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Government Alliances

Government Emergency Telecommunications Service High Probability of Completion (GETS HPC) Feature Guide

NA015 Standard 04.01 March 2001

The use of HPC Network Capabilities is restricted in the United States and U.S. Territories (Puerto Rico and U.S. Virgin Islands) to National Security/ Emergency Preparedness (NS/EP) users authorized by the Office of the Manager, National Communications System (OMNCS). Operating company deployment of these HPC Network Capabilities must be coordinated with the OMNCS at the following address:

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NA015 Standard version 04.01; Incorporated information on GETS HPC Call Queuing.

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September 1998

NA010 Standard version 03.00; Incorporated new TRAVER display and double glare treatment from AJ4945.AB02

May 1998

NA009 Standard version 02.00; incorporated information on the following NA009 GETS HPC features:

- GETS HPC Network Management Control Exemptions (AJ4945)
- ISUP IAM Priority Control for Non-HPC calls (AF7109)
- EADAS/DC and EADAS/NM Support for HPC OMs Data (AU2558)

November 1997

NA008 Standard version 01.00; first release of this document

Contents

About this document

This document describes the Government Emergency Telecommunications Services (GETS) High Probability of Completion (HPC) feature. The following table provides an overview of the contents of each chapter.

Chapter	Description
Introduction to GETS HPC	provides a high-level description of GETS HPC and each feature
Feature description	provides information on feature operation, interactions with other features, restrictions and limitations, and other necessary parameters for the GETS HPC features, which include: GETS HPC GETS HPC Network Management Control Exemptions ISUP IAM Priority Control for Non-HPC Calls EADAS/DC and /NM Support for HPC OMs Data GETS HPC Egress Queuing GETS HPC Call Queuing
Data schema	provides a description of the new tables used by GETS HPC
Log reports	provides a description of the log reports used by GETS HPC features
Operational measurements	provides a description of the OM groups pegged by GETS HPC features
Office parameters	provides a description of the office parameters used by GETS HPC features

Chapter	Description
GETS HPC provisioning	contains provisioning procedures for GETS HPC
Procedures	contains procedures on how to provide GETS HPC functionality
GETS HPC translations	describes the datafill used to provide GETS HPC functionality
Appendix A	provides a list of facility messages that are sent when an announcement is datafilled for the instance of HPC TQ

Introduction to GETS HPC

Government Emergency Telecommunications Service (GETS) is a service provided by the Office of the Manager, National Communications System (OMNCS). This service was developed in response to White House tasking, to meet national security and emergency preparedness (NS/EP) requirements, for the use of public telephone networks by Federal, state and local government, and other authorized users.

GETS provides emergency access and specialized processing in local and long distance telephone networks. The authorized user dials a GETS access number and is connected to the Personal Identification Number (PIN) authorization system in the IEC network. The user is prompted for a valid PIN, then for the destination number.

High Probability of Completion (HPC) is a set of features and capabilities that provide authorized GETS users with enhanced routing and priority treatment in the public switch voice network. HPC significantly improves the completion of emergency calls under severe network congestion and damage conditions.

GETS HPC is to be employed during periods of national emergencies, for example, natural disasters (hurricanes, earthquakes, etc.) or hostile actions (for example, the terrorist bombing of Oklahoma City).

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Table 1-1 provides a brief description of each HPC feature or capability, as well as the stream in which each feature or capability was developed.

Table 1-1 GETS HPC features

HPC feature	Feature ID	Description	Stream
Set-HPC	AQ1574 and AJ4945	Set-HPC detects the origination of an HPC call when the dialed digits are recognized as being part of a list of authorized GETS numbers, and sets an attribute for internal processing.	NA008 NA009
Pass-HPC	AQ1574	Pass-HPC detects and passes the identity of the HPC call to the next switch, if the call was originated from an SS7 trunk, and the CPC parameter of the IAM is set to NS/EP.	NA008

Table 1-1 GETS HPC features (Continued)

HPC feature	Feature ID	Description	Stream
Trunk Queuing (HPC TQ)	AQ1574 and AJ4945	HPC TQ queues an HPC call against a busy trunk group in a route list until a member of that trunk group becomes idle, or advances the call to the next treatment if a specified maximum queuing time has elapsed. The HPC TQ capability also queues a call that yields to glare and fails to find an idle trunk on the retry.	NA008 NA009
Traffic measurement	AQ1574	Traffic measurements provide new OM groups to measure the HPC traffic within DMS switches.	NA008
Setting SS7 IAM message priority for HPC calls	AJ4945	This capability allows the operating company to set the priority value of HPC calls to 1, or the message priority value of the IAM received when it is equal to or greater than 1.	NA009
Setting SS7 IAM message priority for non-HPC calls	AF7109	This capability allows the operating company to set the priority value of non-HPC calls to 0, or 1, or the message priority value of the IAM received.	NA009
Network Management controls exemptions	AJ4945	This capability exempts HPC calls from specific protective (i.e. restrictive) network management controls.	NA009
Network Management interface	AU2558	This capability allows OM data and HPC call state indications to be transmitted to the Engineering and Administrative Data Acquisition System (EADAS).	NA009

Table 1-1 GETS HPC features (Continued)

HPC feature	Feature ID	Description	Stream
GETS HPC Egress Queuing	59006771	This capability provides HPC trunk queuing to egress trunk groups	NA012
GETS HPC Call Queuing	A59021972	This capability allows HPC calls to be queued on supported public trunk groups on an office-wide basis.	NA015

Feature description

This chapter provides information on feature operation, interaction with other features, restrictions and limitations, datafill, and other necessary parameters for the Government Emergency Telecommunications Service (GETS) High Probability of Completion (HPC) features, which include

- AQ1574 “Government Emergency Telecommunications Service High Probability of Completion (GETS HPC)” - developed in NA008
- AJ4945 “Government Emergency Telecommunications Service High Probability of Completion (GETS HPC) Network Management Control Exemptions - developed in NA009
- AF7109 “ISUP IAM Priority Control for Non-HPC calls” - developed in NA009
- AU2558 “EADAS/DC and EADAS/NM Supports for HPC OMs Data” - developed in NA009
- 59006771 “GETS HPC Egress Queuing” developed in NA012.
- A59021972 “GETS HPC Call Queuing” developed in NA015.

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GETS HPC

Ordering codes

Functional group ordering code: GETS0001

Functionality ordering code: N/A

Release applicability

Feature AQ1574 introduces Government Emergency Telecommunications Service High Probability of Completion (GETS HPC). This feature was developed and released in NA008, and applies to releases NA008 and up.

Features AJ4945, AF7109 and AU2558 were developed and released in NA009, and apply to releases NA009 and up.

Feature 59006771 was developed and released in NA012, and applies to releases NA012 and up.

Prerequisites

To operate, GETS HPC requires the following functional packages:

- BASE0001 Base Layer
- TEL00001 Telecom Layer
- BAS00003 BAS Generic
- ISP70001 Base ISUP

Note: GETS HPC depends on the ISP70001 functional group to receive and send SS7 IAM messages. However, all components of HPC, except "HPC Call Recognition Based on CPC of IAM" and "Forward HPC Identity", function with no impairment in the absence of the ISP70001 functional group.

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Functionality name

Government Emergency Telecommunications Service High Probability of Completion (GETS HPC)

Description

Government Emergency Telecommunications Service (GETS) is a service that allows authorized users to originate a call with higher probability of completion during periods of national emergencies. The higher rate of completion is achieved through recognizing and queuing High Probability of Completion (HPC) calls on outgoing trunk groups, and exempting these calls from specific protective or restrictive network management controls.

For a more complete description of the GETS HPC product, see the chapter entitled "Introduction to GETS HPC".

HPC is a set of features that provide users with enhanced routing and priority treatment in the public switch voice network.

Feature AQ1574 in NA008, implements the following HPC features for the GETS software:

- Set High Probability of Completion (Set-HPC)
- Pass High Probability of Completion (Pass-HPC)
- High Probability of Completion Trunk Queuing (HPC TQ)
- Traffic measurements.

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GETS HPC

The HPC features that feature AQ1574 implements, consist of components that each provide a specific function. Table 2-1 lists the components of each HPC feature. Some components are specific to an HPC feature, and others are shared.

Table 2-1 HPC feature components

HPC features	Components
Set-HPC	HPC Call Recognition Based on Dialed Digits
	Forward HPC Identity
	AIN ACG Controls Exemption
Pass-HPC	HPC Call Recognition Based on SS7 IAM
	Forward HPC Identity
	AIN ACG Controls Exemption
HPC TQ	HPC Trunk Queuing
Traffic Measurements	HPC Call Recognition Based on Dialed Digits
	HPC Call Recognition Based on SS7 IAM
	HPC Trunk Queuing
	AIN ACG Controls Exemption

Set-HPC

This section describes the Set-HPC components, which include

- HPC call recognition based on dialed digits
- Forward HPC identity
- AIN ACG controls exemption

HPC call recognition based on dialed digits

Set-HPC detects the origination of an HPC call when the dialed digits are recognized as being part of a list of authorized GETS numbers, and sets an attribute for internal processing. A list of five (5) GETS numbers or patterns is available to the operating company who sets these numbers or patterns through datafill of table HPCPATTN.

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Patterns entered into table HPCPATTN can be provisioned to match only the first 3, first 6, or all 10 digits.

Example of HPCPATTN datafill

```
TABLE: HPCPATTN
                                KEY
------------------------------
                      7106274387
                             711
                          710626
```

The dialed number is compared with the patterns entered in table HPCPATTN. The dialing sequences of GETS access numbers that are supported include

- 10XXX-1-10D
- 10XXX-0-10D
- 101XXXX-1-10D
- 101XXXX-0-10D
- 1-10D
- 0-10D
- 10D

Note: XXX and XXXX represent the carrier identification code.

Checks are added to prevent operating company personnel from entering a new pattern that causes an inefficient use of the HPC database. For example, checks are performed to ensure that operating company personnel do not enter

- a generic pattern, for example, 416, if a specific pattern, for example, 416722, already exists
- a specific pattern, for example, 7107221234, if a generic pattern, for example, 710, already exists

See chapters entitled “Data schema” on page 3-1 and “GETS HPC translations” on page 9-1 for information on how to enter datafill in table HPCPATTN.

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GETS HPC

The Set-HPC feature supports call recognition based on dialed digits for residential and business end users with any one of the line class codes (LCC) shown in Table 2-2.

Table 2-2 Agents supported by HPC call recognition based on dialed digits (Set-HPC)

Class	Class code	Description
POTS	2FR	Two-party flat rate service
	4FR	Four-party flat rate service
	PBX	Private branch exchange (PBX) flat rate service
	PBM	PBX message rate service
POTS/RES	1FR	Individual flat rate service
	1MR	Individual message rate service
	CCF	Coin first service
	CDF	Coin dial-tone first service
	CFD	Coin free dialing service
	CSP	Coin semi-postpay service
	ZMD	Zero minus denied service
	ZMZPA	Zero minus zero plus allowed service
	2WW	Two-way wide area telephone service
	EOW	Enhanced outward wide area telephone service
	ETW	Enhanced two-way wide area telephone service
	INW	Inward wide area telephone service
	OWT	Outward wide area telephone service
IBN	IBN	Integrated business network station
	M5009	Meridian set (9 keys)

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Table 2-2 Agents supported by HPC call recognition based on dialed digits (Set-HPC) (Continued)

Class	Class code	Description
	M5112	Meridian set (12 keys)
	M5209	Meridian set (9 keys with built-in display)
	M5212	Meridian set (12 keys with built-in display)
	M5312	Meridian set (12 keys with built-in display and handsfree)
	DISP	Electronic business set with liquid crystal display
	PSET	Electronic business set without liquid crystal display
OTHER	ISDNKSET-MFT	Meridian Feature Transparency (RRAMFT)
	ISDNKSET-BRI	Basic rate interface (BRAFS)
	PRI (PRA)	Primary rate interface
	PX	PX digital trunk
	P2	PBX Analog trunk
	VFG	Virtual Facility Group (see Note 1)
	AC	Attendant Console (see Note 2)

Note 1: GETS HPC call recognition supports call re-translation through VFG, if the originating agent is a Set-HPC supported agent (as listed in this table).

Note 2: GETS HPC call recognition for Attendant Consoles is introduced in NA009.

Forward HPC identity

As an HPC call is routed over a supported ISUP trunk, Forward HPC identity sets the calling party's category (CPC) parameter of the Initial Address Message (IAM) to National Security/Emergency Preparedness (NS/EP), and the message priority parameter of the IAM to 1. Supported ISUP trunks are listed in section Pass-HPC under "Forward HPC identity" on page 2-9.

The CPC and message priority of the IAM, the HPC identity of the call, is passed to subsequent switches.

AIN ACG control exemption

Calls initiated through Set-HPC are exempted from all AIN ACG controls, except when the gapping condition is “infinite gap interval”. That is, the value of the GapInterval parameter is stopAllCalls.

Pass-HPC

This section describes the Pass-HPC components, which include

- HPC call recognition based on SS7 IAM
- Forward HPC identity
- AIN ACG control exemption

HPC call recognition based on SS7 IAM

A call is detected and marked as an HPC call for further HPC call feature processing if the CPC parameter of the SS7 call origination message IAM contains the NS/EP codepoint.

The Pass-HPC feature supports HPC call recognition based on SS7 IAM for the agents listed in Table 2-3.

Table 2-3 Agents supported by HPC call recognition based on SS7 IAM (Pass-HPC)

Agent	Description
IT (SS7)	Intertoll trunk group types
ATC (SS7)	Access to carrier trunk group types
T2 (SS7)	Two-way trunk group types
TI (SS7)	Incoming trunk group types

Forward HPC identity

Pass-HPC detects and passes the identity of the HPC call to the next switch, if the call originated from an SS7 trunk and the CPC parameter of the IAM is set to NS/EP. Pass-HPC forwards the CPC parameter with the NS/EP value and the message priority parameter of the IAM set to 1.

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The Pass-HPC feature supports Forward HPC identity for the agents listed in Table 2-4.

Table 2-4 Agents supported by Forward HPC identity (Pass-HPC)

Agent	Description
IT (SS7)	Intertoll trunk group types
ATC (SS7)	Access to carrier trunk group types
T2 (SS7)	Two-way trunk group types
TO (SS7)	Outgoing trunk group types
IBN (SS7)	IBN ISUP trunk group types

AIN ACG control exemption

Pass-HPC calls are exempted from all AIN ACG controls, except when the gapping condition is “infinite gap interval”. That is, the value of the GapInterval parameter is stopAllCalls.

HPC TQ

The HPC TQ feature queues an HPC call against a busy trunk group in a route list until a member of that trunk group becomes idle, or advances the call to the next treatment if a specified maximum queuing time has elapsed. As soon as a trunk group member becomes idle, it is offered to the queued call before any other calls are processed. If more than one HPC call is queued on a trunk, idle trunk members are offered to calls using the first-in first-out (FIFO) algorithm.

A call is placed on the trunk group queue if all of the following conditions are met:

- no idle trunk group member is available
- the call is marked as an HPC call
- the trunk group is provisioned with HPC TQ
- the maximum number of queued HPC calls per office has not been exceeded, as defined for office parameter MAX_HPC_CALLS_QUEUED in table OFCENG
- the maximum number of queued HPC calls per trunk group, as defined in table TRKOPTS, has not been exceeded

- at least one member of the trunk group is in CPB state

Trunk groups are provisioned for the HPC TQ feature through datafill of table TRKOPTS. For each trunk group entered in table TRKOPTS, the operating company can specify the time (from 1 through 90 seconds) that an HPC call can remain on the trunk group queue, whether an announcement is provided to HPC calls queued on the trunk group, and the number of queued HPC calls (from 1 through 256).

See chapters entitled “Data schema” on page 3-1 and “GETS HPC translations” on page 9-1 for information on entering datafill in table TRKOPTS.

An announcement, if provisioned for that trunk group, can be provided to the originating user when the call is queued. Facility messages sent upon announcement vary according to the type of incoming agent. For a complete list of facility messages, refer to Appendix A: "HPC TQ announcement facility messages".

HPC TQ can be assigned to any supported trunk group or all supported trunk groups in a route list. Assignment of HPC TQ to one trunk group is independent of assignment to another trunk group.

The HPC TQ feature supports trunk queuing for the agents listed in Table 2-5.

Table 2-5 Agents supported by HPC TQ

Agent	Description
IT (SS7 and MF)	Intertoll trunk group types
ATC (SS7 and MF)	Access to carrier trunk group types
T2 (SS7 and MF)	Two-way trunk group types
TO (SS7 and MF)	Outgoing trunk group types
CELL (MF)	Cellular trunk group types

Note: The IT trunk group type is used for Cell (SS7).

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Operating companies can provision the maximum number of queued HPC calls per office (0 through 1024 with a default of 256) through office parameter MAX_HPC_CALLS_QUEUED in table OFCENG. For more information on this office parameter, see the chapter entitled “Office parameters” on page 6-1.

Traffic measurements

The Traffic measurements feature provides new OM groups to measure HPC traffic within the DMS switch, and interacts with

- HPC call recognition based on dialed digits
- HPC call recognition based on SS7 IAM
- HPC trunk queuing
- AIN ACG controls exemption

For information on HPC OM groups, see the chapter entitled “Operational measurements” on page 5-1.

Hardware requirements

The GETS HPC feature does not introduce any new hardware.

DRAM/EDRAM circuits are required to provide announcements, which pertain to trunk queuing operations.

Limitations and restrictions

The following restrictions and limitations apply to the GETS HPC features:

- for the Set-HPC feature
  - — An HPC call respects restrictions non-HPC features have placed on a subscriber’s line, unless otherwise specified in this document. For example, an agent is prevented from dialing long distance to an HPC access number if the subscriber’s line is restricted from placing long distance calls.
  - — A called party number returned by the SCP as part of E800, or AIN Primer (AIN 0.0) feature processing is not subject to HPC Call Recognition processing. (No comparison is made against the DN returned from the SCP.)

    (An E800 number dialed by the user, or an AIN 0.1 response from the SCP is subject to HPC Call Recognition processing.)

— The HPC Call Recognition process requires that all the dialed digits be present before comparing the digits to the HPC database patterns. As a consequence, calls subject to overlap outpulsing will never be recognized as HPC calls.

— The HPC call recognition process supports call re-translation from VFG, only if the original calling agent is supported by the HPC Call Recognition.

- for the Pass-HPC feature

  — DMS switches use only the CPC parameter of the incoming SS7 IAM message to determine whether the call is an HPC call. The message priority of the incoming SS7 IAM message is not used in the HPC call recognition process.

  — If the GETS SOC state is IDLE and the CPC parameter of the incoming SS7 IAM message is NS/EP, the call is not marked as an HPC call for GETS processing. However, the received CPC parameter value is forwarded to the next office if the call is routed through an SS7 trunk supported by Forward HPC Identity (see Table 2-4).

- for the HPC TQ feature

  — Once the call is routed out of the processing office, the call is no longer eligible for HPC TQ processing in that office, unless another feature causes the call to route again. That is, if the route busy indication is received from another office via SS7 signaling, then it is the responsibility of other features to cause the call to route again.

  — In NA008, if a glare condition occurs after an idle trunk is offered to the queued HPC call, the glare handling procedure applies. For NA009, a description of the glare resolution handling for HPC calls is provided in “GETS HPC Network Management Control Exemptions” on page 2-25.

  Assignment of the HPC TQ option on a two way trunk group may increase the occurrence of a glare condition particularly when HPC TQ is assigned to both ends of the two way trunk group.

  — If a continuity test failure occurs after an idle trunk is offered to the queued HPC call, then the normal continuity test failure handling procedure applies as the HPC TQ processing is completed after the idle trunk is offered to the queued HPC call.

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— Idle trunks that are made available as a result of maintenance action are not offered to queued HPC calls. An example of this is trunk transitions from ‘lock-out’ state to ‘idle’ state, either through manual intervention or automatic process.

— Queued calls are cleared (taken down) during all restarts and SWACTs.

— The MEM selector is incompatible with HPC TQ. HPC TQ is not invoked when the MEM selector is active. MEM selector limits the range of trunk group members offered to a call.

— The CND route selector with RND condition may cause a route element with HPC TQ to be skipped.

— The NOT route selector will cause a route element with HPC TQ to be skipped.

— If an announcement is datafilled for an instance of an ATC trunk group, a warning is issued indicating a potential billing problem created by providing the announcement to the caller. The warning message is “The announcement will not be played when the incoming agent is an IT trunk during Call Processing Time”.

— During call processing time, if an announcement is to be provided to an equal access call incoming on an IT trunk group, the HPC TQ feature does not provide the announcement to the caller. The HPC TQ feature processes the instance of HPC TQ as if no announcement were datafilled.

— In the event of announcement failure, the HPC TQ feature provides appropriate signaling but the announcement is not heard.

— A datafilled announcement is played to the caller, even if the call has been identified as a data call.

— An HPC TQ call will be cleared when protocol or feature timers (such as 3WCPUB) have expired, prior to the queuing time of HPC TQ.

— A GETS HPC call encountering an AIN Primer trigger, which returns an Analyze Route response containing multiple routes or trunk groups, will not attempt the remaining routes or trunk groups after HPC TQ trunk queuing occurs.

— HPC TQ interactions with DCR and NWM controls are not supported.

