

CONUS AUTOVON

NETWORK TRAFFIC MANAGEMENT

SWITCHED SERVICE NETWORKS

CONTENTS	PAGE	
1. GENERAL	1	through DCA-Pacific (DCA-PAC) and DCA-Europe (DCA-EUR). This network management objective is to provide maximum operational capability of the network at all times.
2. OPERATING CONDITIONS OF NETWORK MANAGEMENT	2	1.02 This section is reissued to add information concerning recorded announcements used in the AUTOVON network. Revision arrows are used to emphasize the more significant changes.
A. Condition A	2	
B. Condition B	2	
3. NETWORK CONTROLS	3	1.03 The purpose of this section is to outline responsibility and organization for exercising control over the flow of traffic within the network. It also outlines the Network Management Center's role in managing the network on a near "real-time" basis.
4. NOTIFICATION TO DIAL ADMINISTRATOR	6	
5. TROUBLE STATUS NOTIFICATION	6	
6. RECORDED ANNOUNCEMENTS	6	1.04 The procedures set forth in this section apply to all CONUS AUTOVON switching locations, including those serving various subnetworks.
A. Autovon Announcements	6	
B. Autovon 4W No. 1ESS Announcement Trunks	6	1.05 AUTOVON network management is defined as any step or steps (see paragraph 3.01) taken on a real-time basis to provide the best possible service.
C. Autovon Announcement Requirements for 4W No. 5 Machines	6	
D. Other Miscellaneous Routing Announcements	7	1.06 Should network controls become necessary, they will be specified by the Dranesville Network Management Center (DNMC), Dranesville, Virginia, or designated alternate (see paragraph 2.09). Although an office may take exception to controls specified, this should not delay response to the DNMC or designated alternate's directive. The DNMC or designated alternate has the only overview of AUTOVON as a network and decisions made by these centers are based on the maximum benefit to the overall network.
1. GENERAL		
1.01 The Bell System is responsible for network management of the CONUS AUTOVON with concurrence of the Defense Communications Agency Operations Center (DCA-OC) Support Division, Arlington, Virginia. Coordination of network management for Global AUTOVON is handled		

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1.07 Network management requirements must be considered in two phases, or conditions:

- (a) **Condition A**—Normal operating condition, with the DNMC fully functional and available at all locations.
- (b) **Condition B**—Abnormal or disaster condition, where the DNMC has ceased to function or cannot be reached. Under this condition, the AUTOVON network can be assumed to be severely impaired.

2. OPERATING CONDITIONS OF NETWORK MANAGEMENT

A. Condition A

2.01 The CONUS AUTOVON Network Management Center is located at the Dranesville, Va. (Long Lines), underground complex and is linked to each CONUS AUTOVON switching location by the following:

- (a) A full period telephone circuit(s) (FP133) for "tactical" use. This is a 2-way circuit connecting all testboards and associated switching machines with Dranesville.
- (b) A telemetry system, the status assembly system (SAS), or equivalent. This provides data from each switching machine to the DNMC. Information on the SAS is contained in Sections 201-643-101 and -301.

2.02 Full period (FP) 133 is reserved for transmission of trouble information, network data relayed verbally, and requests for and acknowledgment of network management activity. Full period telephone circuit 300 is provided for direct communications between all AUTOVON network management locations (see paragraph 2.09) and the Network Operations Center at Bedminster, NJ. In the event of failure to either or both of these FP circuits, the highest priority for restoration must be applied (see Section 660-207-010).

2.03 The DNMC is manned continuously. Personnel are available at all times to specify network controls as deemed necessary and also to consult with, assist, and advise any central office as required.

2.04 The AUTOVON testboards will ensure adequate personnel coverage to respond to FP133 at all times.

2.05 If the activation of network controls becomes necessary, the AUTOVON testboard, as a control office, will ensure satisfactory contact between the DNMC and the switching machine maintenance forces. The DNMC may then work directly with machine maintenance personnel in effecting controls.

2.06 During periods of network control activity, per paragraph 2.05, the AUTOVON testboard will maintain close attention to FP133, taking note of controls as they are executed, so as to promptly handle customer inquiries generated by the controls and also render assistance to the DNMC as needed.

B. Condition B

2.07 Two assumptions are made in considering network management under condition B.

- (a) The Network Management Center at Dranesville is isolated from all or a portion of the network.
- (b) Portions of AUTOVON remain intact.

