8. **Responsibilities.**

8.1 The *DISA, Principal Director GIG Combat Support, Chief, Center for Network Services (GS2)* will ensure that appropriate

and realistic MTs and POs are developed and made available to the managers of the telecommunications portions of the *GIG*.

8.2 The heads of the MILDEPs and directors of the defense agencies that have responsibilities for O&M of the telecommunications portion of the *GIG* will take corrective action on marginal or substandard performance of *GIG* facilities.

## 9. **Mathematical Formulas.**

9.1 **General.** The formulas that follow are consistent with those in use throughout the telecommunications portion of the *GIG* and the guidance contained in DISAC 310-70-1, DII Technical Control. Continued use of these formulas provides a common ground for discussions and analysis functions.

9.2 **Formulas.** In the equations, the terms are defined as follows. "Total time" is the total time period covered. "Outage time" is that period of time during which the designed capabilities of a *GIG* subsystem switched network, an entire switching center, a specific major subsystem of a switch, or a subscriber station are unavailable for use by the system or its customers. The time unavailable will also include the time attributed to preventive maintenance actions. "Excluded time" is the portion of the outage time exempted from the reliability calculation. For example, unless otherwise specified, the reliability calculation excludes authorized outage time.

9.2.1 % Availability =  $100 \frac{\text{Total time} - \text{Out time}}{\text{Total Time}}$

9.2.2 %Reliability =  $100 \frac{\text{Total time} - \text{Out time}}{\text{Total time} - \text{Excluded time}}$

10. **Changes.** Recommended changes to this Circular, together with full and complete supporting rationale, should be sent to:

*DISA Principal Director for GIG Combat Support  
Attn: Chief, Center for Network Services (GS2)  
P.O. Box 4502  
Arlington, VA 22204-4502*

11. **Additional Guidance.** The Commanders of *DISA-CONUS*, *DISA-EUR*, *DISA-PAC*, and *DISA-CENT* may provide additional implementation guidance to *GIG* facilities within their Area of

Responsibility (AOR). Such guidance must be provided to:  
*DISA Principal Director for GIG Combat Support*  
*Attn: Chief, Center for Network Services (GS2)* for approval,  
prior to publication.

FOR THE DIRECTOR:

1 Enclosure a/s

PAUL T. HAUSER  
Captain, USN  
Chief of Staff

SUMMARY OF SIGNIFICANT CHANGES. This revision deletes all references to the Defense Data Network (DDN), Automatic Voice Network (AUTOVON), Automatic Secure Voice Communication Switch (AUTOSEVOCOM), the National Communications System (NCS) Restoration Priority Program, and the DISA Performance Analysis Reports System (PARS). The mathematical formulas have been simplified, obsolete terminology has been replaced, and appropriate portions of Interim Change 2-1 have been incorporated.

***CHANGE 1:** (10 November 2005) The Global Information Grid (GIG) was inserted to replace the Defense Information Infrastructure based on the latest DOD policy. Removed DISA-WESTHEM because it has been deactivated and added DISA-CONUS. The following changes were made to Enclosure 1. All references to Automatic Digital Network (AUTODIN) and Integrated Digital Network Exchange (IDNX) were deleted, the Defense Message System (DMS), and DISN Video Services (DVS) were added. PROMINA and its definition was added to replace the IDNX and the NIPRNET/SIPRNET (IP Performance analysis trends) were added.*

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\*This Circular cancels DISAC 310-130-2, 13 February 1979;  
Interim Change 1-1, 271203Z Jan 89; and Interim Change 2-1,  
232013Z Apr 91.