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Software optionality control

Software optionality control (SOC) is used to enable and disable GETS HPC in an office.

To change the state of the GETS HPC feature SOC, it is necessary to receive permission to use GETS HPC from the GETS Integration contractor, and obtain a key code from a Nortel Networks representative.

The key code is an alphanumeric password, which sets the Right-to-Use (RTU) from No to Yes. When the RTU is set to Yes, the processing office is able to change the state of the GETS HPC feature from IDLE to ON. When the state is set to IDLE, GETS HPC is available in the office, but not functional. When the state is set to ON, GETS HPC is functional.

By default, the RTU is set to No, and the state is set to IDLE. To enable GETS HPC in an office, the state must be changed to ON. To disable GETS HPC, the state must be changed to IDLE.

Information that pertains to SOC for the GETS HPC feature is provided in the following table.

SOC information for the GETS feature

Feature name	SOC option name	Order code
GETS	GETS	GETS0001

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Interactions

This section describes how the GETS HPC features interact with DMS-100 features.

Set-HPC

The DMS-100 features with which the Set-HPC feature interact are described in the sections that follow.

Advanced Intelligent Network (AIN)

The AIN functionality enables end office call processing to use centralized service logic programs located at Service Control Points (SCP), which determine how AIN calls proceed for further call processing. Queries and responses are exchanged between the DMS SuperNode end office equipped with AIN functionality and the SCP using SS7.

The Set-HPC feature interacts with AIN in the following ways:

- HPC Call identity is retained before, during, and after AIN feature processing.
- If the SCP response instructs the office to perform digit analysis on an SCP-supplied called party number, and the call in progress has not been marked as an HPC call, then HPC call recognition will be performed on the new called party number returned by the SCP in a response message.
- If AIN Default Routing is activated and provisioned with a directory number and this call is not marked as an HPC call, then the HPC call recognition processing is performed on the called party number supplied by AIN Default Routing.
- Call forwarding via an AIN Forward Call SCP response retains the HPC identity.

Automatic Line (AUL)

The AUL feature connects to a predetermined location when an off-hook condition is reported from a line with the AUL feature. The calling station does not receive dial tone. The automatic connection is made to a stored number consisting of 1 to 11 digits.

Calls made using the AUL feature are subject to HPC call recognition processing.

Call Conferencing/Call Transfer

The Call Conferencing and Call Transfer feature packages allow an end user to add an additional party to an existing connection for a three-way conference, or to transfer a call, using Call Transfer (CXR) or Three-Way Call (3WC).

If a new call is initiated by the originating or the terminating subscriber from an HPC call in conversation phase as part of call conferencing or call transfer, the new call does not inherit the HPC call identity. HPC call recognition processing is performed on the second leg.

Call Forward

The Call Forward feature package allows the subscriber to forward an incoming call from one base station to another. There are over fourteen types of call forward. Predominant Call Forward features are listed below.

- Call Forward Universal (CFU) for IBN, and Call Forward All Calls (CFW) for POTS and RES - forwards all incoming calls from the subscriber's base station to the forwarded base station.
- Call Forward Busy (CFB) for IBN, and Call Forward Busy Line (CFBL) for POTS and RES - provides the ability to forward an incoming call from the subscriber's base station to another station when the subscriber line is busy.
- Call Forward Don't Answer (CFD) for IBN, Call Forward Don't Answer (CFDA) for POTS and RES; also Call Forward Group Don't Answer (CFGDA) for POTS and RES hunt groups and Call Forward Group Don't Answer (CFGD) for IBN hunt groups - provides the ability to forward an incoming call from the subscriber's base station to another station when the subscriber does not answer ringing. A time-out occurs and the call is forwarded.

An HPC call forwarded by any Call Forwarding feature retains its HPC identity.

A non-HPC call which is call forwarded is subject to HPC call recognition processing on the forwarded leg.

Speed Call

The Speed Call feature package contains the following options:

- Speed Calling Long List (L30) (SC2), which allows subscribers to program up to 30 frequently called numbers. The two-digit speed calling codes available for SC2 range from 20 to 49.

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- Speed Calling Long List (L50) (SC3), which allows subscribers to program up to 50 frequently called numbers. The two-digit speed calling codes available for SC3 range from 20 to 69.
- Speed Calling Short List (SC1), which allows subscribers to program up to eight frequently called numbers. The one-digit speed calling codes available for SC1 range from 2 to 9.

Speed Calling features are subject to HPC call recognition processing if the call is not already marked as an HPC call.

Warm Line (WML)

A line with the WML feature is associated with another directory number ([DN] [target warm line DN]). When the WML subscriber goes off-hook, a timer is started. If dialing does not begin before the timer expires, the subscriber's call is automatically set up to a target warm line DN. If dialing begins before the timer expires, the timer is canceled, and normal call processing continues.

By dialing two octothorpes (##), the subscriber can avoid the time-out period and immediately outpulse to the target warm line DN.

The target warm line DN is initially assigned by the operating company. If permitted, the subscriber can change this line.

The WML feature is subject to HPC call recognition processing.

Pass-HPC

The DMS-100 features with which the Pass-HPC feature interact are described in the sections that follow.

Advanced Intelligent Network (AIN)

The Pass-HPC feature interacts with AIN in a similar way that Set-HPC interacts with AIN (see Set-HPC for AIN on page 2-15).

Call Conferencing/Call Transfer

The Pass-HPC feature interacts with Call Conferencing/Call Transfer in a similar way that Set-HPC interacts with Call Conferencing/Call Transfer (see Set-HPC for Call Conferencing/Call Transfer on page 2-16).

Call Forward

The Pass-HPC feature interacts with Call Forward in a similar way that Set-HPC interacts with Call Forward (see “Call Forward” on page 2-17 for Set-HPC).

Local Number Portability (LNP)

An HPC call retains its identify when the called party is a ported number by the LNP feature.

Network Access Registers (NARS)

Calls that originate from a Meridian Digital Centrex (MDC) group using NARS, which limits the number of outgoing calls, are subject to HPC call recognition.

HPC TQ

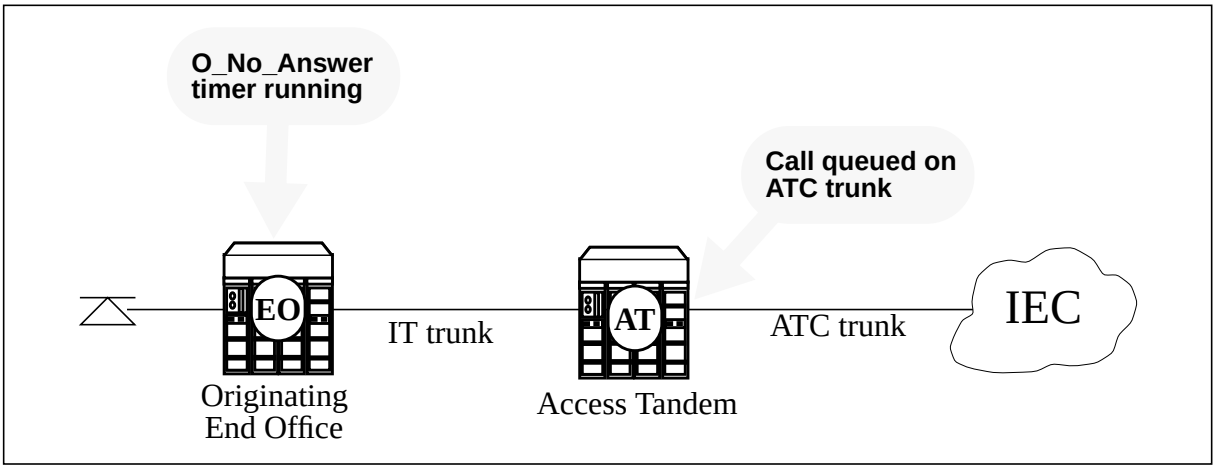
The DMS-100 features with which the HPC TQ feature interact are described in the sections that follow.

O_No_Answer timer and HPC TQ timer interaction In the following figure, timer interactions can occur when an HPC call encounters an AIN O_No_Answer trigger at the originating end-office leaving the originating end-office queued over a trunk to another switch. The O_No_Answer timer starts when an ACM message is received at the end-office, the call is then removed from the queue and terminated on an idle trunk.

There is no timer interaction when a call is queued without treatment (announcement or tone), because an ACM message is not sent back to the originating office.

AQ1574
GETS HPC

AIN O_No_Answer timer and HPC TQ timer interaction



The following list of examples describes the possible timer interactions:

- **O_No_Answer timer expires first** This arrangement occurs when the HPC call has triggered the O_No_Answer trigger at the end office, and the call is queued with announcement at the AT. Because of the announcement, an ACM message is sent back starting the O_No_Answer timer. When the O_No_Answer timer expires first, a clear forward message is sent from the EO to the AT to take down the HPC call. The clear forward message is handled as an abandoned message. As a result, the call is dequeued, the trunk taken down, and normal AIN processing occurs.
- **Trunk member becomes idle** This arrangement occurs when both timers are running and a member of the ATC group becomes idle. The HPC call terminates on the trunk normally but will only remain connected until the O_No_Answer timer expires and then the connection will be dropped. For example, if the O_No_Answer timer is set for 18 seconds (by datafilling table OFCENG parameter AIN_O_NO_ANSWER_TRIGGER_TIMER) and the call has been queued for 16 seconds, then the terminating agent only rings for two seconds before the O_No_Answer timer expires.
- **HPC TQ timer expires first** This arrangement occurs when the trunk HPC TQ timer expires and the call is sent to Generalized No Circuit Treatment (GNCT) because no idle members are available. Since an ACM message was sent when the call was queued, the treatment is played locally at the AT (rather then sending an ISUP release message). The O_No_Answer timer remains running and eventually expires if the user

does not abandon the call. As a result, it is possible for the HPC call to be sent to treatment for a period of time and then have AIN processing take back the call.

Intra-nodal Interactions

Feature key activation and flash initiations are ignored in an office in which HPC TQ processing is taking place.

GETS HPC calls forwarded by the Call Forward Don't Answer (CFDA/CFD) feature to a busy trunk assigned HPC TQ, are not queued. The normal behavior of Call Forward features is to continue to ring the original called party. GETS HPC preserves this behavior.

In the event that an AIN call with ACR and/or NEL has been flagged as an HPC call, and the call attempts to terminate to a busy trunk group with the HPC TQ option, queuing will be done before AIN processing begins or is resumed. For example, the SCP response with AR (three carrier ids) and NEL (network_busy) messages, will be processed in the following order:

AR/Basic call processing:

1 Determine route from first carrier id. For each trunk group:
(a) attempt to route the call out (exit if routed)
(b) HPC TQ processing if applicable, HPC TQ assigned (exit if routed)

2 Determine route from second carrier id. For each trunk group:
(a) attempt to route the call out (exit if routed)
(b) HPC TQ processing if applicable, HPC TQ assigned (exit if routed)

3 Determine route from third carrier id. For each trunk group:
(a) attempt to route the call out (exit if routed)
(b) HPC TQ processing if applicable, HPC TQ assigned (exit if routed).

NEL processing, message sent to the SCP.

Inter-nodal interactions

If a GETS HPC call is queued on a trunk group (waiting for an idle trunk), and a flash is initiated from the originating subscriber (in a previous office), the flash is processed as normal (non-HPC) in that office.

AQ1574
GETS HPC

Datafill

The SET HPC portion of the GETS HPC feature, introduces table HPCPATTN, and the HPC TQ portion of the GETS HPC feature introduces new fields in table TRKOPTS.

Table	Description
HPCPATTN	Used to provision HPC patterns. The patterns can be 3, 6, or 10 digits in length. For a call to be recognized as an HPC call, the dialed digits must match a pattern provisioned in this table.
TRKOPTS	Used to provision trunk groups that accept HPC calls over non-HPC calls. New fields indicate the assigned trunk group CLLI, the option name (HPCTQ), the maximum time in seconds that an HPC call can remain in the trunk group queue, the maximum number of queued HPC calls permitted on the trunk group, and whether an announcement is to be provided to HPC TQ users.

Service orders

The GETS HPC feature does not affect the service order utility.

Operational measurements

The GETS HPC feature introduces the following OM groups:

- HPCBASIC, which provides HPC call traffic measurements on an office basis, plus measurements of HPC calls exempted from or blocked by AIN ACG controls.
- HPCTRKGP, which provides HPC call traffic measurements on a per trunk group basis.

For information on HPCBASIC and HPCTRKGP registers, see chapter entitled “Operational measurements” on page 5-1.

Logs

The GETS HPC feature does not introduce or modify any logs.

Office parameters

The GETS HPC feature introduces office parameter MAX_HPC_CALLS_QUEUED in table OFCENG. This office parameter is

used to specify the maximum number of queued HPC calls permitted in an office.

Data store

This feature requires data and program store. The data store is calculated based on static and dynamic allocation.

The values of the following office parameters are used in the data store calculations:

- NUMCPWAKE
- NO_OF_FTR_CONTROL_BLKS
- NO_OF_SMALL_FTR_DATA_BLKS
- NO_OF_MEDIUM_FTR_DATA_BLKS
- NO_OF_LARGE_FTR_DATA_BLKS
- FTRQAGENTS
- FTRQ8WAREAS
- MAX_HPC_CALLS_QUEUED

Office parameter MAX_HPC_CALLS_QUEUED is provisioned at the discretion of the operating company. Refer to the chapter titled “Office parameters” for more information.

For instructions on calculating store increase for the remaining parameters, refer to the chapter titled “Provisioning” on page 7-1.

The formula for calculating store increase, which includes shared resources, is as follows:

Store increase = Fixed size data store
+ Store for table HPCPATTN
+ Store for HPC TQ options = 10 K words
+ 10 K words
+ number_of_trunk_group_assigned_HPCTQ * (4+3) words = 20 K words
+ number_of_trunk_group_assigned_HPCTQ * 7 words

Note: In NA009, feature AJ4945 adds 5 K words.

AQ1574
GETS HPC

User interface

The GETS HPC feature does not affect the user interface.

Billing

The GETS HPC feature does not affect the existing billing system.

One-night process

When performing an ONP from a pre-NA008 to an NA008 software release, GETS HPC-specific datafill can be entered before or after the GETS HPC feature has been activated through the GETS SOC option.

AJ4945
GETS HPC Network Management Control Exemptions

Functionality name

Government Emergency Telecommunications Service High Probability of Completion (GETS HPC) Network Management Control Exemptions

Description

Government Emergency Telecommunications Service (GETS) is a service which allows authorized users to originate a call with higher probability of completion during periods of national emergencies. The higher rate of completion is achieved through recognizing and queuing High Probability of Completion (HPC) calls on outgoing trunk groups, and exempting these calls from specific protective and/or restrictive network management controls.

For a complete description of the GETS HPC service, see the chapter entitled “Introduction to GETS HPC” on page 1-1.

Feature AJ4945 in NA009 enhances the GETS HPC capabilities with the addition of these HPC features:

- Network Management Control Exemptions
- Setting SS7 IAM message priority for HPC calls

Enhancements are made to the following GETS HPC features:

- HPC TQ
  - — Glare Handling Interaction for Queued HPC Calls
  - — Continuity Test (COT) Failure Interaction for HPC Calls
  - — HPC TQ Enhancement - Scanning for Idle Trunk Member
- Set-HPC
  - — HPC Call Recognition for Calls Originated from Attendant Consoles
  - — TRAVER Recognition of an HPC Call

AJ4945
GETS HPC Network Management Control Exemptions

Network Management control exemptions

This functionality exempts GETS HPC calls from specific Network Management controls.

Network Management is the surveillance and control of telephone switching networks to ensure maximum telephone traffic flow under adverse or overload conditions, such as:

- periods of equipment failure or damage
- periods where the demand for service from the switching office exceeds the ability of its trunk groups or common control equipment to provide satisfactory service

Network management controls are applied at any time either manually by Network Management personnel, or automatically by the DMS switch.

This feature exempts GETS HPC calls from controls called “protective” controls, which block or cancel telephone traffic attempts to enter the network or switch, or prevent traffic from being routed over particular trunk groups.

GETS HPC calls continue to be subject to “expansive” controls, which re-route traffic to other less loaded offices by modifying the available routes a call can take, and thereby increasing the likelihood of the HPC call reaching its proper destination.

The GETS HPC Network Management Control Exemptions feature does not address “route” controls, which modify an internal route list in the DMS-100 switch, (and do not interfere with GETS HPC functionality), or “line load” controls, which allow only designated lines to originate calls.

Network Management protective controls can be initiated automatically. In such a case, the switch detects internal overload conditions and alerts connecting switches of the congestion, while responding to overload signals incoming from other switches.

Network Management protective controls can also be initiated manually through table entry by operating company personnel.

AJ4945
GETS HPC Network Management Control Exemptions

Automatic controls

Following is a description of the two forms of automatic controls relevant to GETS HPC:

- Dynamic Overload Control (DOC) automatically transmits signals to connecting offices when switching congestion is detected. DOC signals are transmitted either as encoded Common Channel Interoffice Signaling No. 6 (CCIS6) messages, or as on-off signals. Encoded DOC messages are used when CCIS6 network connectivity is available, whereas on-off DOC signals are associated with Multi-Frequency/Dial-Pulse signaling.

  DOC consists of components Internal DOC (IDOC), which generates a signal to alert connecting offices of an internally detected overload condition, and Remote DOC or Preplanned control (PPLN), which activates trunk group controls in response to overload signals from connecting offices, in order to reduce traffic sent to the congested switch(es).

- Automatic Congestion Control (ACC) is an enhancement to the Dynamic Overload Control, which adds an Automatic Congestion Level (ACL) parameter to the ISUP portion of the Common Channel Signaling No. 7 (CCS7) messages sent by DMS switches. During periods of congestion the switch adds the ACL parameter indicating the level of congestion with every release (REL) message sent to linked switches.

When a switch receives an indication, through automatic control, that an adjacent switch is in a state of congestion, further PPLN controls, in the form of trunk group controls are applied.

Trunk group controls

Trunk Group controls are activated on these types of routed traffic:

- Direct-routed (DR) traffic consists of calls that are carried by the first route in a call’s in-chain route list.
- Alternate-routed (AR) consists of calls that are carried by a route other than the first route in a call’s in-chain route list.

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GETS HPC Network Management Control Exemptions

The following trunk group controls are relevant to GETS HPC, and the exemption procedures implemented by this feature for an HPC call:

- Cancel-To (CANT) limits traffic attempts offered to one-way outgoing or two-way trunk groups. The CANT trunk group control blocks a set percentage of calls attempting to access the controlled trunk group, and routes the calls to treatment. The CANT trunk group control is used to control either a percentage of AR traffic exclusively, or all AR traffic and a percentage of DR traffic.

  HPC-marked calls are exempted from the CANT trunk group control action.

- Cancel From (CANF) prevents the overflow traffic of a selected one-way outgoing trunk group or two-way trunk group from continuing to its next group within the route list of trunks. The CANF trunk group control blocks a set percentage level of calls from both DR and AR traffic, and routes them to treatment.

  HPC-marked calls bypass the CANF trunk group control action when the set percentage is less than 100 per cent.

  If the first idle trunk scan encounters a CANF set percentage of 100 percent and a trunk group with HPCTQ assigned has been encountered, the scanning for an idle trunk member is stopped, and the call is placed on the trunk group queue of the first trunk group encountered with the HPCTQ option.

  If the set percentage is equal to 100 per cent, and no trunk groups with the HPCTQ options are encountered, the call is sent to one of the following treatments:

  — No Circuit Announcement (NCA)

  — Emergency Announcement 1 (EA1)

  — Emergency Announcement 2 (EA2)

- Flexible Re-Route (FRR) allows calls from an in-chain route to be rerouted to a VIA route when the in-chain route is overloaded, or has failed.

  If the first idle trunk scan encounters Cancel-In-Chain-Routing (CICR) due to the application of FRR on the trunk group, and a trunk group with HPCTQ assigned has been encountered, the scanning for an idle trunk member is stopped, and the call is placed on the trunk group queue of the first trunk group encountered with the HPCTQ option.

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GETS HPC Network Management Control Exemptions

If the first trunk group assigned HPCTQ encountered is in the VIA list of an FRR control, the trunk group that has been applied the FRR control will be saved as the starting point for the second scan.

- Skip (SKIP) limits a percentage of either DR or AR traffic offered to a selected outgoing trunk group, by skip-routing the traffic of a specified group to the next trunk group in the routing chain. If all trunk groups in the routing chain are exhausted, the call is sent to treatment.

  HPC-marked calls bypass SKIP trunk group control action when the set percentage is less than 100 per cent

  HPC-marked calls are subject to SKIP trunk group control action if the set percentage is equal to 100 per cent, and are sent to the next treatment.

- Directional Reservation Equipment (DRE) gives priority to incoming traffic on a selected two-way trunk group, by reserving a number of idle trunks in the group. When the number of idle trunks in the selected group is less than or equal to the specified amount, all originating traffic (AR and DR) is skip-routed. This control action is applied until the number of idle trunks in the group is greater than the selected amount.

  DRE is bypassed by HPC-marked calls, therefore trunks reserved by DRE are made available to carry HPC calls.

- Protective Reservation Equipment (PRE) is similar to DRE, but acts only on AR traffic offered either to a selected two-way trunk group, or to a one-way outgoing trunk group. When PRE is applied and the number of idle trunks in the selected group reaches or falls below the specified level, all AR traffic on the trunk group is skip-routed.