2.08 Network management under condition B may not be as decisive or rapid as normal. However, it offers the greatest possibility for maintenance of communications capabilities.

2.09 Alternate locations, known as Manual Alternate Control Centers (MACCs), will perform network management functions. These MACCs are:

Chesterfield, Massachusetts

Williamstown, Kentucky

Lamar, Colorado

Mojave, California.

2.10 Customer contact must be maintained by network management personnel. During a condition B situation, the eastern-most MACC (prime MACC) will assume the responsibility for this function.

2.11 Other MACCs should act as filtering centers for:

- (a) Consolidating status reports for transmittal to the prime MACC
- (b) Relaying orders for controls from the prime MACC
- (c) Ensuring adequate manning of sites reporting to them.

2.12 The prime MACC must assume responsibilities for:

- (a) Customer (DCA) interface
- (b) Coordination of controls between all offices
- (c) Ensuring coverage at MACCs and other AUTOVON offices
- (d) Establishing and maintaining contact with other portions of the communications industry.

2.13 If a switching location is unable to contact the DNMC in accordance with paragraphs 2.02 and 2.03, a condition B situation should be presumed and the responsible MACC should be contacted. If unable to contact this MACC, the switching locations should continue with efforts to contact any MACC. The MACCs remaining assume the responsibilities for any out-of-service MACC. Should the switching location not be able to contact any network management personnel, then it must assume network management responsibility to the best of its ability, contacting other nearby AUTOVON offices for assistance.

2.14 Each AUTOVON office is assigned to a MACC and should respond to that MACC. Depending on conditions at any particular time, the DNMC may change these assignments. Table A shows the normal assignments.

2.15 The MACC offices (see paragraph 2.09) are not equipped for receiving telemetry information from other locations. Therefore, decisions on network controls will be based on such information as can be collected verbally.

2.16 The DNMC will furnish each MACC with sufficient information (and detailed instructions

on its use) to enable the offices to maintain the best practical level of communications capability.

2.17 The DNMC will arrange for additional communications for MACCs as required.

2.18 Evaluation of the effect of controls will also be a cooperative effort, under direction of the MACCs.

2.19 Once the DNMC is able to resume network management, the Center should promptly be brought up-to-date by each MACC as to the network management activities (where, what, when, and why). The DNMC will confirm or alter any controls currently in effect.

3. NETWORK CONTROLS

3.01 The following network controls may be ordered by the DNMC or MACC when necessary:

- (a) Manual operation of line load controls in any required configuration
- (b) Directionalization of all or portions of selected intermachine trunk groups
- (c) Directionalization of all or portions of network in-dialing (NID) access line groups at selected customer locations
- (d) Manual operation of route transfer keys at 4 wire No. 5 crossbar offices for alternate route cancellation (ARC) or destination code cancellation (DCC) toward offices experiencing impaired switching
- (e) Implementation of previously prepared recent change tapes at No. 1 Electronic Switching System (ESS) offices for executing ARC or DCC toward offices experiencing impaired switching
- (f) Preparation of (according to instructions from the dial administrator) and implementation of recent change tapes not previously prepared for executing ARC and DCC toward offices experiencing impaired switching
- (g) Any other control activity not previously defined but requested by the DNMC or MACC.

→ TABLE A ←

CONDITION B SUBTENDING OFFICES

DRANESVILLE NETWORK MANAGEMENT CENTER (FP 133/300 OR 703-450-5820)			
Chesterfield (FP133-001) OR (413-296-4783/4)	Williamstown (FP133-002) OR (606-824-5020/1)	Lamar (FP133-003) OR (303-336-4395/4397)	Mojave (FP133-004) OR (805-824-2447)
Arlington*	Brewton	Cheyenne Mountain	Apache Junction
Cedar Brook	Ellisville		Delta†
Charlottesville			East Helena
Chatham	Jasper	Fairview†† (Planned)	Glendive†
		Hillsboro*	Haney†
Chesterfield		Lamar	Julian
Dranesville	Polk City†	Lyons	Lethbridge
	Rockdale*	Memphis Junction	Lodi
Fredericton	Roscommon†	Mounds	
Hagerstown	Stanfield	Portage†	Mojave
Leesburg		Regina†	North Bend†
Littleton	Sudbury†	Seguin	San Luis Obispo
Monrovia*	Terre Haute†	Socorro	
Monrovia Dial Service			
Assistance Operator	Toledo Junction† (Planned)	Sweetwater	San Luis Obispo DSA Operator
Moseley	Williamstown	Wheatland†	
Netcong			
Pottstown		Wyoming	
Sherbrooke			Topaz Lake†
Smith Falls			
Tully			