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**Defense Message System (DMS) Management Thresholds (MTs) and Performance Objectives (POs)**

**1. DMS Services.** *The DOD Assistant Secretary of Defense designated the Defense Message System (DMS) as the messaging system for the Department of Defense (DOD) and supporting Agencies for Command, Control, Communications, and Intelligence (ASD C3I). The DMS provides message service to all DOD users (to include deployed tactical users), access to and from worldwide DOD locations, and interface to other U.S. Government Agencies, allies, and Defense contractors. In addition to maintaining a high level of reliability and availability, the DMS handles information of all classification levels (Unclassified to Top Secret), compartments, and handling instructions.*

**1.1 Background.** *To enable the closure of Automatic Digital Network (AUTODIN) and its replacement, the DMS Transition Hubs (DTHs), measures of effectiveness were developed and established for the DMS to clearly gauge management thresholds and operational performance. The General Officers Steering Group (GOSG), and the DMS Operations Group (OG) (formally known as the Implementation Group/Operations Group) validated these objectives with concurrence from the Joint Staff.*

**1.2 Objectives.** *These objectives, which are DMS specific, include Backbone and Site Availability, Service and Agency Site Availability, Non Delivery Notification (NDN) Ratios, Speed of Service for the Message Transfer System (MTS), Directory Scans, and User Directory Performance Monitoring. The following elements are the baselines for establishing the operational thresholds and objectives for the DMS.*

**1.2.1 Backbone and Site Availability.** *Performance management of the DMS backbone components that reside within the 15 global Regional Nodes, as well as the Multi-Function Interpreters (MFIs) and DoD-level Mail List Agents (MLAs) is based on performance monitoring, which provides management with the tools to measure and judge the reliability and availability of DMS infrastructure. The Regional Nodes support DMS-to-DMS messaging while the MFIs provide the interface for the National Gateway Centers (legacy) and DMS interoperability and the DoD-level MLAs, which support top-*

level collectives. The criterion for performance acceptance is 99% availability.

**Green** =  $\geq$  99%  
**Yellow** = 96-98%  
**Red** =  $\leq$  95%

**1.2.1.1 Service and Agency (S/A) Site Availability Metrics.**

Performance management of S/A sites will provide a measurement of DMS ability to interoperate and support end-to-end organizational messaging.

1.2.1.2 S/A composite availability of all commissioned sites is determined by DISA DMS Network Operation Center (NOC) Isolation Trouble Tickets. Data is obtained and reported by DISA GS 313, DMS Integration and Sustainment Branch.

Commissioned sites are those sites connected to the backbone, i.e., Primary Groupware Servers (PGWS) and Backbone Groupware Servers (BGWS). Backside sites are not commissioned and therefore are not reported. Sites will be considered available if they are able to exchange (send and receive) signed and encrypted organizational messages with the DMS backbone. Failure of a single component or multiple components will not count against this metric unless the failure(s) result in site isolation as defined in the preceding sentence. S/As are rated based on total potential hours and total hours that the sites were actually available.

1.2.1.3 The performance objective for site availability is 99%. The following criteria will be used to illustrate the current measure of effectiveness.

Green  $\geq$  99%  
Yellow = 96-98%  
Red  $\leq$  95%

**1.2.2 NDN Ratios.** NDNs are generated in DMS when messages cannot be delivered to the intended recipients. There are many causes for NDNs in the DMS environment (e.g., server, directory, network, user issues). The primary objectives are to minimize and reduce those conditions, and to facilitate prompt and corrective actions that allow and sustain proper message delivery. The performance objective for NDN generation is 2% or less for all messages originated.

Green =  $\leq$  2%  
Yellow = 3-5%  
Red = >5%

**1.2.3 Speed of Service for MTS.** Preferential handling by DMS applications (e.g., MTSs) is only one factor in achieving timely message delivery. DMS applications are dependent on the underlying networks to transport data between DMS applications. The existing networks do not currently provide preferential and/or preemptive handling of data at the network level. Compliance with DMS Multi-command Required Operational Capability Change 2 (MROC C2) Timely Delivery specifications must be accomplished. ACP 123 US Supplement-1 has established (as a system requirement) MTS speed of service delivery times based on MTS grade of delivery. The target MTS delivery time is the difference between the MTS submission time and MTS delivery time. The following are the DMS and AUTODIN objectives for Speed-Of-Service (SOS):

<u>ACP-123, US Supplement 1</u>		<u>AUTODIN</u>	
Urgent	3 minutes	ECP	3 minutes
Normal	20 minutes	Flash	10 minutes
Non-urgent	8 hours	Immediate	20 minutes
		Priority	45 minutes
		Routine	8 hours