  PRE is bypassed by HPC-marked calls such that trunks reserved by PRE are made available to carry HPC calls.

- Selective Trunk Reservation (STR) monitors an outgoing trunk group and controls the level of idle trunks existing in that group by blocking traffic. STR controls four types of traffic on a percentage basis: DR, AR, DR calls with destination codes flagged as Hard-to-reach (HTR DR), and AR calls with destination codes flagged as Hard-to-reach (HTR AR).

  Two thresholds are used to activate and deactivate STR control on an outgoing trunk group:

  — Level 1 control: When the number of idle trunks in the controlled trunk group falls between Level 1 and Level 2 threshold values, a pre-set percentage of outgoing traffic assigned is blocked.

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GETS HPC Network Management Control Exemptions

— Level 2 control: If the number of idle trunks in the controlled group continues to fall after Level 1 controls have been activated, and the Level 2 threshold is surpassed, a percentage of traffic associated with the Level 2 threshold is blocked.

HPC-marked calls are exempt from STR control.

Code controls

The Code Blocking (CBK) code control is a manually entered control, which limits a specified percentage or rate of traffic from entering a network according to the destination code, and routes the blocked traffic to treatment. The code types usually blocked include: country code (CCODE), area code (ACODE), non-area code (NAC), prefix (PFX) code, and subscriber numbers. The codes are chosen according to the source of call congestion.

HPC-marked calls are exempt from code blocking control.

Setting SS7 IAM message priority for HPC calls

This functionality allows the operating company to set the IAM message priority value for HPC calls. This is done through the introduction of a new office parameter, “HPC_IAM_PRIORITY” in table OFCENG, with the following values:

- ALWAYS_ONE - This value sets the message priority value of the HPC outgoing IAM to 1.
- ONE_OR_HIGHER_BASED_ON_IAM_RCVD - This value sets the message priority value of the HPC outgoing IAM based on the message priority value of the received IAM:
  - — if the signaling type of the incoming agent is SS7, and the priority value of the received IAM is less than 1, the message priority value of an outgoing HPC is always set to 1
  - — if the signaling type of the incoming agent is SS7, and the priority value of the received IAM is equal to or greater than 1, the message priority value of an outgoing HPC will be set to the same value
  - — if the signaling type of the incoming agent is not SS7, the message priority value of an HPC outgoing IAM is always 1

The default value of the HPC_IAM_PRIORITY office parameter is ALWAYS_ONE.

AJ4945
GETS HPC Network Management Control Exemptions

Glare handling interaction for queued HPC calls

Glare occurs when a bidirectional SS7 circuit or trunk member, or a bidirectional MF circuit is seized simultaneously by the switches at both ends. When this happens an algorithm on the DMS determines which side wins, and therefore seizes the circuit, and which side loses. If glare is encountered and lost, a check is done to see if this is a case of double glare. If not, the glare bit is set and the trunk group is scanned once more for an idle member. In the case of double glare (two consecutive loss of glare condition), the call is sent to final treatment (System Failure [SYSFL] for ISUP trunks and Generalized No Circuit Treatment [GNCT] for MF trunks).

This feature allows a GETS HPC call yielding to glare for the first time to re-queue on the trunk group with the HPCTQ option assigned. Queuing on the trunk group is allowed a maximum of 3 times.

The glare resolution procedure for GETS HPC calls is not involved when there is an available trunk which can be offered to the GETS HPC call yielding to glare.

A GETS HPC call encountering glare for the second consecutive time after re-queuing, is sent to treatment.

If an HPC call encounters a situation of double glare (two consecutive glare losses on members of the same trunk group), without being queued immediately prior to the double glare, the HPC call is advanced to the next treatment. The HPC call must be queued in order to encounter the Reset Glare counter.

Note: For a description of HPC TQ, refer to “HPC TQ” on page 2-10.

Continuity Test (COT) failure interaction for HPC calls

When an ISUP trunk is seized, a continuity test is performed to ensure a speech path can be established over the trunk. If the test fails, the trunk is released and another member is selected. If COT also fails on this member, the call is sent to treatment.

This feature allows a GETS HPC call encountering COT failure, and no idle trunk group members, to re-queue on the trunk group with the HPCTQ option assigned. Queuing on the trunk group is allowed a maximum of 3 times.

AJ4945
GETS HPC Network Management Control Exemptions

HPC TQ enhancement - Scanning for idle trunk member

This feature enhances the Trunk Queuing algorithm by scanning for an idle trunk member on all trunk groups in the current route list, prior to placing a GETS HPC call on the first busy trunk group entered with the HPCTQ option provisioned.

If any of the following route selectors are encountered while scanning for an idle trunk member for the first time, the scanning ceases, and the call is placed on the trunk group queue of the first trunk group encountered, with the HPCTQ option:

- AFR - Automatic Flexible Routing
- DN - Directory Number
- NPOSDN - No Position to DN
- RT - Route
- RX - Retranslate
- TRMT - Treatment

Note: For a description of the HPC TQ trunk options, see the section entitled “AQ1574 GETS HPC” in this chapter.

HPC call recognition for calls originated from Attendant Consoles

The Attendant Console (AC) is an agent of Meridian Digital Centrex (MDC), which works with the controlling DMS-100 switch to perform a full range of call answering, handling, and tracking features, to provide various services to phones associated with the Attendant Console.

This feature extends the GETS HPC call recognition procedure to support Attendant Console originated calls.

Note: For a description of GETS HPC Call Recognition Based on Dialed Digits, see the section entitled “AQ1574 GETS HPC” in this chapter.

TRAVER recognition of an HPC call

The Translation Verification (TRAVER) tool is used by operating company personnel to verify the translation tables used by call processing to ensure the correctness of the data table inclusion.

AJ4945
GETS HPC Network Management Control Exemptions

This feature enhances TRAVER to support GETS HPC call recognition processing, by displaying the table HPCPATTN, and the tuple of table HPCPATTN, which is used to recognize an HPC call.

Note: For a description of GETS HPC Call Recognition Based on Dialed Digits, see the section entitled “AQ1574 GETS HPC” in this chapter.

Hardware requirements

The GETS HPC Network Control Exemptions feature has no hardware requirements.

Limitations and restrictions

The following limitations and restrictions apply to the GETS HPC Network Management Control Exemptions feature:

- for Code Blocking (CBK) control:
  - — The exemption of an HPC call from the CBK NWM control depends on the assumption that the control action is applied after HPC call recognition. If CBK is applied before enough digits are collected to determine HPC recognition, an exemption from CBK control cannot be provided.
- for Scanning for Idle Trunk Member
  - — If the S (standard route) selector is encountered when scanning for an idle trunk member, the call will not be placed on the trunk group queue of the first trunk group with HPCTQ option. Routing the call to an announcement or a tone using the S selector will end the search for an idle circuit.
- for Attendant Console
  - — HPC calls originated from an Attendant Console cannot be placed on the queue of a trunk group provisioned with the HPCTQ option.
  - — the HPC pattern recognition is supported
- for TRAVER
  - — TRAVER supports GETS HPC Call Recognition only on Agents supported by GETS HPC Call Recognition.

AJ4945
GETS HPC Network Management Control Exemptions

Software optionality control

The GETS HPC Network Management Control Exemptions feature is controlled through the GETS SOC option. For details, refer to “Software optionality control” on page 2-15.

Interactions

The interactions described for the GETS HPC feature (AQ1574) also apply to the GETS HPC Network Management Control Exemptions feature. For details, refer to “Interactions” on page 2-16.

Datafill

The GETS HPC Network Management Control Exemptions feature does not introduce or modify any data schema tables.

Service orders

The GETS HPC Network Management Control Exemptions feature does not affect the service order (SERVORD) utility.

Operational measurements

The GETS HPC Network Management Control Exemptions feature does not introduce or modify any operational measurement groups or registers.

Logs

The GETS HPC Network Management Control Exemptions feature introduces log report DFIL314. Log DFIL314 is generated when an error exists in a tuple with the HPCTQ option in table TRKOPTS.

Office parameters

The GETS HPC Network Control Exemptions feature introduces office parameter HPC_IAM_PRIORITY in table OFCENG. This office parameter is used to set the IAM message priority value for HPC calls to 1, or the value of the received IAM, when equal to or greater than 1.

Data store

The data store specified for the GETS HPC feature (AQ1574) also applies to the GETS HPC Network Management Control Exemptions feature. For details, refer to “Data store” on page 2-23.

AJ4945
GETS HPC Network Management Control Exemptions

User interface

The GETS HPC Network Management Control Exemptions feature does not change the user interface.

Billing

The GETS HPC Network Management Control Exemptions feature does not affect the existing billing system.

One-night process

When performing a one-night process (ONP) from a pre-NA009 to an NA009 or later software release, GETS HPC Network Management Control Exemptions-specific datafill can be entered before or after the GETS HPC feature has been activated through the GETS SOC option.

AF7109
ISUP IAM Priority Control for Non-HPC Calls

Functionality name

ISUP IAM Priority Control for Non-HPC calls

Description

The “ISUP IAM Priority Control for Non-HPC Calls” feature is introduced as part of the Government Emergency Telecommunications Service High Probability of Completion (GETS HPC) product package, and allows the operating company to set the IAMs priority value for non-HPC (or normal) calls.

Government Emergency Telecommunications Service (GETS) is a service which allows authorized users to originate a call with higher probability of completion during periods of national emergencies. The higher rate of completion is achieved through recognizing and queuing High Probability of Completion (HPC) calls on outgoing trunk groups, and exempting these calls from specific protective and/or restrictive network management controls.

For a more complete description of the GETS HPC product, see the chapter entitled "Introduction to GETS HPC".

Feature AF7109 in NA009 introduces the GETS HPC feature “Setting SS7 IAM priority for non-HPC calls”, which allows the operating company to set IAM priority value for non HPC calls to 0, 1, or the value of the received IAM. This is done through the introduction of a new office parameter, NORM_CALL_SS7_IAM_MSG_PRIORITY in table OFCENG, with the following values:

- ALWAYS_ZERO - This value sets the message priority value of non-HPC outgoing IAMs to 0
- PASS_OR_ZERO - This value sets the message priority value of non-HPC outgoing IAMs based on the signaling type of the incoming/originating agent:
  - — If the signaling type of the incoming/originating agent is not SS7, the message priority value of a non-HPC outgoing IAM is 0.
  - — If the signaling type of the incoming/originating agent is SS7, the message priority value of a non-HPC outgoing IAM is taken from the IAM of the incoming/originating agent.

AF7109
ISUP IAM Priority Control for Non-HPC Calls

- PASS_OR_ONE - This value sets the message priority value of non-HPC outgoing IAMs based on the signaling type of the incoming/originating agent:
  - — If the signaling type of the incoming/originating agent is not SS7, the message priority value of a non-HPC outgoing IAM is 1.
  - — If the signaling type of the incoming/originating agent is SS7, the message priority value of a non-HPC outgoing IAM is taken from the IAM of the incoming/originating agent.

Hardware requirements

ISUP IAM Priority Control for Non-HPC Calls has no new hardware requirements.

Limitations and restrictions

ISUP IAM Priority Control for Non-HPC Calls feature only affects the message priority of IAMs in the North American market.

Interactions

An office that has office parameter NORM_CALL_SS7_IAM_MSG_ PRIORITY set to the value ALWAYS_ZERO or PASS_OR_ZERO, can affect the overflow of OM register IAMN1 in the office that receives the IAM messages. Whether the overflow of OM register IAMN1 is affected depends on the amount of POTS traffic sent to the office that receives the IAMs.

OM register IAMN1 belongs to the OM group ISUPUSAG and counts the number of incoming IAMs entering the office with a priority other than 1.

Datafill

ISUP IAM Priority Control for Non-HPC Calls does not introduce or modify any data schema tables.

Service orders

ISUP IAM Priority Control for Non-HPC Calls does not affect SERVORD.

Operational measurements

ISUP IAM Priority Control for Non-HPC Calls does not introduce or modify any operational measurement groups or registers.

AF7109
ISUP IAM Priority Control for Non-HPC Calls

Logs

ISUP IAM Priority Control for Non-HPC Calls does not introduce or modify any logs.

Office parameters

The ISUP IAM Priority Control for Non-HPC Calls feature adds office parameter NORM_CALL_SS7_IAM_MSG_PRIORITY in table OFCENG. This parameter is used to control the setting of the IAMs priority for non-HPC type calls.

Data store

The ISUP IAM Priority Control for Non-HPC Calls feature has minimal Data Store requirements.

User interface

The ISUP IAM Priority Control for Non-HPC Calls does not change the user interface.

Billing

The ISUP IAM Priority Control for Non-HPC Calls does not affect billing.

One-night process

This feature is not subject to one-night process changes. The default value of ALWAYS_ONE is active in the NORM_CALL_SS7_IAM_MSG_ PRIORITY office parameter following an ONP from a pre-NA009 to an NA009 or later software release.

AU2558
EADAS/DC and NM Support for HPC OMs Data

Functionality name

EADAS/DC and EADAS/NM Supports for HPC OMs Data

Description

Feature AU2558 in NA009 enhances the Engineering and Administrative Data Acquisition System (EADAS) Interface to allow accumulation and transmission of GETS HPC Operational Measurement (OM) data and state indications within DMS switches.

GETS HPC

Government Emergency Telecommunications Service (GETS) is a service which allows authorized users to originate a call with higher probability of completion during periods of national emergencies. The higher rate of completion is achieved through recognizing and queuing High Probability of Completion (HPC) calls on outgoing trunk groups, and exempting these calls from specific protective and/or restrictive network management controls.

For a complete description of the GETS HPC product please see the chapter entitled “Introduction to GETS HPC” on page 1-1.

EADAS

EADAS is a minicomputer-based system that provides near real-time data collection and surveillance from many central office switching systems.

The EADAS Package sends OM data from a DMS switch to an EADAS downstream Operation Support System (OSS) computer, via an MPC (Multi-Protocol Controller) data link, when the DMS receives a poll from the OSS computer. DMS software retrieves OM data from the OM system for transmission to EADAS.

The entire EADAS Interface consists of two entities:

- EADAS Data Collection (EADAS/DC) collects OM data in three classes:
  - — EADAS30M - 30 minute OM data
  - — EADAS60M - 60 minute OM data
  - — EADAS24H - 24 hour OM data

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- EADAS Network Management (EADAS/NM) collects network management data in the following formats:
  - — 30 second Discrete messages
  - — 5 minute traffic measurements

EADAS data collection

This feature creates a new section, section number 216, in the EADAS set to store the GETS HPC OM group, HPCBASIC, in the EADAS30M class. All HPCBASIC registers will be added to the set. (For a list of HPCBASIC registers, see the chapter entitled “Operational measurements” on page 5-1.)

EADAS network management 30 second discrete messages

This feature adds two new Status Discretes to the 30 second Discrete message:

- HPC_CALL_GIVEN_NO_CIRCUIT, which indicates one or more GETS HPC calls have been given no circuit final handling treatment
- HPC_CALL_EXEMPTED_FROM_TRKGRP_CTRL, which indicates one or more GETS HPC calls have been exempted from network management trunk group controls

The 30 second Discretes are binary on/off indicators, with types of ‘Status’ and ‘Alerting’. A Status Discrete is turned “ON” (given the value 1) for each 30-second interval, if the given event has occurred at least once. The Status Discrete is turned, or remains “OFF” (given the value 0), if the given event has not occurred within the 30-second interval.

Status Discrete HPC_CALL_GIVEN_NO_CIRCUIT is set to “ON” when OM register TERMNC (Termination - No Circuit) in OM group HPCBASIC is pegged at least once during the 30 second interval.

Status Discrete HPC_CALL_EXEMPTED_FROM_TRKGRP_CTRL is set to “ON” when OM register EXNMCTRL (Exemption from Network Management Control) in OM group HPCBASIC is pegged at least once during the 30 second interval.

The Discretes are set to “OFF” initially, and reset to “OFF” once they are transmitted to the OSS computer, at the end of the 30-second interval.

The Discretes are set to “OFF” following a Warm, Cold or Reload Restart.

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EADAS network management (5 minute traffic measurements)

This feature adds the following OM registers to the 5 minute data message:

- HPCBASIC registers:
  - LINEATT - Line Attempts
  - TRKATT - Trunk Attempts
  - TERMLINE - Termination - Line
  - TERMTRK - Termination - Trunk
  - TERMNC - Termination - No Circuit
- HPCTRKGP registers:
  - HPCATT - HPC Call Attempts
  - HPCOVFL - HPC Call Overflow
  - QUEOVFL - Trunk Queuing Overflow
  - QUETMREX - Trunk Queuing Timer Expired

The 5 minute traffic measurements consist of data packets, with each packet containing specific OM group registers.

This feature implements and names unused Packet 15 and Packet 21, in order to store the OM registers of HPCBASIC and HPCTRKGP, respectively. Packet 15 is named “HPC Data” and Packet 21 is named “HPC Trunk Group Data”.

Note: 1 The trunk groups under “HPC” surveillance must be registered under “regular” surveillance. See Procedure section “Setting up EADAS/NM for GETS HPC”.

Note: 2 The HPC trunk group data can only be gathered for either 250 or 1024 trunk groups, depending on how the switch is configured. A maximum of 250 trunk groups can be scheduled if EADAS Network Management SOC option is on, and a maximum of 1024 can be scheduled if the NetMinder SOC option is on.

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Hardware requirements

No new hardware is required to allow accumulation and transmission of GETS HPC OM data and state indications to the EADAS system.

For the hardware requirements of the EADAS/DC and the EADAS/NM interfaces, please see the EADAS document entitled “EADAS Interface Product Guide”.

Limitations and restrictions

The following limitations and restrictions apply to EADAS Data Collection Network Management Support for HPC OMs Data:

- EADAS Network Management 30 second Discrete messages are set to “OFF” following any kind of Restart.
- The trunk groups under “HPC” surveillance must be registered under “regular” surveillance.
- Register HPCTRKGP Packet 21 is reliant on the non-HPC register TRK in Packet 17 and Packet 20:
  - — The trunk group schedule of register HPCTRKGP in Packet 21 must be the same as that of register TRK, in Packet 17/20.
  - — Each “group of four” HPCTRKGP data per trunk group will be ordered in Packet 21, in the same order as the trunk groups ordered in Packet 17 or 20. If any HPC trunk group measurement for a given trunk group is zero, a count of zero will be sent, in order to maintain the structure of the packet.
  - — To get the same amount of trunk group data as in Packet 17/20, Packet 21 must have the same packet size as that of Packet 17/20, in the packet schedule request message. (The size of Packet 21 in the packet size schedule specifies the maximum number of register data in the packet to be transmitted within the 5-minute data response message.)
- The HPC trunk group data can only be gathered for either 250 or 1024 trunk groups, depending on how the switch is configured. A maximum of 250 trunk groups can be scheduled if EADAS Network Management SOC option is on, and a maximum of 1024 can be scheduled if the NetMinder SOC option is on.

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Software optionality control

Refer to “Software optionality control” on page 2-15 for a description of the Software optionality control for the GETS HPC feature (AQ1574).

Interactions

EADAS Data Collection and Network Management Support for HPC OMs Data has no functionality interactions.

Datafill

EADAS Data Collection and Network Management Support for HPC OMs Data does not introduce or modify any data schema tables.

Service orders

EADAS Data Collection and Network Management Support for HPC OMs Data does not affect SERVORD.

Operational measurements

EADAS Data Collection and Network Management Support for HPC OMs Data does not introduce or modify any operational measurement groups or registers.

Logs

EADAS Data Collection and Network Management Support for HPC OMs Data does not introduce or modify any logs.

Office parameters

EADAS Data Collection and Network Management Support for HPC OMs Data does not introduce or modify any office parameters.

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Data store

EADAS Data Collection (EADAS/DC):

Store increase = 14 registers of HPCBASIC (14 words)
+ section header (5 words)
= 19 words

EADAS Network Management (EADAS/NM):

Store increase = 4 registers of HPCTRKGP
x maximum 1024 trunk groups
+ 5 registers of HPCBASIC
= 4K + 5 words

User interface

EADAS Data Collection and Network Management Support for HPC OMs Data does not affect the user interface.

Billing

EADAS Data Collection and Network Management Support for HPC OMs Data does not affect billing.

One-night process

No new ONP procedures are generated from the accumulation and transmission of GETS HPC OM data and state indications to the EADAS system

59006771
GETS HPC Egress Queuing

Functionality name

Government Emergency Telecommunications Service (GETS) High Probability of Completion (HPC) Egress Queuing

Description

The GETS HPC Egress Queuing feature extends the HPC TQ capability to allow GETS HPC calls to queue to P2, PX, and PRA egress trunk group types. (Refer to “HPC TQ” on page 2-10 for more details on HPC TQ.)

The GETS HPC Egress Queuing feature applies to all supported egress trunk groups in an office. However, option HPCNOTQ, which the GETS HPC Egress Queuing feature introduces, allows the operating company to prevent HPC trunk queuing to specific egress trunk groups.

The GETS HPC Egress Queuing feature supports all P2 and PX trunk signaling types (DP, DT and MF), and the four PRI protocol variants available in the DMS-100 North American loads (NTNA, U449, U459, and NI-2).