Note 1: An asterisk (*) beside the office name indicates that the switcher is a Western Electric 4-wire No. 5 crossbar machine; a dagger (†) indicates the switcher is a 4-wire Automatic Electric Co. machine; a double dagger (††) indicates Northern Telecom — Digital. All others are Western Electric 4-wire No. 1 Electronic Switching System switching machines.

3.02 Under certain circumstances, the DNMC, MACC, or dial administrator may request information directly from the AUTOVON switching machines. Information requested may include the following:

- (a) Total marker peg count, completing or dial tone
- (b) Sender group or register group busy condition
- (c) Dial tone test and delay status
- (d) Occurrence of major alarms
- (e) Occurrence of repeated minor alarms
- (f) Preemptive attempt register information
- (g) Preemption blockage
- (h) Incoming overflow
- (i) Tandem overflow
- (j) Origination destination peg count, trunk group overflow and peg count, and other similar information, if available
- (k) Destination peg count, trunk group overflow and peg count, or any similar information if available.

3.03 *Network control to alleviate a traffic condition should not be initiated, changed, or relaxed except upon direction of the Dranesville Network Management Center or one of the MACCs specified in paragraph 2.09.* FP133, the direct distance dialing network, and, in extreme emergencies, AUTOVON may be used for these communications.

3.04 The type of network control specified and/or the degree of that control, will be determined by the DNMC (or the named MACC). The responsibility for the (network) effect of controls exercised also rests with the DNMC or its designated MACC.

3.05 Each AUTOVON switching location is responsible for promptly advising the DNMC (or MACC) of any conditions, existing or potential, which may endanger the AUTOVON network and/or create a need to exercise network controls.

Maintenance action to protect switching capabilities due to circuit faults should be promptly reported to DNMC. This is to allow the network control requirements to be determined and initiated if necessary.

3.06 The DNMC (or MACC) will advise ALL affected or potentially involved offices of conditions which may require network controls. These conditions are national alerts, civil disturbances, man-made or natural catastrophes, network overloads, etc.

3.07 The DNMC (or MACC) will maintain a permanent record of network control activity. The format of this record will include:

- (a) Dates and times control activity or information is requested of specific offices
- (b) Dates and times controls are initiated, changed, or negated
- (c) Dates and times of administrative and customer notifications
- (d) Sufficient narrative details to adequately describe the circumstances in each case.

3.08 Each switching location should maintain adequate records of facility failures, switching machine impairments, etc, that affect the backbone network or a post, camp or station served by AUTOVON. Where network controls are ordered (by DNMC or MACC) or considered necessary by a switching location, the following should be recorded by the switching location AUTOVON testboard:

- (a) Date and time controls were ordered (by DNMC or MACC) or requested by switching location
- (b) The time control or controls were initiated, changed, and/or negated
- (c) Inventory of circuit outages (if applicable), switching equipment out of service, and customer reports.

Note: The use of the special service system (SSS) trouble ticket described in Section 660-225-103 is suggested for this purpose. The completed ticket should be retained for

SECTION 309-200-010

ready access in case it is required at a later time.

4. NOTIFICATION TO DIAL ADMINISTRATOR

4.01 Any switching location which implements a network control (see paragraph 3.01) should notify its dial administrator following completion of control activity. If outside of normal business hours, such notifications can be made the next normal business day (see paragraph 3.08 (a), (b), and (c) for the required information).

4.02 Immediate notification, regardless of the day or hour, should be made to the responsible dial administrator under the following circumstances:

- (a) When a network condition requiring control action is created by trouble in the machine
- (b) When the advice of the dial administrator is believed to be required following the exercise of control functions.

5. TROUBLE STATUS NOTIFICATIONS

5.01 Under conditions which disable the DNMC, the customer may direct that certain network controls be instituted. The MACCs must be prepared to respond to these directions as outlined in paragraphs 2.10, 2.11, 2.12. For the purposes of this section, the customer is DCA-OC Support Division.