For Each Grade of Delivery

**Green** = > 95% of the time

**Red** = < 95% of the time

**1.2.4 Directory Scans.** The directory scans interrogate all entries in the DMS directory looking for entries that are not capable of messaging, requiring intervention for correction or removal from the directory. Additionally, in support of the transition from DMS v1 certificate based system to the DMS v3 certificate based system, it provides an automatic metrics report to measure the progress of transition providing counts of transitioned DMS Organizational accounts and numbers of v3 certificates posted and others. Criteria for operational acceptance of invalid directory entries has been established at no more than 2% of the total number of entries. Since invalid entries prohibit organizational messaging, correction and routine validation is vital for operational acceptance. The following measurement goal constitutes successful completion of this event.

Green =  $\leq$  2%

Yellow = 3-5%

Red = > 5%

**1.2.5 User Directory Performance Monitoring.** The purpose of the Directory Performance Monitoring program is to collect and analyze data to evaluate the performance of Global Directory Service Agents (GDSA) and selected Services and Agencies (S/a) Local Directory Service Agents (LDSA).

1.2.5.1 Collecting data from the Global Directory Service Agents (GDSA) is to measure the total and incremental shadows and the number and type of system and user base errors for directory information that couldn't be filled by a particular SGDSA.

1.2.5.2 All of the data is collected for each SGDSA and evaluated on a complete network and per SGDSA basis. The purpose of collecting data from the Local Directory Service Agents (LDSA) is to measure the system performance response time associated with the DMS Directory Services from the users' perspective.

1.2.5.3 The metrics to be used as a management threshold from the Directory Performance Monitoring program are the results for "Browse" and "Search" times from a user's perspective as measured over a network LAN.

1.2.5.4 **Operational Objective<sup>1</sup>** The management threshold for Directory Performance for client response time is:

**Browse<sup>2</sup>:**

**Green** =  $\leq$  20 seconds  
**Yellow** =  $>$  20 - 30 seconds  
**Red** =  $>$  30 seconds

**Search<sup>3</sup>:**

**Green** =  $\leq$  5 seconds  
**Yellow** =  $>$  5 - 15 seconds  
**Red** =  $>$  15 seconds

**1.3 Defense Switched Network (DSN).** The DSN is an end-to-end, common-user, and dedicated switched voice service of DOD. The DSN also accommodates data, video teleconferencing, and secure voice services. It provides telecommunications for command and control (C2) users and special C2 users. MTs were developed from statistical analysis of past performance data and DSN switch specifications.

	<b>Reliability</b>	
	<b>MT</b>	<b>PO</b>
<b>1.3.1 DSN System</b> (Composite Average of all DSN Switches)	99.9	100.0
<b>1.3.2 Single Switch</b>	99.9	100.0
<b>1.3.3 Call Completion Rate (End Office to End Office)</b>		
World Flash Override/Flash	100.0	100.0
Intertheater		
Immediate	85.0	95.0
Priority	80.0	90.0
Routine	70.0	80.0
Theater		
Immediate	88.0	98.0
Priority	85.0	95.0
Routine	80.0	90.0

**1.4 Defense Red Switched Network (DRSN).** A subnetwork of the DISN, consisting of a global secure voice switching network, whose subscribers are served by a variety of automatic switches and Operator Consoles. All Operator Consoles are interconnected within the DRSN by dedicated wideband trunk circuit and/or narrowband DSN. MTs were developed from statistical analysis of past performance data and DRSN switch specifications.

	<b>Reliability</b>	
	<b>MT</b>	<b>PO</b>
<b>1.4.1 DRSN System</b> (Composite Average of all DRSN Switches)	99.9	100.0
<b>1.4.2 Single Switch</b>	99.9	100.0

**1.4.3 DRSN Call Completion Rate.** The percentage of DRSN calls that are completed from a subscriber to a subscriber. One subscriber call may require a number of attempts by the DRSN operator to complete the call.