Treatment

A treatment, which can be either a tone or an announcement, can be provided to calls that queue to egress trunk groups. The treatment is specified through office parameter HPC_EGRESS_QUEUING, which the GETS HPC Egress Queuing feature introduces.

Glare handling

An HPC call yielding to glare conditions encountered on an egress trunk, is requeued, after an idle member is sought, on the same trunk group. An HPC call can be queued on the same trunk group for a maximum of 3 times before advancing to the next treatment.

> ***Note:*** If an HPC call encounters a situation of double glare (two consecutive glare losses on members of the same trunk group) without being queued immediately prior to the double glare, the HPC call is sent to final treatment.

Hardware requirements

The GETS HPC Egress Queuing feature does not introduce any new hardware.

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GETS HPC Egress Queuing

Limitations and restrictions

The GETS HPC Egress Queuing feature has no known limitations or restrictions.

Software optionality control

The GETS HPC Egress Queuing feature is controlled through the GETS SOC code. Refer to “Software optionality control” on page 2-15 for a description of the SOC.

Interactions

The following paragraphs describe the interaction between the GETS HPC Egress Queuing feature and other DMS features.

Off-Hook Queuing (OHQ) and Call-Back Queuing (CBQ)

The GETS HPC Egress Queuing feature does not interact with IBN queuing features (OHQ and CBQ) since these features only provide queuing to IBN trunk types.

Virtual Facility Group (VFG)

Any HPC calls that go through a VFG before terminating to egress trunks, still queue to the egress trunks.

Datafill

The GETS HPC Egress Queuing feature introduces option HPCNOTQ in table TRKOPTS. The HPCNOTQ option prevents HPC calls from queuing to the egress trunk group regardless of whether the GETS HPC Egress Queuing option is enabled.

Service orders

The GETS HPC Egress Queuing feature does not affect the service orders (SERVORD) utility.

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Operational measurements

The GETS HPC Egress Queuing feature introduces the following registers in the HPCBASIC OM group:

- EQQATT
- EQQOVFL
- EQQABDN
- EQQTMREX

Logs

The GETS HPC Egress Queuing feature introduces log DFIL318, which is used to notify operating company personnel when an error exists with the announcement specified in office parameter HPC_EGRESS_QUEUING.

Office parameters

The GETS HPC Egress Queuing feature introduces office parameter HPC_EGRESS_QUEUING in table OFCVAR. This office parameter is used to enable or disable HPC trunk queuing to all supported egress trunk groups in an office. Through this office parameter, the operating company can also set the following parameters:

- the maximum time an HPC call can wait in an egress trunk group queue for an available trunk
- the maximum number of calls that can simultaneously queue in an egress trunk group queue
- the announcement or tone, if required, to be provided on calls that are queued to an egress trunk group

The GETS HPC Egress Queuing feature also uses office parameter MAX_HPC_CALLS_QUEUED in table OFCENG. This office parameter is used to specify the maximum number of queued HPC calls permitted in an office, and also applies to calls attempting to queue to egress trunk groups.

Data store

Each trunk datafilled with option HPCNOTQ in table TRKOPTS requires 5 words of memory.

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GETS HPC Egress Queuing

User interface

The GETS HPC Egress Queuing feature does not affect the user interface.

Billing

The GETS HPC Egress Queuing feature does not affect the existing billing system.

One-night process

The GETS HPC Egress Queuing feature is not subject to one-night process (ONP) changes.

A59021972
GETS HPC Call Queuing

Functionality name

Government Emergency Telecommunications Service (GETS) High Probability of Completion (HPC) Call Queuing

Description

The GETS HPC Call Queuing (HPC CQ) feature extends the HPC TQ and HPC EQ capabilities to allow provisioning of GETS HPC calls on an office-wide basis rather than a trunk group basis. (Refer to “HPC TQ” on page 2-10 for more details on HPC TQ.)

The maximum number of HPC calls that can be queued in the office is set in existing office parm MAX_HPC_CALLS_QUEUED in Table OFCENG.

HPC TQ has preference over HPC CQ.

When HPC CQ is enabled and a trunk group is assigned the HPCTQ option, and the HPC call is queued using HPC TQ parameters.

Existing option HPCNOTQ in Table TRKOPTS is used to exclude any supported public trunk group from HPC CQ. HPC calls are not queued on trunk groups assigned the HPCNOTQ option. HPCTQ and HPCNOTQ options cannot be assigned at the same time to a particular trunk group.

Trunks supported by HPC CQ

The HPC CQ feature supports the same set of trunk group types as HPC TQ: TO, IT, IT2, ATC and CELL.

Office-wide provisioning

A new office parameter HPC_CALL_QUEUING is introduced in Table OFCVAR to enable the HPC CQ feature for supported public trunks on an office-wide basis. By default, the parameter is set to No (N), meaning HPC CQ is disabled.

The GETS HPC Call Queuing feature introduces office parameter HPC_CALL_QUEUING in table OFCVAR. This office parameter is used to provision HPC CQ to supported trunk groups on an office-wide basis. Through this office parameter, the operating company can also set the following parameters:

- the maximum time an HPC call can wait in a queue for an available trunk

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- the maximum number of calls that can queue at the same time on a supported public trunk group queue.
- the announcement or tone, if required, to provide to HPC calls on a trunk group queue

Treatment

When queueing HPC calls on a supported public trunk group, treatment can be provided as either an announcement (ANNC), tone (TONE), or silence (NONE). The announcement can be specified in the HPC_CALL_QUEUING office parameter. The pre-defined tone, called *held tone*, consists of two short beeps repeating every four seconds.

HPCNOTQ option in Table TRKOPTS

The HPC CQ feature enhances the HPCNOTQ option to continue supporting the P2, PX, and PRA egress trunks, and adds support for the following public trunk group types: T2, TO, IT, ATC and CELL. This allows the HPCNOTQ option to prevent queuing of HPC calls on supported egress and public trunk group types by assigning the option to the trunk group.

Hardware requirements

The GETS HPC Call Queuing feature does not introduce any new hardware.

Limitations and restrictions

The GETS HPC Call Queuing feature is applicable only to the following trunk groups: IT, TO, T2, ATC and CELL.

Software optionality control

The GETS HPC Call Queuing feature is controlled through the existing GETS SOC code GETS0001. Refer to “Software optionality control” on page 2-15 for a description of the SOC.

Interactions

The GETS HPC Call Queuing feature does not modify any existing GETS HPC feature interactions. Existing feature interactions for GETS HPC calls in sections AQ1574, AJ4945 and HPCEQ of this NTP are applicable to the GETS HPC CQ feature, also.

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GETS HPC Call Queuing

Datafill

The GETS HPC Call Queuing feature uses option HPCNOTQ in table TRKOPTS. The HPCNOTQ option prevents HPC calls from queuing to the specified trunk group regardless of whether the HPC CQ option is enabled.

Service orders

The GETS HPC Call Queuing feature does not affect the service orders (SERVORD) utility.

Operational measurements

The GETS HPC Call Queuing feature does not introduce or change any OMs. Instead, it uses same OMs as HPC TQ.

Logs

The GETS HPC Call Queuing feature modifies log DFIL318, which is used to notify operating company personnel when an error exists with the announcement specified in office parameter HPC_CALL_QUEUING.

Office parameters

The GETS HPC Call Queuing feature does not introduce or change any office parameters. Instead, it uses existing functionality for HPC_CALL_QUEUING in table OFCVAR. This office parameter is used to provision HPC CQ to supported trunk groups on an office-wide basis. Through this office parameter, the operating company can also set the following parameters:

- the maximum time an HPC call can wait in a queue for an available trunk
- the maximum number of calls that can simultaneously queue for a public trunk group
- the announcement or tone, if required, to be provided on calls that are queued to a public trunk group

The GETS HPC Call Queuing feature also uses office parameter MAX_HPC_CALLS_QUEUED in table OFCENG. This office parameter is used to specify the maximum number of queued HPC calls permitted in an office, and also applies to calls attempting to queue to egress trunk groups.

Data store

Each trunk group datafilled with option HPCNOTQ in table TRKOPTS requires 5 words of memory.

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User interface

The GETS HPC Call Queuing feature does not affect the user interface.

Billing

The GETS HPC Call Queuing feature does not affect the existing billing system.

One-night process

The GETS HPC Call Queuing feature is not subject to one-night process (ONP) changes.

Data schema

This chapter contains the data schema tables used by Government Emergency Telecommunications Service High Probability of Completion (GETS HPC). Only those tables that have been added or modified by GETS HPC are included:

- HPCPATTN
- TRKOPTS

The use of HPC Network Capabilities is restricted in the United States and U.S. Territories (Puerto Rico and U.S. Virgin Islands) to National Security/ Emergency Preparedness (NS/EP) users authorized by the Office of the Manager, National Communications System (OMNCS). Operating company deployment of these HPC Network Capabilities must be coordinated with the OMNCS at the following address:

Office of the Manager
National Communications System
Attn: GETS Program Office
701 South Courthouse Rd.
Arlington, VA 22204-2198
email: gets@ncs.gov

Table HPCPATTN

Table name

High Probability Completion Pattern

Functional description

Table HPCPATTN is used to specify HPC patterns. A maximum of 5 patterns of 3, 6, or 10 digits in length, can be entered into this table.

For a call to be recognized as an HPC call, the prefix digits are removed form the dialing sequence, and the remaining dialed digits must match one of the patterns specified in this table.

HPC call recognition dialing sequences include

- 10XXX-1-10D
- 10XXX-0-10D
- 101XXXX-1-10D
- 101XXXX-0-10D
- 1-10D
- 0-10D
- 10D

Only the first dialed digits are compared to table HPCPATTN entries. For example, if a 3-digit pattern of 711 is entered, any 10 digits dialed starting with 711 is recognized as an HPC call. Digits 7117652216 will match a 711 entry, but will not match any entry beginning with 765.

Datafill sequence and implications

None

Table size

0 through 5 tuples

Table HPCPATTN

Datafill

The following table lists datafill for HPCPATTN

Field descriptions

Field	refinement	Entry	Explanation and action
KEY		3, 6, or 10 digits	*Key.* This field indicates the pattern that is to be used to recognize a call as an HPC call.

Datafill example

The following example shows sample datafill for table HPCPATTN.

MAP display example for table HPCPATTN

```
KEY
_____________________________________________________________
7106274387
711
710626
```

Release history

NA008

Table HPCPATTN was introduced for the GETS HPC feature.

Supplementary information

In addition to the standard DMS table control error messages, the HPC-specific error messages that can appear when attempting to datafill table HPCPATTN are provided in the following table.

Error messages for table HPCPATTN

Message	Description
HPC patterns must be 3, 6 or 10 digits	An incorrect HPC digit pattern was entered.
HPC patterns table is full.	An attempt was made to add a sixth pattern to the table when only five are acceptable.

Table TRKOPTS

Table name

Trunk Options

Functional description

Table TRKOPTS is used to provision options on trunk groups. There is one entry in the table for each option assigned to a trunk group.

Datafill sequence and implications

Table TRKOPTS must be datafilled after the following tables:

- CLLI
- ANNS
- TRKGRP
- TRKSGRP

Table size

0 through 131,072 tuples

Datafill

The following table lists datafill for table TRKOPTS.

Field descriptions

Field	refinement	Entry	Explanation and action
OPTKEY		see subfields	*Option key.* This field consists of subfields CLLI and OPTION, which are described below.
	CLLI	1 through 16 alphanumeric characters	*Common language location identifier.* This field indicates the CLLI code of the trunk group on which the option is to be assigned.

Table TRKOPTS

Field descriptions

Field	refinement	Entry	Explanation and action
	OPTION	HPCTQ or HPCNOTQ	This field indicates the name of the option. The HPCTQ option is used to enable HPC trunk queuing. The HPCNOTQ option is used to prevent an HPC call from being queued on a supported egress trunk group (PX, P2 and PRA) when an HPC_EGRESS_QUEUING feature is enabled on an office-wide basis through office parameter HPC_EGRESS_QUEUING. The HPCNOTQ option is used to prevent an HPC call from being queued on a supported public trunk group (IT, TO, T2, ATC and CELL) when an HPC_CALL_QUEUING feature is enabled on an office-wide basis through office parameter HPC_CALL_QUEUING.
OPTINFO	OPTION	HPCTQ or HPCNOTQ	*Option*. This subfield indicates the name of the option. The HPCTQ option is used to enable HPC trunk queuing. The HPCNOTQ option is used to prevent an HPC call from being queued on a supported egress trunk group (PX, P2 and PRA) when an HPC_EGRESS_QUEUING feature is enabled on an office-wide basis through office parameter HPC_EGRESS_QUEUING. The HPCNOTQ option is used to prevent an HPC call from being queued on a supported public trunk group (IT, TO, T2, ATC and CELL) when an HPC_CALL_QUEUING feature is enabled on an office-wide basis through office parameter HPC_CALL_QUEUING.

Table TRKOPTS

Field descriptions

Field	refinement	Entry	Explanation and action
			Note: The HPCNOTQ option can only be assigned to egress trunk group types P2, PX, and PRA and public trunk types IT, TO, T2, ATC and CELL. When an attempt is made to assign the HPCNOTQ option to any other trunk group type, an error message is displayed.
	TIMEOUT	1 through 90 seconds	*Time out*. This subfield indicates the maximum duration a call can be held in the queue.
	MAXCALLS	1 through 256	*Maximum calls*. This subfield indicates the maximum number of calls that can be queued on the trunk group.
	PLAYANN	Y or N	*Play Announcement*. This subfield indicates whether an announcement is to be played when a call is in queue.
	ANNC	1 through 16 alphanumeric characters	*Announcement.* This subfield indicates the CLLI code of the announcement to be played when PLAYANN = Y.

Datafill example

The following example shows sample datafill for table TRKOPTS.

MAP display example for table TRKOPTS

```
                OPTKEY                                  OPTINFO
_____________________________________________________________
ISUP_MTL        HPCTQ                   HPCTQ 5 100 Y ANNC1
ISUP_MTL2       HPCTQ                   HPCTQ 5 100 N
PRATRKGP        HPCNOTQ                 HPCNOTQ
```

Release history

NA015

Option HPCNOTQ was enhanced for the GETS HPC Call Queuing functionality.

Table TRKOPTS

NA012

Option HPCNOTQ was introduced for the GETS HPC Egress Queuing functionality.

NA008

Table TRKOPTS was introduced for the GETS HPC feature.

Supplementary information

In addition to the standard DMS table control error messages, the HPC-specific error messages that can appear when attempting to datafill table TRKOPTS are provided in the following tables.

General error messages for table TRKOPTS

Message	Description
HPCTQ option can only be assigned to TO, T2, IT ATC and CELL trunk types.	An attempt was made to assign the HPCTQ option to an unsupported trunk group.
Must be 2W or OUTGOING Trunk.	An attempt was made to assign the HPCTQ option to an incoming trunk, which is not supported.
HPCNOTQ option can only be assigned to IT, T2, TO, ATC, CELL, P2, PX, and PRA trunk types	An attempt was made to assign the HPCNOTQ option to a trunk group type other than the valid types.
Incoming trunk not supported by HPCNOTQ option datafilled in table TRKOPTS. TRKSGRP data conflicts with data in table TRKOPTS	An attempt was made to change the direction of a trunk group, with the HPCNOTQ option, to *incoming* in Table TRKSGRP.
Must be 2W or OUTGOING Trunk	An attempt was made to assign the HPCNOTQ option to an incoming trunk group.

Table TRKOPTS

Error messages about invalid signalling type for table TRKOPTS

Message	Description
HPCNOTQ option can only be assigned on MF signaling for CELL trunk Type.	An attempt was made to assign the HPCNOTQ option to a CELL trunk group type that does not have MF signaling.
HPCNOTQ option can only be assigned on SS7 and MF signaling for IT, TO, T2 and ATC trunk group type.	An attempt was made to assign the HPCNOTQ option to a IT, TO, T2, or ATC trunk group type that does not have MF or SS7 signaling
Only MF signaling type is allowed for CELL trunk group type for HPCNOTQ option in table TRKOPTS. TRKSGRP data conflicts with data in table TRKOPTS	The HPCNOTQ option is assigned to a CELL trunk type and an attempt was made to change the signaling of that trunk group in Table TRKSGRP.
Only MF and SS7 signaling types are allowed for current Trunk Type for HPCNOTQ option in table TRKOPTS. TRKSGRP data conflicts with data in table TRKOPTS	The HPCNOTQ option is assigned to a supported public trunk type (IT, T2, TO, ATC and CELL) and an attempt was made to change the signaling of that trunk group in Table TRKSGRP.
Current GROUP should be datafilled in Table TRKSGRP prior to datafilling HPCNOTQ option in Table TRKOPTS.	An attempt was made to assign HPCNOTQ option to a supported public trunk group that is not datafilled in Table TRKSGRP.

Error messages about HPCTQ and HPCNOTQ option conflicts for table TRKOPTS

Message	Description
HPCNOTQ cannot be assigned to a trunk group having HPCTQ option.	An attempt was made to assign the HPCNOTQ option on a trunk group with the HPCTQ option already assigned.
HPCTQ cannot be assigned to a trunk group having HPCNOTQ option.	An attempt was made to assign the HPCTQ option on a trunk group with the HPCNOTQ option already assigned.

Table TRKOPTS

The following warning messages can appear when attempting to datafill table TRKOPTS.

Warning messages for table TRKOPTS

Message	Description
The announcement will not be played when the incoming agent is an IT trunk during Call Processing Time	The HPCTQ option is assigned to an ATC trunk group and an announcement is specified.
The announcement will not be played. Only STND announcement type will be played	The HPCTQ option is assigned to a trunk group and the CLLI provided in the announcement subfield is not a standard announcement.
HPC_CALL_QUEUING is ON. HPCTQ parameters will have preference over HPC CQ parameters.	The HPCTQ option has preference over the HPCCQ option. The HPCTQ option has been assigned on a trunk group while HPCCQ is enabled.

Table TRKOPTS

Log reports

This chapter contains a description, an example, and actions to be taken for log DFIL314, which is used for GETS HPC, and log DFIL318, which is used for GETS HPC Egress Queuing and GETS HPC Call Queuing.

The use of HPC Network Capabilities is restricted in the United States and U.S. Territories (Puerto Rico and U.S. Virgin Islands) to National Security/ Emergency Preparedness (NS/EP) users authorized by the Office of the Manager, National Communications System (OMNCS). Operating company deployment of these HPC Network Capabilities must be coordinated with the OMNCS at the following address:

Office of the Manager
National Communications System
Attn: GETS Program Office
701 South Courthouse Rd.
Arlington, VA 22204-2198
email: gets@ncs.gov

DFIL314

Explanation

Log DFIL314 is used to notify operating company personnel when an error exists in a tuple in table TRKOPTS, assigned option HPCTQ.

Note: The DFIL314 log is not generated when the CPU is overloaded.

Format

* DFIL314 mmmdd hh:mm:ss dddd INFO Invalid Datafill
Invalid datafill in table TRKOPTS.
Key = <data tuple in table TRKOPTS>
<resolution method>

Example

Examples of log report DFIL314 are provided below.

```
* DFIL314 SEP02 14:30:24 6100 INFO Invalid Datafill
Invalid datafill in table TRKOPTS.
Key = ISUPIT_613_A HPCTQ
Ensure the announcement type is STND.

* DFIL314 SEP02 14:29:28 4000 INFO Invalid Datafill
Invalid datafill in table TRKOPTS.
Key = ISUPATC_613 HPCTQ
Ensure the announcement field is valid.

* DFIL318 FEB23 10:09:59 2800 INFO GETS DATAFILL ERROR
Error in office parm HPC_CALL_QUEUING:
Ensure the announcement type is STND.

* DFIL318 FEB23 10:09:14 1400 INFO GETS DATAFILL ERROR
Error in office parm HPC_CALL_QUEUING:
Ensure the announcement field is valid.
```

Field descriptions

The following table explains each of the fields in the log report.

Field	Value	Description
Key	Based on datafill in table TRKOPTS	This field contains the CLLI of the trunk, with HPCTQ option, which has been assigned an invalid announcement type.

DFIL314

Field	Value	Description
resolution method	Ensure the announcement type is STND Ensure the announcement field is valid	This field provides an indication as to the action to take when the log is generated.

Action

The action to be taken depends on the solution indicated in the <resolution method> field.

If the <resolution method> field indicates...	then...
Ensure the announcement type is STND	Change the annc field of the tuple in table TRKOPTS to STND.
Ensure the announcement field is valid	Change the annc field of the tuple in table TRKOPTS to an announcement.

Associated OM registers

None

Additional information

When a trunk group is assigned the HPCTQ option with an announcement in table TRKOPTS, a verification is made to ensure that the specified CLLI corresponds to an announcement, and that the announcement type is STND (standard).

If, at a later time, the announcement type is changed in table ANNS, or if no datafill exists for the announcement and the announcement CLLI is used for something else other than a STND announcement, an error occurs in table TRKOPTS. When an HPC call attempts to queue on a trunk group with the HPCTQ option that has an error, no announcement is provided and log report DFIL314 is generated.

DFIL318

Explanation

Log DFIL318 is used to notify operating company personnel when an error exists with the announcement specified in office parameter HPC_EGRESS_QUEUING.

Note: Log DFIL318 is not generated when the CPU is overloaded.