6. RECORDED ANNOUNCEMENTS

A. AUTOVON Announcements

6.01 When a precedence call is blocked, the following recorded announcement is received by the calling party.

"Equal or higher precedence calls have prevented completion of your call or the number you have dialed is not equipped for pre-emption. Please hang up and try again. This is a recording (pause) SSB (Switched Service Bureau) No. (state number, eg, 'SSB No. 123')."

6.02 When a no-such service, vacant number or restricted route digit is attempted, the announcement is:

"Your call cannot be completed as dialed. Please consult your directory and dial again, or ask your operator for assistance. This is a recording. (Pause) SSB No. (state number)."

6.03 If an unauthorized precedence level is attempted, the call will be interrupted with this message.

"The precedence used is not authorized for your line. Please use an authorized precedence or ask your operator for assistance. This is a recording."

6.04 When a call is interrupted because of the destination code cancellation, the following message will be returned to the calling party.

"AUTOVON service disruption has prevented the completion of your call. Please wait 30 minutes and try again. In case of emergency, call your operator. This is a recording. (Pause) SSB No. (state number)."

B. AUTOVON 4W No. 1ESS Announcement Trunks

6.05 The 4W No. 1 ESS has Receiver Off-Hook (ROH) announcement trunk capability. To provide a standard announcement, the following words should be utilized for the ROH announcement.

"You have left your receiver off-hook too long. Please hang up and dial again. This is a recording."

C. AUTOVON Announcement Requirements for 4W No. 5 Machines

6.06 The vacant code and restricted route digit attempted calls are to be routed to a common overflow trunk (G127) for the announcement in paragraph 6.02.

6.07 No such number or vacant number calls are to be routed to Line Link Intercept announcement trunk (F-41) for the announcement in paragraph 6.02.

6.08 Precedence calls to trunks blocked due to all trunk or lunk (combined line and trunk circuit; see GLOSSARY, Section 309-200-101) busy with equal or higher precedence are to be routed to a separate group of common overflow trunk (G-127) for pre-empt no circuit (NC) announcement in paragraph 6.01.

6.09 Precedence calls to lines blocked due to all lines busy with equal or higher precedence are to be routed to a separate group of Line Link Intercept announcement trunks (F-41) for the announcement in paragraph 6.01.

6.10 Unauthorized precedence level attempted calls are to be routed to a separate group of common overflow trunk (G127) and given the announcement in paragraph 6.03.

D. Other Miscellaneous Routings Announcements

6.11 *Permanent Signal Calls* are routed as follows:

- In the 4W No. 5 machine, permanent signals are to be directed to permanent signal trunks. When all permanent signal trunks are busy, these calls are to route advance to the common overflow trunk group.
- In the 4W No. 1 ESS, permanent signals are to be routed to "Receive Off-Hook" announcement (see paragraph 6.05), followed by receiver off-hook tone and then put on the "High and Wet" list.

6.12 Calls encountering a NC condition for trunks or lunks are discussed here in relation to the type of calls being processed.

(a) Precedence calls (P0-3) that cannot pre-empt because all trunks or lunks are busy with equal or higher precedence calls are routed to the group of announcement trunks to receive pre-empt NC announcement in paragraph 6.01.

(b) Non precedence (routing) calls are handled as follows:

- Sender out-going (SOG) originating calls non-precedence calls encountering an all trunks busy are routed to overflow trunks and receive a NC tone.
- Tandem Outgoing (TOG) calls that are non-precedence, that encounter an all trunks busy do not route to the common overflow trunks in 4W No. 5 machines. The completing marker signals the incoming trunk to return *No circuit* tone to the originating office. (Since the SOG and TOG calls use the same program relays it will be necessary to separate the two types by screening just ahead of the overflow route relay.) TOG calls in the 4W No. 1 ESS are to be routed to overflow trunks to receive a NC tone.

6.13 Calls encountering a *line busy* condition are routed as follows.

(a) Precedence calls that cannot pre-empt because all lines are busy with equal or higher precedence calls or because pre-emptable lines are not provided, are to route to announcement covered in paragraph 6.01.

(b) Non-precedence calls encountering all lines busy are to receive a line busy tone (60 IPM).