	<b>Reliability</b>	
	<b>MT</b>	<b>PO</b>
<b>1.4.4 Call Completion Rate (Red switch to Red switch)</b>		
World Flash Override/Flash	100.0	100.0

Intertheater		
Immediate	85.0	95.0
Priority	80.0	90.0
Routine	70.0	80.0
Theater		
Immediate	88.0	98.0
Priority	85.0	95.0
Routine	80.0	90.0

**1.5 Unclassified But Sensitive Internet Protocol Router**

**Network (NIPRNET).** Provides worldwide long haul, unclassified Internet Protocol (IP) data telecommunications services for both low-speed and high-speed DoD subscribers.

	<b>Reliability</b>	
	<b>MT</b>	<b>PO</b>
(Composite Average of all NIPRNET nodes)	99.5	99.5

	<b>Reliability</b>	
	<b>MT</b>	<b>PO</b>
<b>1.6 Secret Internet Protocol Router Network (SIPRNET).</b>	99.5	99.95

Provides worldwide long haul, classified Internet Protocol (IP) data telecommunications services for both low-speed and high-speed DoD subscribers.

**1.7 NIPRNET/SIPRNET: IP Performance Analysis trends.**

<b>Network Latency and Packet Loss (NIPRNet/SIPRNet)</b>		
<b>Regional Area</b>	<b>Latency (Ms)</b>	<b>Objective Loss %</b>
Intra-CONUS	100 or <	1 or <
Intra-Europe	150 or <	1 or <
Intra-Pacific (Oahu, HI-Western Pacific)	150 or <	1 or <
Intra-South West Asia (SWA)	700 or <	1 or <
CONUS-Europe (East Coast-Central GER)	150 or <	1 or <
CONUS-Pacific (West Coast-Oahu, HI)	150 or <	1 or <
CONUS-SWA (East Coast-SWA)	700 or <	1 or <
<b>*Latency and packet loss objectives for each region, averaged over a calendar month</b>		

	<b>Reliability</b>	
	<b>MT</b>	<b>PO</b>
<b>1.8 DISN Asynchronous Transfer Mode System - Unclassified (DATM-U).</b> Provides classified, high-speed transmission support for the DISN network and services.	99.5	99.95

<b>1.9 DISN Asynchronous Transfer Mode System - Classified (DATM-C).</b> Provides classified, high-speed transmission support for the DISN network and services.	99.5	99.95
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<b>1.10 Integrated Digital Network Exchange (IDNX)Upgraded to PROMINA.</b> <i>The Promina is a multi-servie networking product that provides state-of-the-art broadband switching capability for Internet Protool (IP) and Asynchronous Transfer Mode (ATM). Promina consolidates a variety of user traffic applications, including voice, and data, on a single platform. The Promina platform adapts to support new and legacy transport protocol, including Time Division Multiplexer (TDM), frame relay, ISDN, ATM, and IP. While leveraging the bandwisth-on-demand benefits of frame and cell-based solutions.</i>	99.5	99.95
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2.1 **DSCS.** MTs for the DSCS depict that level of performance below which intensive management action is required. The POs reflect the level of peak performance that can be expected under optimum conditions.

	<b>Reliability</b>	
<u><b>DSCS System Reliability</b></u>	<b>MT</b>	<b>PO</b>
Fixed DCSC earth terminals with antenna diameters equal to or greater than 38 feet	98.0	99.9
Terminal Reliability	97.0	99.9

2.2 **DISN Video Services (DVS).** *A subelement of the DISN, consisting of a global secure and unsecure video teleconferencing service whose subscribers are served by Video Teleconferencing Hubs. All Hubs are interconnected with DISN transmission. Management Thresholds (MTs) were developed from statistical analysis of past performance data.*

	<b>Reliability</b>	
	<b>MT</b>	<b>PO</b>
<i>DVS System (composite of all Hubs)</i>	<i>99.6</i>	<i>100.0</i>
<i>Single Hub</i>	<i>99.6</i>	<i>100.0</i>

**Footnotes:**

<sup>1</sup> Objective to be satisfied at a 90% level of confidence.

<sup>2</sup> Browse local DSA, intra S/A branch (level 5-8).

<sup>3</sup> Search local DSA, intra S/A organizations/locations branch, using search value that returns less than 20 entries.

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