Format

* DFIL318 mmmdd hh:mm:ss dddd INFO GETS DATAFILL ERROR
<error>
<solution>

Example

Examples of log report DFIL318 are provided below.

```
* DFIL318 SEP02 14:30:24 2800 INFO GETS DATAFILL ERROR
Error in office parm HPC_EGRESS_QUEUING:
Ensure the announcement type is STND

* DFIL318 SEP02 14:29:28 1400 INFO GETS DATAFILL ERROR
Error in office parm HPC_EGRESS_QUEUING:
Ensure the announcement field is valid
```

Field descriptions

The following table explains each of the fields in the log report.

Field	Value	Description
error	Error in office parm HPC_EGRESS_QUEUING	A datafill problem exists with office parameter HPC_EGRESS_QUEUING.
solution	Ensure the announcement type is STND	The announcement type specified for office parameter HPC_EGRESS_QUEUING is not STND.
	Ensure the announcement field is valid.	The CLLI specified for office parameter HPC_EGRESS_QUEUING refers to an announcement.
error	Error in office parm HPC_CALL_QUEUING	A datafill problem exists with the office parameter HPC_CALL_QUEUING.

DFIL318

Field	Value	Description
solution	Ensure the announcement type is STND.	The announcement type specified for office parameter HPC_CALL_QUEUING is not STND.
	Ensure the announcement field is valid.	The CLLI specified for office parameter HPC_CALL_QUEUING refers to an announcement.

Action

The action to be taken depends on the solution indicated in the <solution> field.

If the <solution> field indicates...	then...
Ensure the announcement type is STND	Change the type of announcement specified for office parameters HPC_EGRESS_QUEUING or HPC_CALL_QUEUING to STND.
Ensure the announcement field is valid	Change the CLLI of office parameters HPC_EGRESS_QUEUING or HPC_CALL_QUEUING to an announcement.

Associated OM registers

None

DFIL318

Operational measurements

This chapter describes the HPCBASIC (High Probability Completion - Basic) and the HPCTRKGP (High Probability Completion - Trunk Groups) operational measurements (OM) groups, which are used by the GETS HPC feature.

The use of HPC Network Capabilities is restricted in the United States and U.S. Territories (Puerto Rico and U.S. Virgin Islands) to National Security/ Emergency Preparedness (NS/EP) users authorized by the Office of the Manager, National Communications System (OMNCS). Operating company deployment of these HPC Network Capabilities must be coordinated with the OMNCS at the following address:

Office of the Manager
National Communications System
Attn: GETS Program Office
701 South Courthouse Rd.
Arlington, VA 22204-2198
email: gets@ncs.gov

OM group HPCBASIC

OM description

High Probability Completion - Basic

The HPCBASIC OM group is used to measure HPC call traffic. Registers in this OM group count the number of HPC call attempts on lines and trunks, and keep track of how these calls are handled.

Flowcharts indicating OM register hits represent a single pass through an office. Calls can re-route within the office, through call forward or AIN responses, and OM registers can be pegged multiple times during call processing.

Release history

The GETS HPC feature introduced the HPCBASIC OM group in NA008.

The GETS HPC Egress Queuing functionality introduced registers EQQATT, EQQOVFL, EQQABDN, and EQQTMREX in NA012:

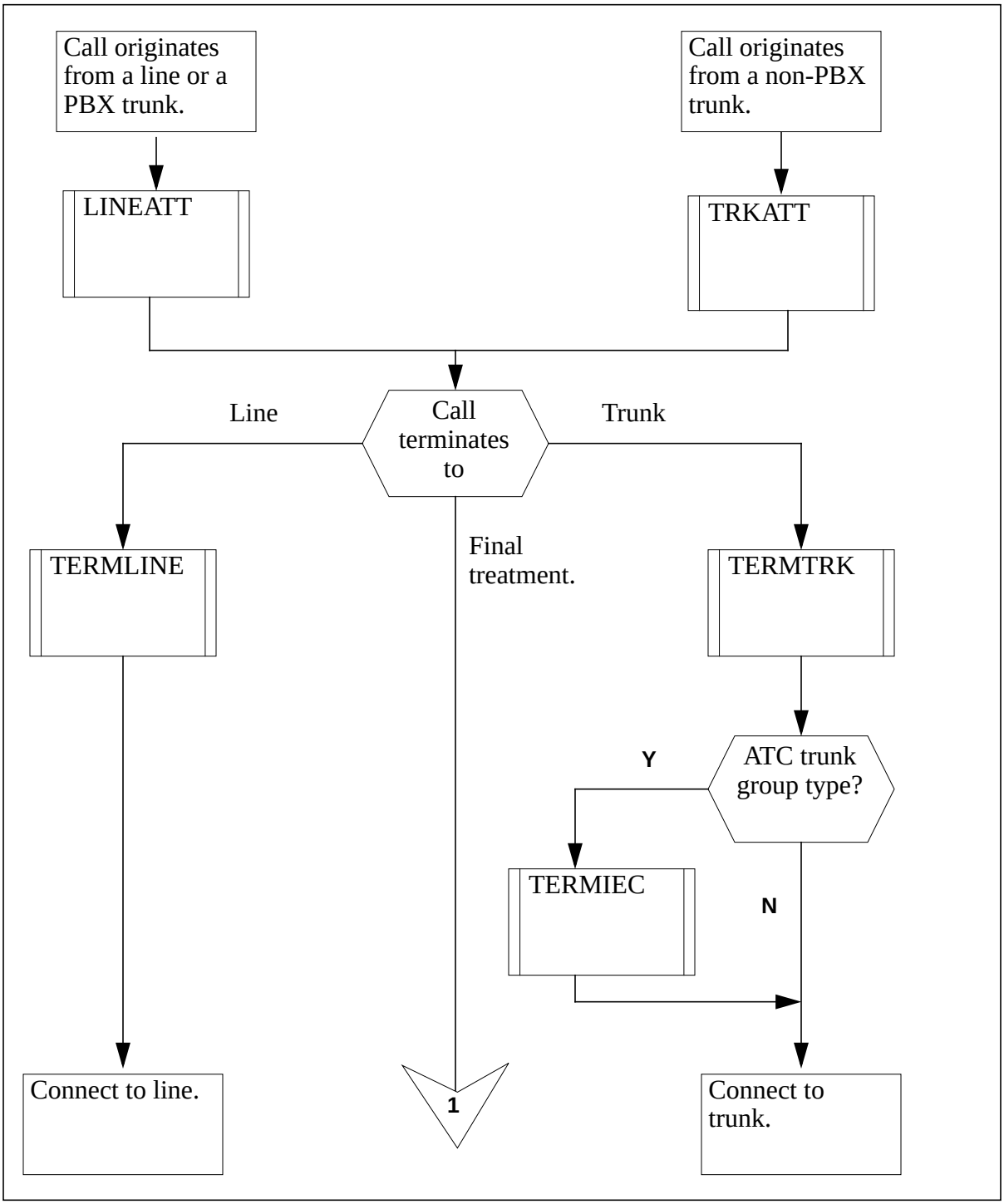
Registers

The HPCBASIC OM group registers display on the MAP terminal as follows:

```
> omshow hpcbasic holding

HPCBASIC

CLASS: HOLDING
START: 1997/06/24 14:00:00 THU;STOP:1997/06/24 14:15:00
THU;
SLOWSAMPLES:               3; FASTSAMPLES            23;


   LINEATT   TRKATT   TERMLINE   TERMTRK
   TERMNC    TERMIEC  TERMIECN   EXNMCTRL
   TQQATT    TQQOVFL  TQQABDN    TQQTMREX
   EQQATT    EQQOVFL  EQQABDN    EQQTMREX
   ACGEXMPT  ACGBLOCK

    0         0            0        0
    0         0            0        0
    0         0            0        0
    0         0            0        0
    0         0
```

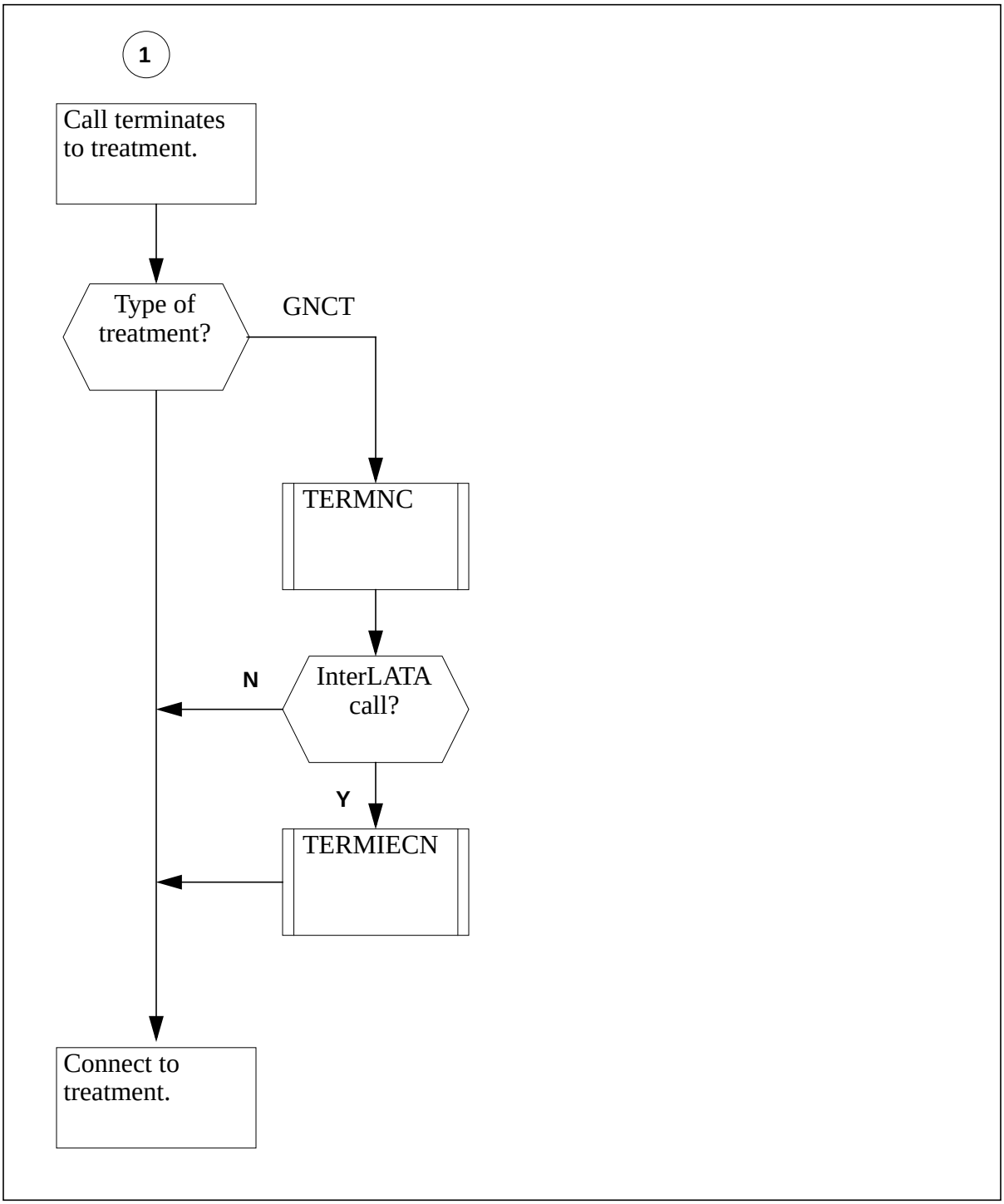
OM group HPCBASIC

OM group HPCBASIC registers: agent related



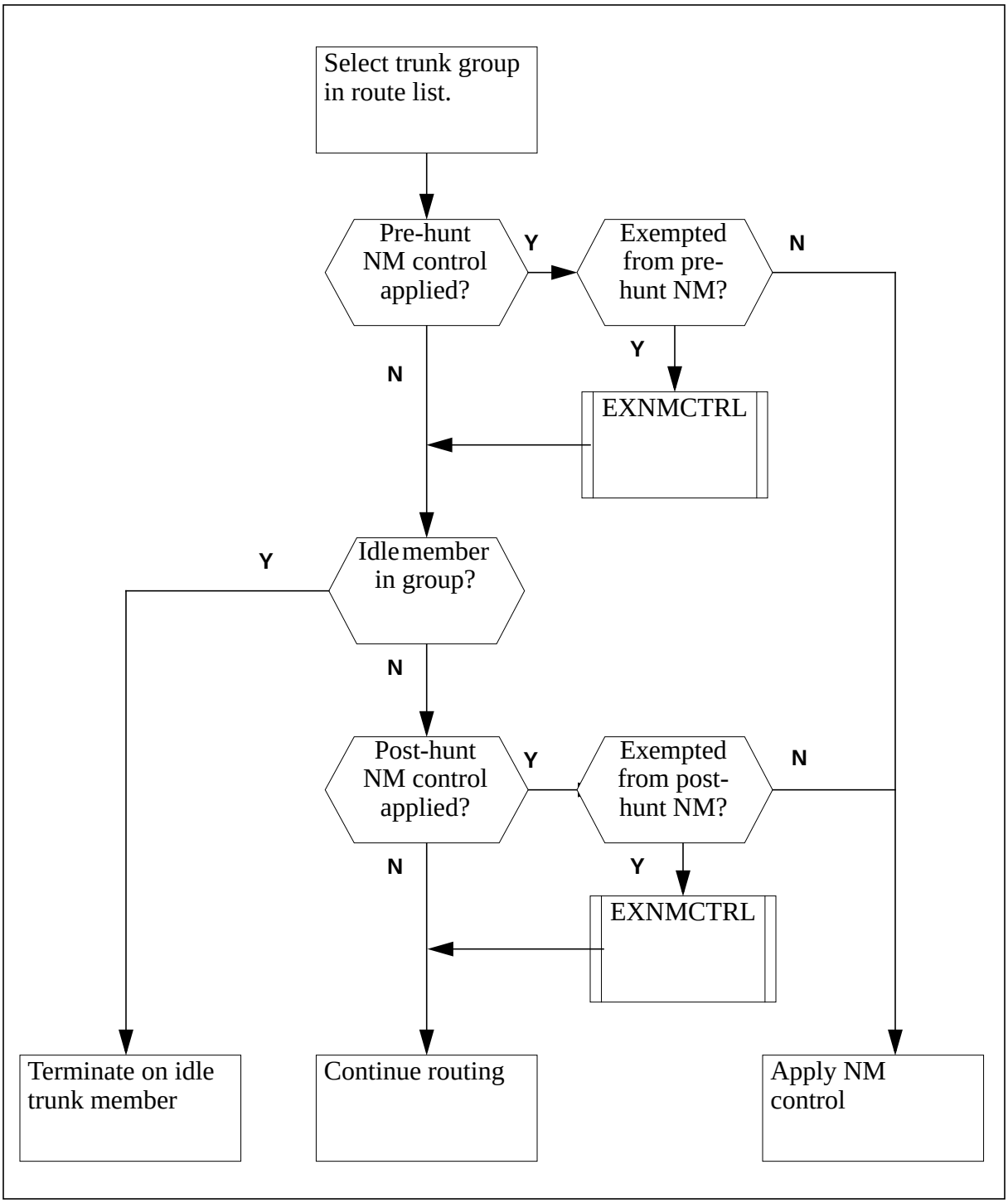
OM group HPCBASIC

OM group HPCBASIC registers: agent related (continued)



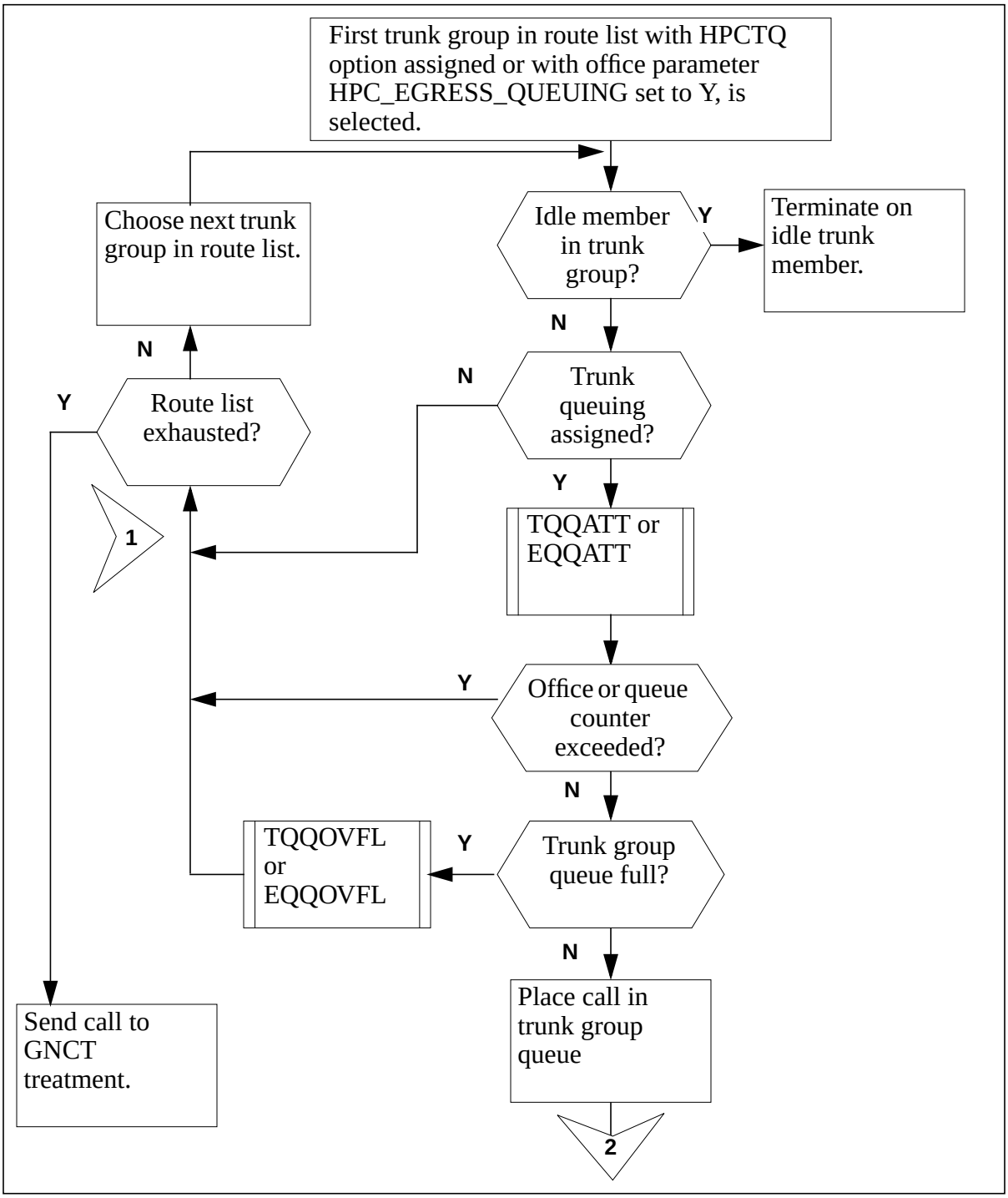
OM group HPCBASIC

OM group HPCBASIC registers: EXNMCTRL related



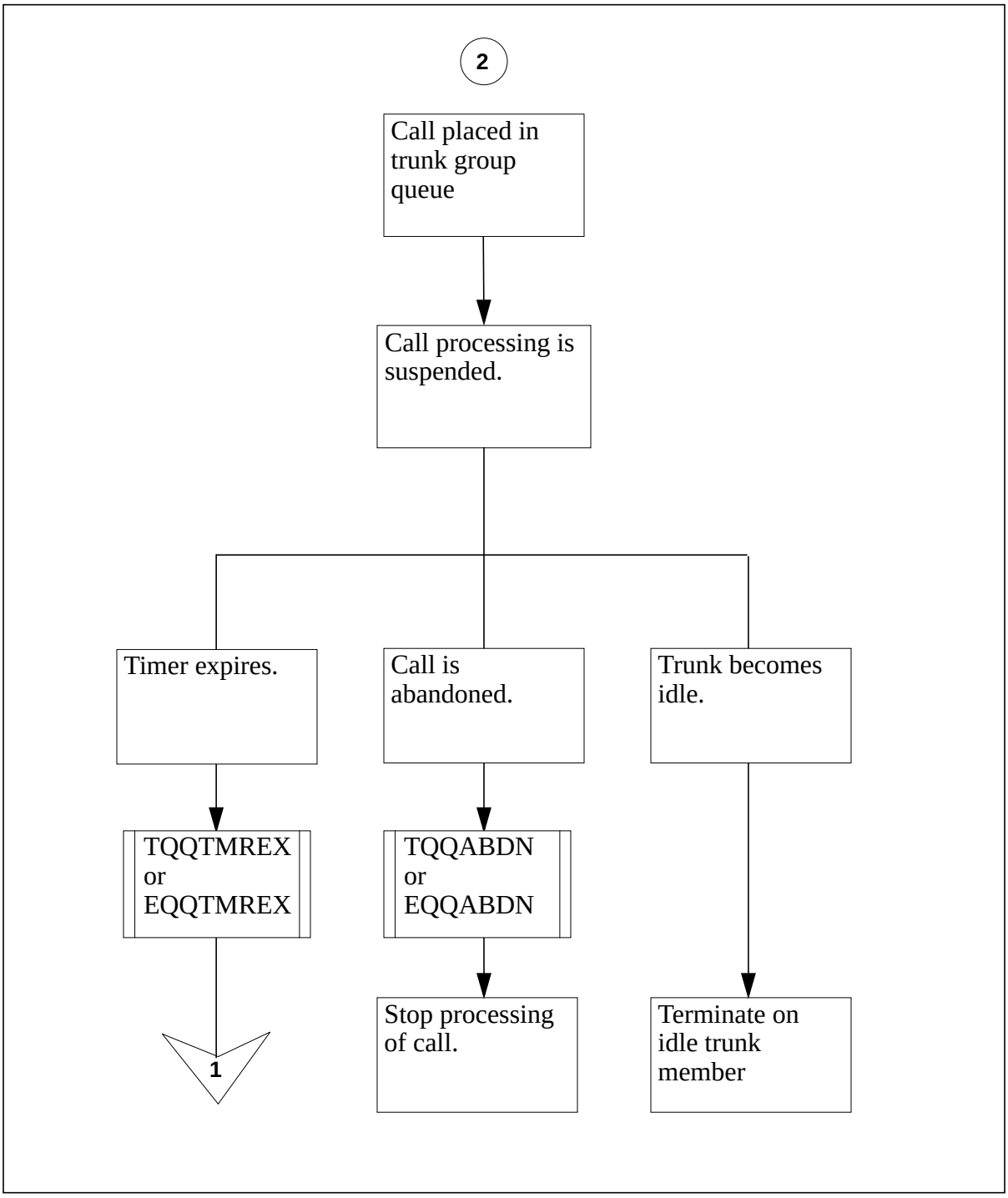
OM group HPCBASIC

OM group HPCBASIC registers: HPC TQ related



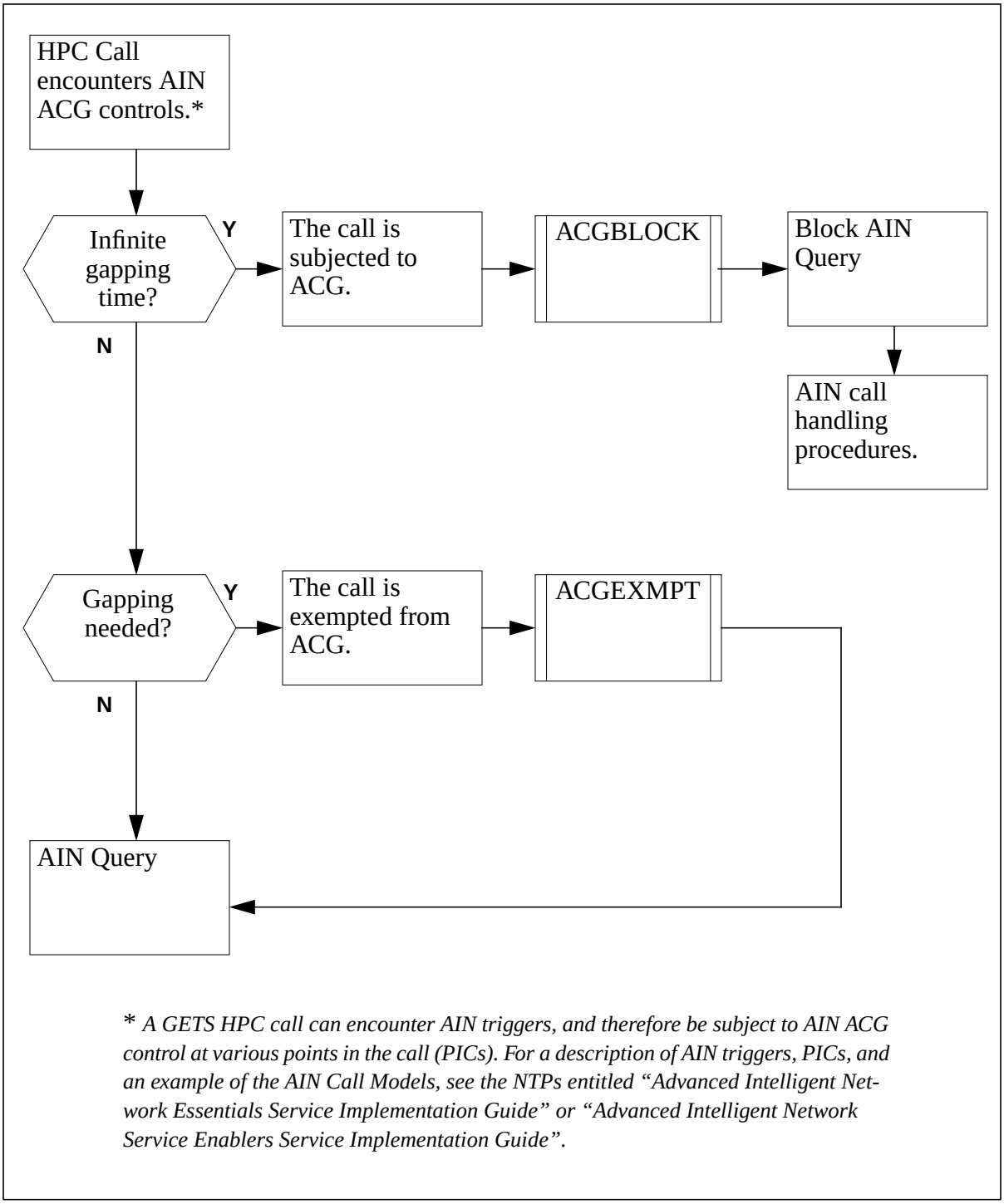
OM group HPCBASIC

OM group HPCBASIC registers; HPC TQ related (continued)



OM group HPCBASIC

OM group HPCBASIC registers: ACGEXMPT and ACGBLOCK related



* *A GETS HPC call can encounter AIN triggers, and therefore be subject to AIN ACG control at various points in the call (PICs). For a description of AIN triggers, PICs, and an example of the AIN Call Models, see the NTPs entitled "Advanced Intelligent Network Essentials Service Implementation Guide" or "Advanced Intelligent Network Service Enablers Service Implementation Guide".*

OM group HPCBASIC

Group structure

Key field: None

Info field: None

Associated OM group

None

Associated functional groups

None

Associated functionality codes

None

Register ACGEXMPT

The ACGEXMPT (AIN Queries of HPC calls Exempted) register counts the total number of AIN queries of all HPC calls exempted from AIN ACG controls.

Release history

Register ACGEXMPT was created in NA008.

Associated registers

None

Associated logs

None

Register type

Register ACGEXMPT is a peg-type register.

Extension registers

None

OM group HPCBASIC

Register ACGBLOCK

The ACGBLOCK (AIN Queries of HPC calls Blocked) register counts the total number of AIN queries of all HPC calls blocked by AIN ACG controls.

Release history

Register ACGBLOCK was created in NA008.

Associated registers

None

Associated logs

None

Register type

Register ACGBLOCK is a peg-type register.

Extension registers

None

Register EQQABDN

The EQQABDN (Egress queuing queue abandons) register counts the number of calls that were placed in egress trunk group queues, but were abandoned while in the queue.

Release history

Register EQQABDN was created in NA012.

Associated registers

None

Associated logs

None

Register type

Register EQQABDN is a peg-type register.

Extension registers

None

OM group HPCBASIC

Register EQQATT

The EQQATT (Egress queuing queue attempts) register counts the number of attempts made to place HPC calls in egress trunk group queues.

Release history

Register EQQATT was created in NA012.

Associated registers

None

Associated logs

None

Register type

Register EQQATT is a peg-type register.

Extension registers

None

Register EQQOVFL

The EQQOVFL (Egress queuing queue overflow) register counts the number of failed attempts to place HPC calls in egress trunk group queues because the queues were full.

Release history

Register EQQOVFL was created in NA012.

Associated registers

None

Associated logs

None

Register type

Register EQQOVFL is a peg-type register.

Extension registers

None

OM group HPCBASIC

Register EQQTMREX

The EQQTMREX (Egress queueing queue timeout) register counts the number of calls removed from egress trunk group queues due to timeout treatment.

Release history

Register EQQTMREX was created in NA012.

Associated registers

None

Associated logs

None

Register type

Register EQQTMREX is a peg-type register.

Extension registers

None

Register EXNMCTRL

The EXNMCTRL (Exemption from Network Management Control) register counts the number of times an HPC call is exempted from an active network management control, on the first idle trunk scan.

Release history

Register EXNMCTRL was created in NA008.

Associated registers

None

Associated logs

None

Register type

Register EXNMCTRL is a peg-type register.

Extension registers

None

OM group HPCBASIC

Register LINEATT

The LINEATT (Line Attempts) register counts the number of line origination attempts (including PX, P2, and PRI), recognized as HPC calls on lines served by the measuring switch.

Release history

Register LINEATT was created in NA008.

Associated registers

None

Associated logs

None

Register type

Register LINEATT is a peg-type register.

Extension registers

None

Register TERMIEC

The TERMIEC (Termination - IEC) register counts the number of HPC calls intended to complete on trunks to points outside the measuring switch, and that are intended for an IEC. This register is pegged only when the trunk group is of type ATC.

Release history

Register TERMIEC was created in NA008.

Associated registers

None

Associated logs

None

Register type

Register TERMIEC is a peg-type register.

Extension registers

None

OM group HPCBASIC

Register TERMIECN

The TERMIECN (Termination - IEC No Circuit) register counts the number of outgoing HPC calls that cannot be routed on a trunk to a point outside the measuring switch because no idle trunks are available, and that are intended for IEC (interLATA call).

Note 1: For the definition of TERMIECN, a Virtual Facility Group (VFG) is considered as a trunk. Therefore, TERMIECN will be pegged when an HPC call is routed to a VFG with its maximum capacity reached.

Note 2: GETS HPC calls can interact with features that send the call to an alternate route, and therefore affect the pegging of TERMIECN. Examples of such calls are provided below.

- HPC calls with ACR or E-ACR peg TERMIECN once, after all routes to carriers in the response fail to route the call.
- HPC calls with NEL Network Busy peg TERMIECN before AIN takes control of the call.
- HPC calls incoming on ISUP that send back a release to the previous switch with cause message due to network busy, peg TERMIECN.
- HPC calls that are forwarded and cannot be routed outside the measuring switch peg TERMIECN, even in scenarios where CFDA returns the call to the original terminating line.

Note 3: TERMTRK can be pegged following the pegging of register TERMIECN, when an HPC call is routed to a busy route, with the AIN Network Busy event armed. In this case TERMIECN is pegged, the NB event is hit, and AIN sends a query to the SCP and receives a response of Analyze Route, or AFR trigger.

Release history

Register TERMIECN was created in NA008.

Associated registers

None

Associated logs

None

Register type

Register TERMIECN is a peg-type register.

Extension registers

None

Register TERMLINE

The TERMLINE (Termination - Line) register counts the number of calls recognized by the measuring switch as HPC calls, whose destination is a line served by the measuring switch, including calls which have been call forwarded.

Note: TERMLINE is only pegged if the HPC call successfully terminates on the line. TERMLINE is not pegged if the terminating line is busy or if the HPC call is rejected by a feature such as Selective Call Rejection.

Release history

Register TERMLINE was created in NA008.

Associated registers

None

Associated logs

None

Register type

Register TERMLINE is a peg-type register.

Extension registers

None

Register TERMNC

The TERMNC (Termination - No Circuit) register counts the number of outgoing HPC calls that cannot be routed on a trunk to a point outside the measuring switch, because no idle trunks are available.

Note 1: For the definition of TERMNC, a Virtual Facility Group (VFG) is considered as a trunk. Therefore, TERMNC will be pegged when an HPC call is routed to a VFG with its maximum capacity reached.

OM group HPCBASIC

Note 2: GETS HPC calls can interact with features that send the call to an alternate route, and therefore affect the pegging of TERMNC. Examples of such calls are provided below.

- HPC calls with ACR or E-ACR peg TERMNC once, after all routes to carriers in the response fail to route the call.

- HPC calls with NEL Network Busy peg TERMNC before AIN takes control of the call.

- HPC calls incoming on ISUP that send back a release to the previous switch with cause message due to network busy, peg TERMNC.

- HPC calls that are forwarded and cannot be routed outside the measuring switch peg TERMNC, even in scenarios where CFDA returns the call to the original terminating line).

Note 3: TERMTRK can be pegged following the pegging of register TERMNC, when an HPC call is routed to a busy route, with the AIN Network Busy event armed. In this case TERMNC is pegged, the NB event is hit, and AIN sends a query to the SCP and receives a response of Analyze Route, or AFR trigger.

Release history

Register TERMNC was created in NA008.

Associated registers

None

Associated logs

None

Register type

Register TERMNC is a peg-type register.

Extension registers

None

OM group HPCBASIC

Register TERMTRK

The TERMTRK (Termination - Trunk) register counts the number of calls that complete on trunks to points outside the measuring switch, that the switch has recognized as HPC calls. TERMTRK is pegged each time an IAM message is sent from an ISUP trunk, or when the inband signalling trunk is seized.

Note 1: The TERMTRK register will be unpegged in the case of yielding to glare or COT failure event, provided the current value is greater than 0.

Note 2: TERMTRK can be pegged following the pegging of register TERMNC, when an HPC call is routed to a busy route, with the AIN Network Busy event armed. In this case TERMNC is pegged, the NB event is hit, and AIN sends a query to the SCP and receives a response of Analyze Route, or AFR trigger.

Release history

Register TERMTRK was created in NA008.

Associated registers

None

Associated logs

None

Register type

Register TERMTRK is a peg-type register.

Extension registers

None

Register TQQATT

The TQQATT (Trunk Queuing Attempts) register counts the number of attempts to place HPC calls in a trunk group queue.

Note: TQQATT is only pegged when a call is placed on the trunk group queue. It is therefore assumed that the register is pegged only on the second idle trunk scan.

Release history

Register TQQATT was created in NA008.

OM group HPCBASIC

Associated registers

None

Associated logs

None

Register type

Register TQQATT is a peg-type register.

Extension registers

None

Register TQQABDN

The TQQABDN (Trunk Queuing Abandon) register counts the number of HPC calls that had been placed in trunk group queues, and were abandoned while in the queue.

> ***Note:*** TQQABDN is only pegged after a call has been placed on the trunk group queue. It is therefore assumed that the register is pegged only on the second idle trunk scan.

Release history

Register TQQABDN was created in NA008.

Associated registers

None

Associated logs

None

Register type

Register TQQABDN is a peg-type register.

Extension registers

None

OM group HPCBASIC

Register TQQOVFL

The TQQOVFL (Trunk Queuing Overflow) register counts the number of attempts to place HPC calls in trunk group queues that failed because the queues were full.

> ***Note:*** TQQOVFL is only pegged after a call has been placed on the trunk group queue. It is therefore assumed that the register is pegged only on the second idle trunk scan.

Release history

Register TQQOVFL was created in NA008.

Associated registers

None

Associated logs

None

Register type

Register TQQOVFL is a peg-type register.

Extension registers

None

Register TQQTMREX

The TQQTMREX (Trunk Queuing Timer Expired) register counts the number of HPC calls removed from trunk group queues due to a timeout treatment.

> ***Note:*** TQQTMREX is only pegged after a call has been placed on the trunk group queue. It is therefore assumed that the register is pegged only on the second idle trunk scan.

Release history

Register TQQTMREX was created in NA008.

Associated registers

None

Associated logs

None

OM group HPCBASIC

Register type

Register TQQTMREX is a peg-type register.

Extension registers

None

Register TRKATT

The TRKATT (Trunk Attempts) register counts the number of calls recognized as HPC calls, on incoming trunks of the measuring switch.

Release history

Register TRKATT was created in NA008.

Associated registers

None

Associated logs

None

Register type

Register TRKATT is a peg-type register.

Extension registers

None

OM group HPCTRKGP

OM description

High Probability Completion Trunk Group

The HPCTRKGP OM group is used to measure HPC call traffic on a trunk group basis. Registers in this OM group count the number of HPC call attempts on a trunk group, the number of HPC calls that overflowed due to all members of a trunk group being busy, the number of trunk group queue overflows, and the number of queued calls encountering a timeout treatment.

Note: Flowcharts indicating OM register hits represent a single pass through an office. Calls can re-route within the office, via call forward or AIN responses, and OM registers can be pegged multiple times during call processing.

Release history

The HPCTRKGP OM group was introduced in NA008.

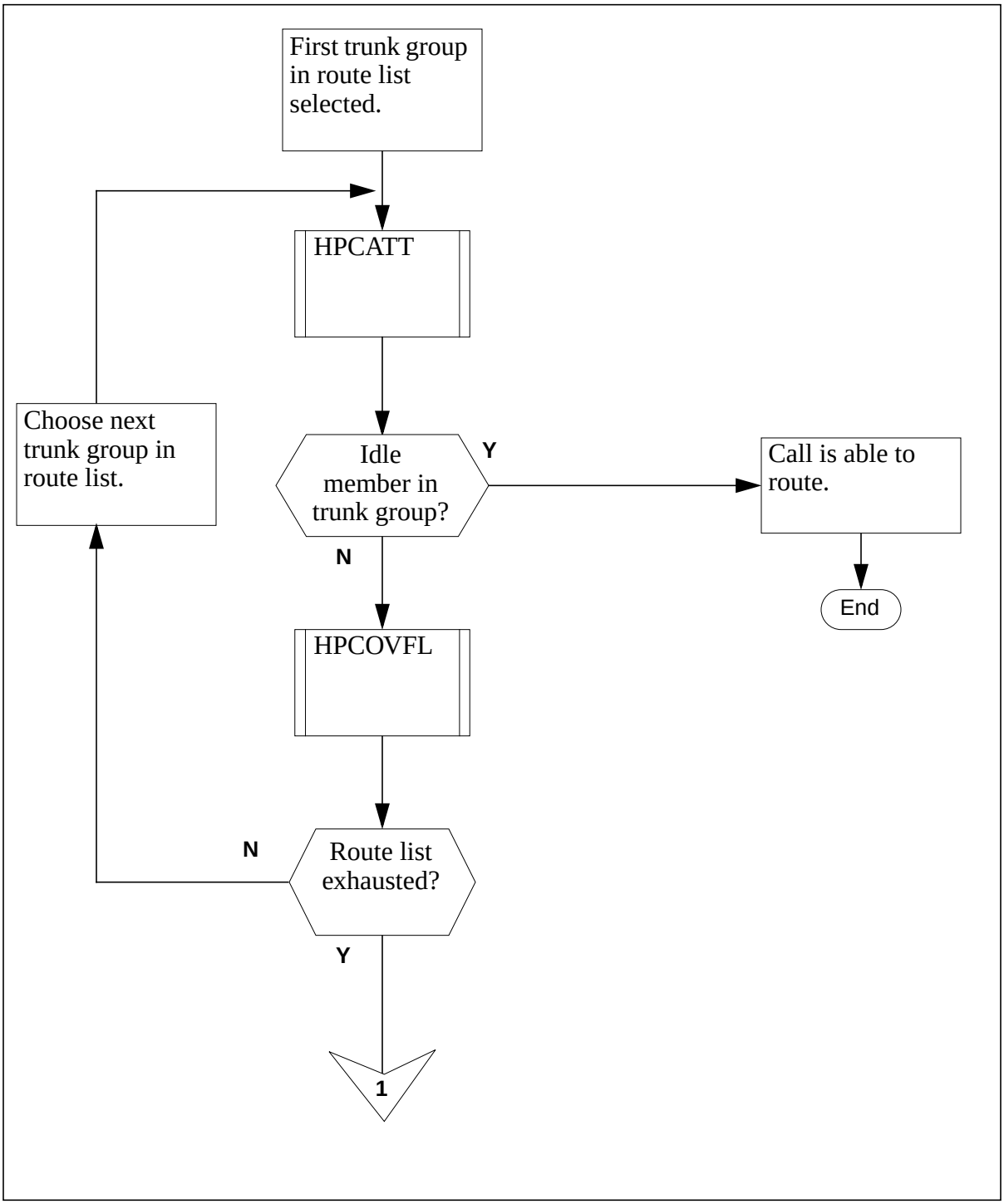
Registers

The HPCTRKGP OM group registers display on the MAP terminal as follows:

```
> omshow hpctrkgp holding

HPCTRKGP

CLASS: HOLDING
START: 1997/06/24 14:00:00 THU;STOP:1997/06/24 14:15:00
THU;
SLOWSAMPLES:               3; FASTSAMPLES            27;

       KEY (COMMON_LANGUAGE_NAME)
       INFO (HPCTRKGPINFO)
             HPCATT    HPCOVFL    QUETMREX    QUEOVFL

   154 TERM105
       OG   0    0
                  0    0             0           0
```

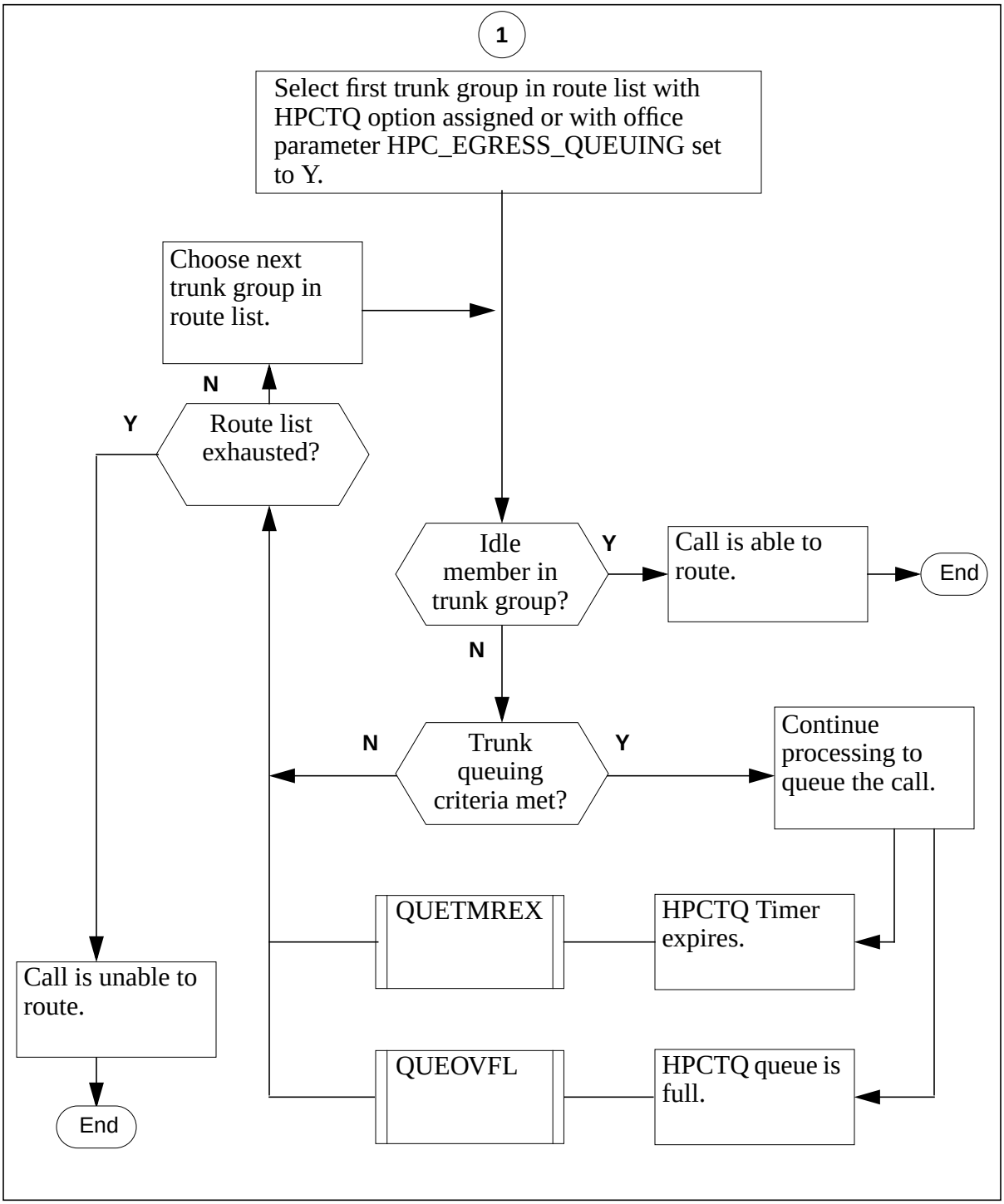
OM group HPCTRKGP

OM group HPCTRKGP registers



OM group HPCTRKGP

OM group HPCTRKGP registers (continued)



OM group HPCTRKGP

Group structure

Key field: COMMON_LANGUAGE_NAME

Info field: HPCTRKGPINFO

Associated OM group

None

Associated functional groups

None

Associated functionality codes

None

Register HPCATT

The HPCATT (HPC Call Attempts) register counts the number of times the switch tries to access a trunk in the trunk group to serve an HPC call. This register is pegged only on the first idle trunk scan.

Release history

Register HPCATT was created in NA008.

Associated registers

None

Associated logs

None

Register type

Register HPCATT is a peg-type register.

Extension registers

None

Register HPCOVFL

The HPCOVFL (HPC Call Overflow) register counts the number of times the switch tries to access a trunk in the trunk group to serve an HPC call, when all trunks are busy. This register is pegged only on the first idle trunk scan.

Release history

Register HPCOVFL was created in NA008.

Associated registers

None

Associated logs

None

Register type

Register HPCOVFL is a peg-type register.

Extension registers

None

Register QUETMREX

The QUETMREX (Trunk Queuing Timer Expired) register counts the number of HPC calls removed from the trunk group queue due to timeout treatment. This register is only pegged when a call is put on the trunk group queue. It is therefore assumed that the register is pegged only on the second scan.

Release history

Register QUETMREX was created in NA008.

Associated registers

None

Associated logs

None

Register type

Register QUETMREX is a peg-type register.

Extension registers

None

Register QUEOVFL

The QUEOVFL (Trunk Queuing Overflow) register counts the number of attempts to place HPC calls in the trunk group queue that failed because the trunk group queue was full. This register is only pegged when an attempt is made to place the call on a trunk group queue. It is therefore assumed that the register is pegged only on the second scan.

OM group HPCTRKGP

Release history

Register QUEOVFL was created in NA008.

Associated registers

None

Associated logs

None

Register type

Register QUEOVFL is a peg-type register.

Extension registers

None

Office parameters

This chapter describes the office parameters used by the GETS HPC feature.

The use of HPC Network Capabilities is restricted in the United States and U.S. Territories (Puerto Rico and U.S. Virgin Islands) to National Security/ Emergency Preparedness (NS/EP) users authorized by the Office of the Manager, National Communications System (OMNCS). Operating company deployment of these HPC Network Capabilities must be coordinated with the OMNCS at the following address:

Office of the Manager
National Communications System
Attn: GETS Program Office
701 South Courthouse Rd.
Arlington, VA 22204-2198
email: gets@ncs.gov

HPC_CALL_QUEUING

Parameter name

HPC_Call_Queuing

Functional description

Office parameter HPC_CALL_QUEUING in table OFCVAR allows HPC calls to be queued on the same set of trunk group types as supported by HPCTQ, but provisioned on an office-wide basis rather than on a trunk group basis (Refer to “HPC TQ” on page 2-10 for more details on HPC-TQ). The HPC CQ feature enhances the HPCNOTQ option to continue supporting the P2, PX, and PRA egress trunks, and adds support for the following public trunk group types: IT, T2, TO, ATC and CELL. Through this office parameter, the operating company can also set the following parameters:

- the maximum time an HPC call can wait in a supported trunk group queue for an available trunk
- the maximum number of HPC calls that can simultaneously queue in a supported trunk group queue
- the announcement or tone, if required, to be provided on calls that are queued to a supported trunk group

Provisioning rules

The values contained in the HPC_CALL_QUEUING parameter are at the discretion of the operating company. This office parameter does not introduce new provisioning rules.

Range information

Field name	Value	Default
Enabled	Y or N	N
Timeout	1 through 90	not applicable
MaxCalls	1 through 256	not applicable
Treatment	NONE, TONE, or ANNC	not applicable
Annc	CLLI code for announcement	not applicable

Activation

No action is required to activate the changes to office parameter HPC_CALL_QUEUING. Changes to the values of this office parameter are handled as described below.

HPC_CALL_QUEUING

If the queue size is changed and the number of HPC calls that are queued at the time of change exceeds the new size, the HPC calls will be held in queue, but no further calls will be accepted until the number of queued calls falls below the new value.

When the Timeout value is changed, any HPC calls that are already queued to a supported trunk group remain in the queue for the duration of the old Timeout value.

Disabling the GETS HPC Call Queuing feature has no effect on HPC calls already queued to supported trunk groups.

Dependencies

If an announcement is required for HPC Call Queuing, datafill for the announcement must be present in tables CLLI and ANNS before setting the announcement through office parameter HPC_CALL_QUEUING.

Consequences

None

Verification

To verify that parameters are set and working properly, HPC calls can be initiated to have the queuing treatment played, if provided; and the time-out and queue size limits exceeded.

Memory requirements

None

Dump and restore rules

None

Parameter history

Release NA015

Office parameter HPC_CALL_QUEUING was introduced for the GETS HPC Call Queuing functionality to enable and provision the HPC Call Queuing feature.

HPC_EGRESS_QUEUING

HPC_EGRESS_QUEUING

Parameter name

HPC Egress Queuing

Functional description

Office parameter HPC_EGRESS_QUEUING in table OFCVAR is used to enable or disable HPCTQ to all supported egress trunk groups in an office. Through this office parameter, the operating company can also set the following parameters:

- the maximum time an HPC call can wait in an egress trunk group queue for an available trunk
- the maximum number of calls that can simultaneously queue in an egress trunk group queue
- the announcement or tone, if required, to be provided on calls that are queued to an egress trunk group

Provisioning rules[0]

The values provided for HPC_EGRESS_QUEUING are administered by the operating company.

When an HPC call coming from an ISUP trunk is queued to an egress trunk and no treatment is provided (Treatment = NONE), a race condition can occur between the T_{IAM} value and the Timeout value. The T_{IAM} is a timer that starts when an Initial Address Message (IAM) is sent to initiate call setup for a call carried through an ISUP trunk between two switches. If the Timeout value is higher than the T_{IAM} value, which is between 20 and 30 seconds with a default of 25 seconds, the queued HPC call is taken down.

When a treatment is provided (Treatment = TONE or ANNC), no race condition occurs.

HPC_EGRESS_QUEUING

Range information

Field name	Value	Default
Enabled	Y or N	N
Timeout	1 through 90	
MaxCalls	1 through 256	
Treatment	NONE, TONE, or ANNC	
Annc	CLLI code for announcement	

Activation

No action is required to activate the changes to office parameter HPC_EGRESS_QUEUING. Changes to the values of this office parameter are handled as described below.

When the MaxCalls value is changed, any HPC calls that are already queued to an egress trunk group remain in the queue even if the number of queued calls exceeds the new value. However, no further calls are accepted until the number of queued calls falls below the new value.

When the Timeout value is changed, any HPC calls that are already queued to an egress trunk group remain in the queue for the duration of the old Timeout value.

Disabling the GETS HPC Egress Queuing feature has no effect on HPC calls already queued to egress trunk groups.

Dependencies

If an announcement is required, datafill for the announcement must be present in tables CLLI and ANNS before setting the announcement through office parameter HPC_EGRESS_QUEUING.

Consequences

None

Verification

None

Memory requirements

None

HPC_EGRESS_QUEUING

Dump and restore rules

None

Parameter history

Release NA012

Office parameter HPC_EGRESS_QUEUING was introduced for the GETS HPC Egress Queuing functionality.

HPC_IAM_PRIORITY

HPC_IAM_PRIORITY

Parameter name

HPC IAM Message Priority

Functional description

Office parameter HPC_IAM_PRIORITY in table OFCENG allows the central office administrator to set the IAM message priority value for HPC calls to 1, or the value of the received IAM when equal to or greater than 1.

The message priority value of an HPC outgoing IAM is always 1.

When the signaling type of the incoming agent is SS7, the message priority value of an HPC outgoing IAM is taken from the message priority value of the received IAM, when it is equal to or greater than 1. If the message priority value of the received IAM is less than 1, then the message priority value of an HPC outgoing IAM is set to 1.

If the signaling type of the incoming agent is not SS7, the message priority value of an HPC outgoing IAM is always 1.

Provisioning rules

The value provided for HPC_IAM_PRIORITY is at the discretion of the operating company.

Range information

Value	Default
ALWAYS_ONE	ALWAYS_ONE
ONE_OR_HIGHER_BASED_ON_IAM_RCVD	

Activation

No action is required to activate changes to office parameter HPC_IAM_PRIORITY. Changes take effect immediately.

Dependencies

None

Consequences

None

HPC_IAM_PRIORITY

Verification

None

Memory requirements

None

Dump and restore rules

None

Parameter history

Release NA009

Office parameter HPC_IAM_PRIORITY was introduced for the GETS HPC feature.

MAX_HPC_CALLS_QUEUED

MAX_HPC_CALLS_QUEUED

Parameter name

Maximum HPC Calls Queued

Functional description

Office parameter MAX_HPC_CALLS_QUEUED in table OFCENG controls the maximum number of calls that can be held simultaneously in all trunk group queues, on an office-wide basis.

Provisioning rules

The value provided for MAX_HPC_CALLS_QUEUED is at the discretion of the operating company.

Range information

Minimum	Maximum	Default
0	1024	256

Activation

No action is required to activate changes to office parameter MAX_HPC_CALLS_QUEUED. Changes take effect immediately.

When the value of this office parameter changes, any HPC calls that are already queued remain in the queue even if the number of queued calls exceeds the new value. However, no further calls are accepted until the number of queued calls falls below the new value.

Dependencies

None

Consequences

None

Verification

None

MAX_HPC_CALLS_QUEUED

Memory requirements

None

Dump and restore rules

None

Parameter history

Release NA008

Office parameter MAX_HPC_CALLS_QUEUED was introduced for the GETS HPC feature.

NORM_CALL_SS7_IAM_MSG_PRIORITY

NORM_CALL_SS7_IAM_MSG_PRIORITY

Parameter name

Normal Call SS7 IAM Message Priority

Functional description

Office parameter NORM_CALL_SS7_IAM_MSG_PRIORITY in table OFCENG allows the central office administrator to provision the default SS7 message priority on an office-wide basis for all non-HPC, or normal calls.

The message priority value of a non-HPC outgoing IAM is always 0, and the message priority value of a non-HPC outgoing IAM is always 1.

The message priority value of a non-HPC outgoing IAM is taken from the IAM of the incoming/originating agent, if the agent's signaling type is SS7. If the agent's signaling type is not SS7, the message priority value of a normal outgoing IAM is always 0.

The message priority value of a non-HPC outgoing IAM is taken from the IAM of the incoming/originating agent if the agent's signaling type is SS7. If the agent's signaling type is not SS7, the message priority value of a non-HPC outgoing IAM is always 1.

Provisioning rules

The value provided for NORM_CALL_SS7_IAM_MSG_PRIORITY is at the discretion of the operating company.

Range information

Value	Default
ALWAYS_ZERO	ALWAYS_ONE
ALWAYS_ONE	
PASS_OR_ZERO	
PASS_OR_ONE	

NORM_CALL_SS7_IAM_MSG_PRIORITY

Activation

No action is required to activate changes to office parameter NORM_CALL_SS7_IAM_MSG_PRIORITY. Changes take effect immediately.

Dependencies

None

Consequences

Setting the value of NORM_CALL_SS7_IAM_MSG_PRIORITY to any value other than ALWAYS_ONE, alters the way the message priority for POTS IAM messages is sent out to the network (for releases prior to NA009).

Verification

None

Memory requirements

None

Dump and restore rules

None

Parameter history

Release NA009

Office parameter NORM_CALL_SS7_IAM_MSG_PRIORITY was introduced as part of the GETS HPC feature package.

Provisioning

This chapter contains the following provisioning procedures for Government Emergency Telecommunications Service High Probability of Completion (GETS HPC).

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Office of the Manager
National Communications System
Attn: GETS Program Office
701 South Courthouse Rd.
Arlington, VA 22204-2198
email: gets@ncs.gov

Calculating the number of FCBs and small FDBs required

Purpose of this procedure

The purpose of this procedure is to determine the number of additional feature control blocks (FCB), and small feature data blocks (FDB) required for the maximum number of simultaneous originating HPC calls.

From the calculations in this procedure office parameters NO_OF_FTR_CONTROL_BLKS, and NO_OF_SMALL_FTR_ DATA_BLKS must be updated adequately in table OFCENG.

When to use this procedure

Use this procedure prior to activating the GETS HPC feature.

Prerequisites

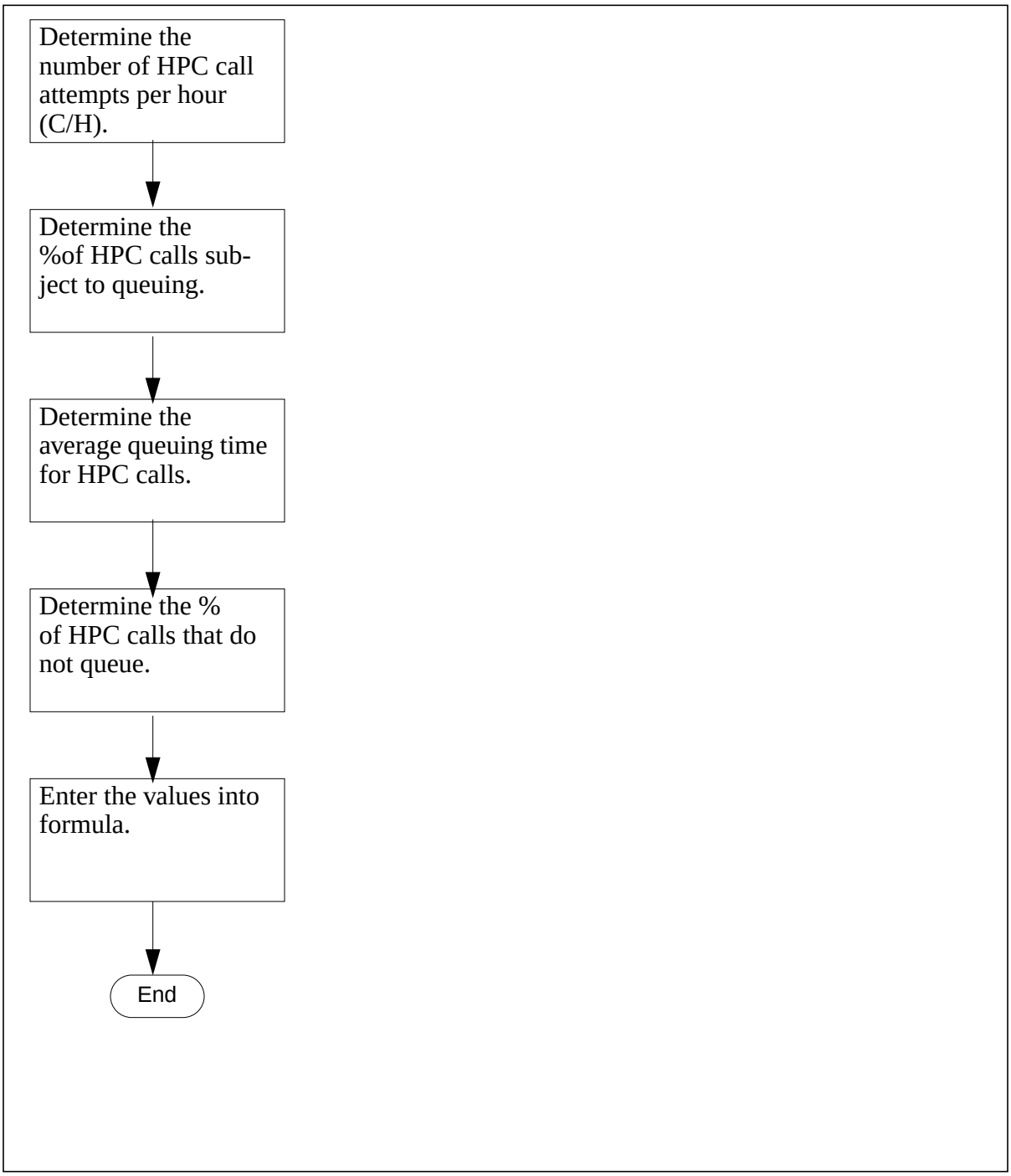
None

Action

The following flowchart is a summary of this procedure. Use the step-action instructions that follow the flowchart to perform the procedure.

Calculating the number of FCBs and small FDBs required

Summary of Calculating the number of FCBs and small FDBs required



Calculating the number of FCBs and small FDBs required

Step	Action

1 Use the following formula to calculate the number of FCBs and small FDBs required:

$$N = \left\lceil \frac{A \times B}{100(s)} \right\rceil$$

where N is the derived traffic load in CCS.

2 Determine the value of A, where A is the number of High Probability of Completion (HPC) call attempts per hour.

3 Determine the value of B, where B is the average Resource Holding Time, using the following formula:

$$B = [X \times Y] + [Z \times 0.1(s)]$$

a. Determine the value of X, where X is the percentage of HPC calls subject to queuing.

b. Determine the value of Y, where Y is the average queuing time of HPC calls.

c. Determine the value of Z, where Z is the percentage of HPC calls that do not queue (for example Z = (100 -X)).

4 Use the Erlang B table to convert the value of N with a probability of blockage or delay of 0.001.

5 Procedure is complete.

Calculating the number of medium FDBs required

Purpose of this procedure

The purpose of this procedure is to determine the number of additional medium feature data blocks (FDB) required for the maximum number of simultaneous originating HPC calls.

From the calculations in this procedure, office parameter NO_OF_MEDIUM_FTR_DATA_BLKS must be updated adequately in table OFCENG.

When to use this procedure

Use this procedure prior to activating the GETS HPC feature.

Prerequisites

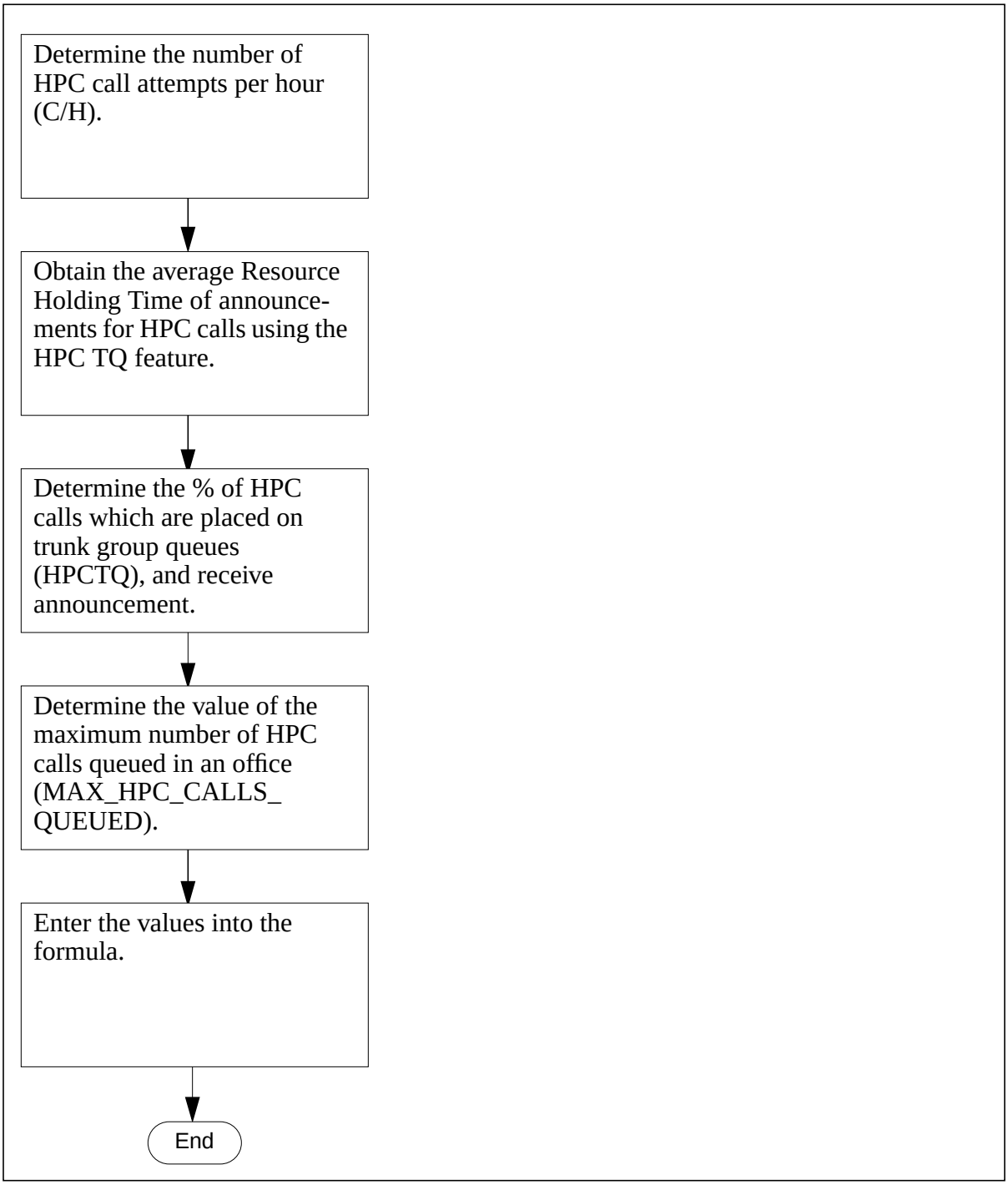
None

Action

The following flowchart is a summary of this procedure. Use the step-action instructions that follow the flowchart to perform the procedure.

Calculating the number of medium FDBs required

Summary of Calculating the number of medium FDBs required



Calculating the number of medium FDBs required

Step	Action

1 Use the following formula to calculate the number of medium Feature Data Blocks required:

$$N = \left[\left\{ \frac{A \times B(s)}{100(s)} \right\} \times C \right]$$

where N is the derived traffic load in CCS.

2 Determine the value of A, where A is the number of High Probability of Completion (HPC) call attempts per hour.

3 Obtain the value of B, where B is the average Resource Holding Time of announcements for HPC calls using the trunk queuing (HPC TQ) feature.

4 Determine the value of C where C is the percentage of HPC call attempts per hour placed on trunk group queues (HPCTQ) which have announcements datafilled.

Note: Refer to "Table TRKOPTS" on page 3-4 for more information on the HPCTQ option with announcements.

5 Use the Erlang B table to convert the value of N, with a probability of blockage or delay of 0.001.

6 Obtain the value of the maximum HPC calls queued in the office, which is specified in MAX_HPC_CALLS_QUEUED in table OFCENG

If the value is	Then
more than the value obtained in step 5	the number of medium FDBs is the value obtained in step 5
equal to or less than the value obtained in step 5	the number of medium FDBs is the value of MAX_HPC_CALLS_QUEUED

7 Procedure is complete.

Calculating the number of process wakeups and large FDBs required

Purpose of this procedure

The purpose of this procedure is to determine the number of additional Call Processing Wakeups (NUMCPWAKE) and large FDBs required for the maximum number of simultaneous originating HPC calls.

From the calculations in this procedure, office parameters NUMCPWAKE and NO_OF_LARGE_ FTR_DATA_BLKS must be updated adequately in table OFCENG.

When to use this procedure

Use this procedure prior to activating the GETS HPC feature.

Prerequisites

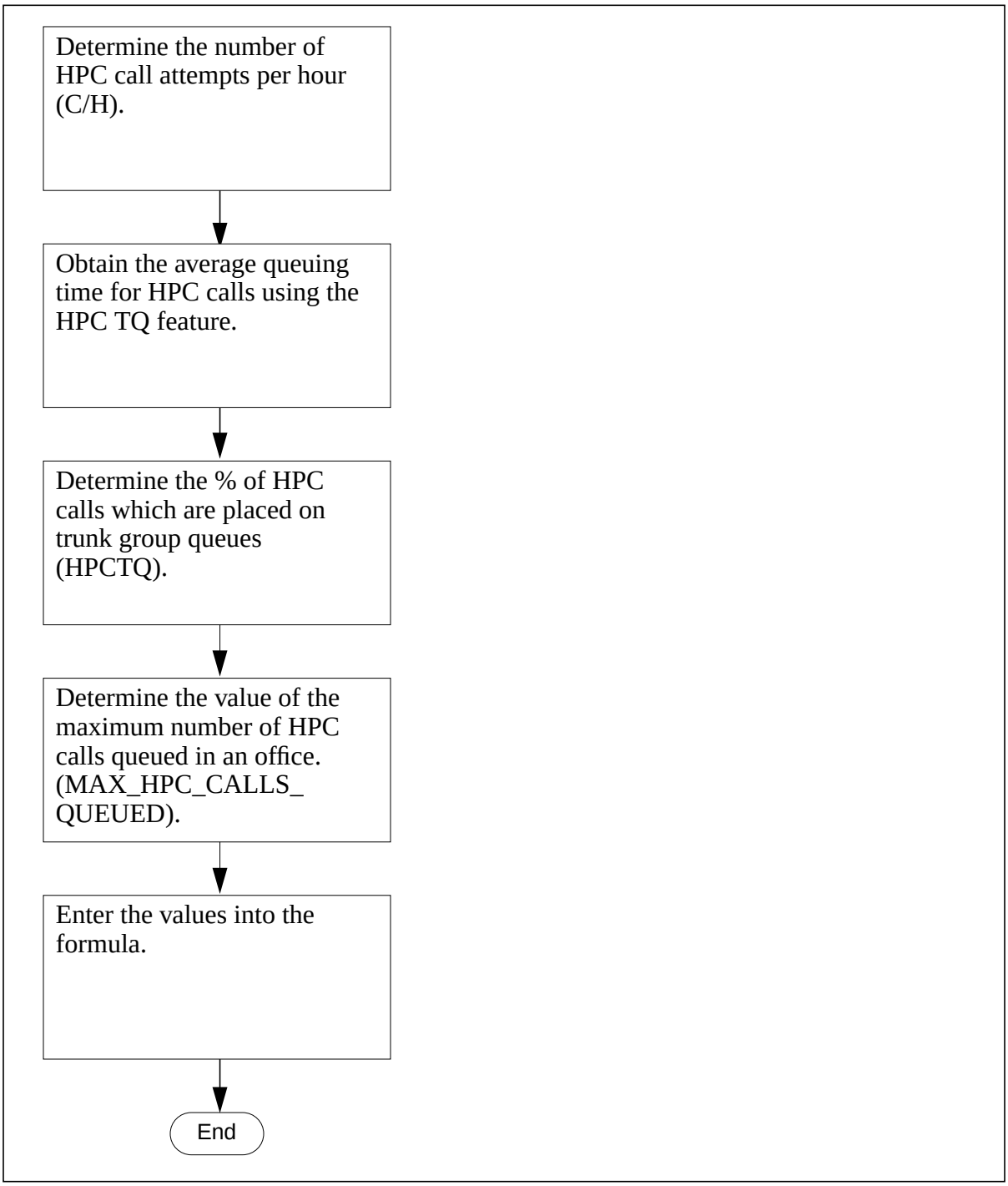
None

Action

The following flowchart is a summary of this procedure. Use the step-action instructions that follow the flowchart to perform the procedure.

Calculating the number of process wakeups and large FDBs required

Summary of Calculating the number of NUMCPWAKE and Large FDBs required



Calculating the number of process wakeups and large FDBs required

Step	Action

1 Use the following formula to calculate the number of Timer (NUMCPWAKE) and large Feature Data Blocks required:

$$N = \left[\left\{ \frac{A \times B(s)}{100(s)} \right\} \times C \right]$$

where N is the derived traffic load in CCS.

2 Determine the value of A, where A is the number of High Probability of Completion (HPC) call attempts per hour.

3 Obtain the value of B where B is the average queuing time for HPC calls using the trunk queuing (HPC TQ) feature.

4 Determine the value of C where C is the percentage of HPC call attempts per hour placed on trunk group queues.

5 Use the Erlang B table to convert the value of N, with a probability of blockage or delay of 0.001.

6 Obtain the value of the maximum HPC calls queued in the office, which is specified in MAX_HPC_CALLS_QUEUED in table OFCENG

If the value is	Then
more than the value obtained in step 5	the number of medium FDBs is the value obtained in step 5
equal to or less than the value obtained in step 5	the number of medium FDBs is the value of MAX_HPC_CALLS_QUEUED

7 Procedure is complete.

Calculating the number of FTRQ agent and FTRQ data blocks required

Purpose of this procedure

The purpose of this procedure is to determine the number of additional FTRQ agent (FTRQAGENTS) and FTRQ data blocks (FTRQ8WAREAS) required for the maximum number of simultaneous originating HPC calls.

Using the calculations in this procedure, refer to the following documents and sections to determine if office storage requires updating:

- "North America DMS-100 Feature Description Manual", Feature References AF6066 and AR1702.
- "DMS-100 Family NA100 Alarm Clearing and Performance Monitoring Procedures", section on "EXT CPPOOL".

When to use this procedure

Use this procedure prior to activating the GETS HPC feature.

Prerequisites

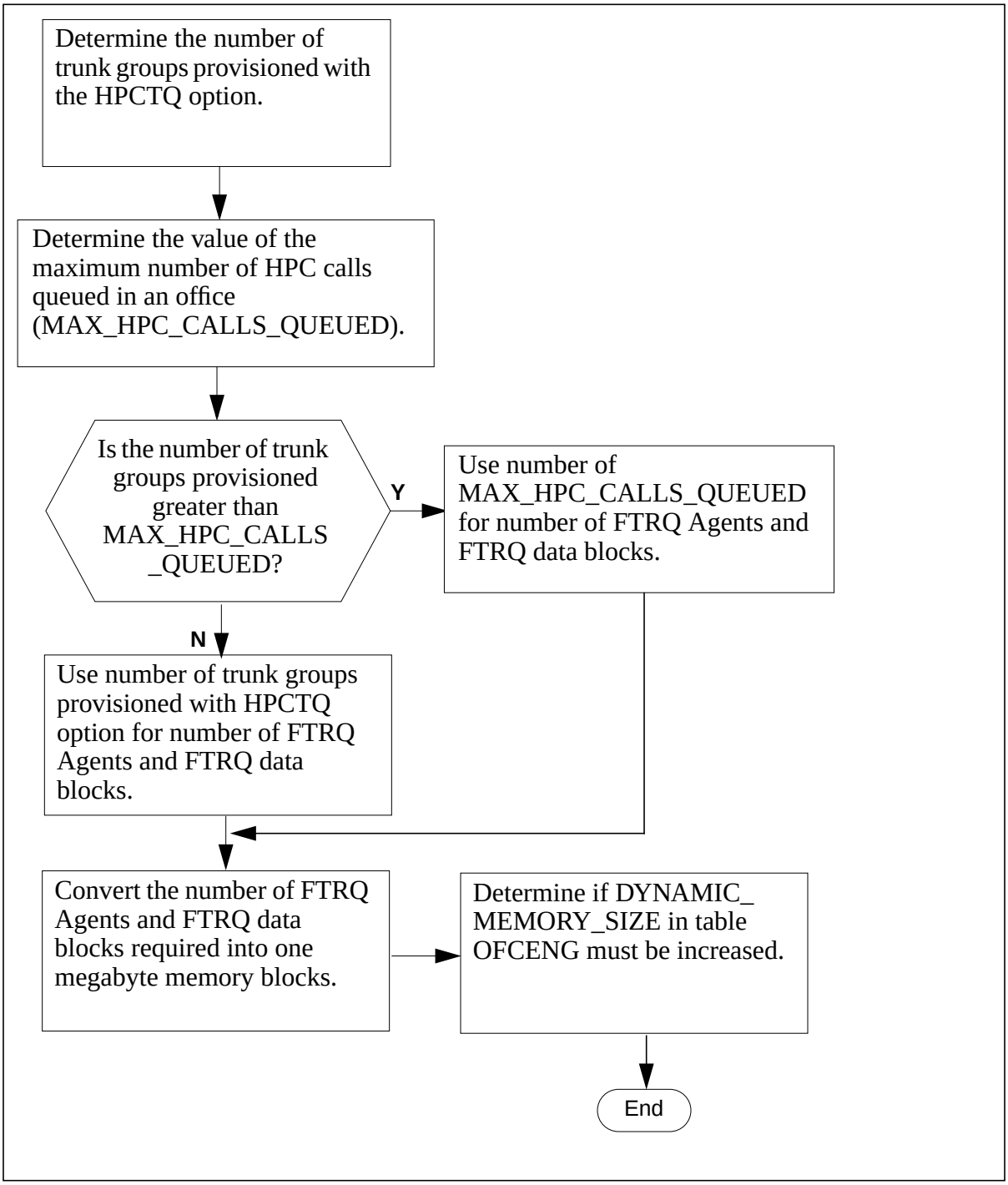
None

Action

The following flowchart is a summary of this procedure. Use the step-action instructions that follow the flowchart to perform the procedure.

Calculating the number of FTRQ agent and FTRQ data blocks required

Summary of Calculating the number of FTRQ Agent and FTRQ data blocks required



Calculating the number of FTRQ agent and FTRQ data blocks required

Step	Action

1 Determine the number of trunks in the office provisioned with the HPCTQ option.

Note: Refer to “Table TRKOPTS” on page 3-4 for information on the HPCTQ option.

2 Obtain the value of the maximum HPC calls queued in the office, which is specified in MAX_HPC_CALLS_QUEUED in table OFCENG

If the value is	Then
more than the value obtained in step 1	the number of FTRQ Agents and FTRQ data blocks is equal to the value obtained in step 1
equal to or less than the value obtained in step 1	the number of FTRQ Agents and FTRQ data blocks is equal to the value of MAX_HPC_CALLS_QUEUED

3 Convert the number of FTRQ Agents and FTRQ data blocks required into one megabyte (MB) memory blocks.

4 Determine if the parameter DYNAMIC_MEMORY_SIZE in table OFCENG must be increased.

Note: Consult “North America DMS-100 Feature Description Manual”, Features AF6066 and AR1702, and “DMS-100 Family NA100 Alarm Clearing and Performance Monitoring Procedures”, section on Ext CPPOOL, which contains the procedure for monitoring and updating storage usage: “CPPOOLMGR”.

5 Procedure is complete.

Calculating the number of FTRQ agent and FTRQ data blocks required

Procedures

This chapter contains the following procedures:

Note: GETS HPC OM registers must also be added to the EADAS Network Management (EADAS/NM) 5 minute traffic measurements. The addition of new EADAS/NM data is performed by the EADAS downstream OSS computer. For information on adding new OM registers to EADAS/NM, please see the EADAS document entitled "EADAS Interface Translation Guide"

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National Communications System
Attn: GETS Program Office
701 South Courthouse Rd.
Arlington, VA 22204-2198
email: gets@ncs.gov

Setting up GETS HPC in an office

Purpose of this procedure

The purpose of this procedure is to set up the GETS HPC feature in an office. This task is performed by operating company personnel.

When to use this procedure

Use this procedure once the GETS HPC feature is included in the software load for the switch.

Prerequisites

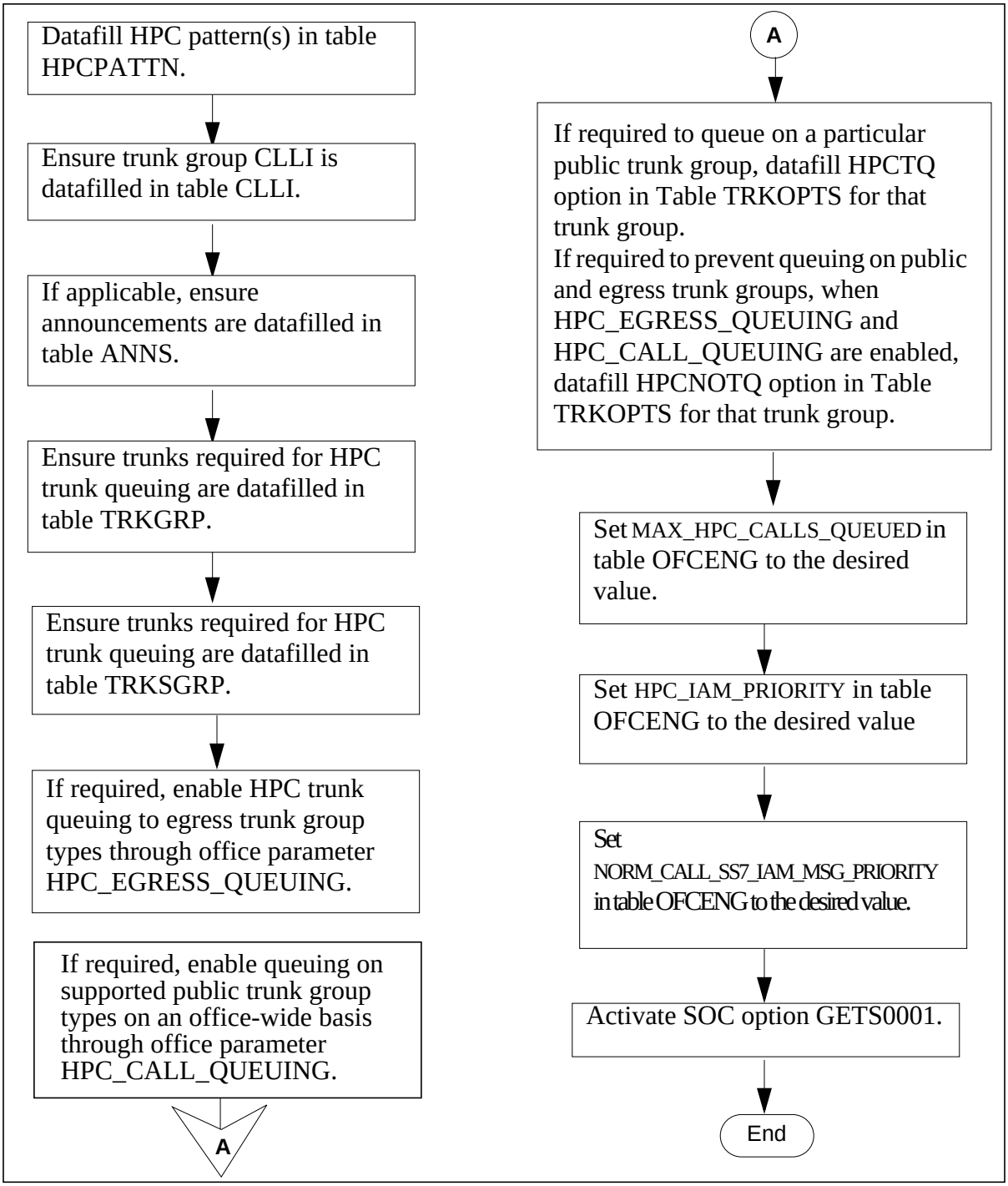
None

Action

The following flowchart is a summary of this procedure. Use the step-action instructions that follow the flowchart to perform the procedure.

Setting up GETS HPC in an office

Summary of Setting up GETS HPC in an office



Setting up GETS HPC in an office

Step	Action

At the CI level of the MAP

1 Access table HPCPATTN by typing:

```
>table hpcpattn
```

MAP response:

```
TABLE HPCPATTN:
```

2 Add the new HPC pattern by typing:

```
>add
```

MAP response:

```
ENTER Y TO CONTINUE PROCESSING OR N TO QUIT
```

```
>y
```

MAP response:

```
KEY:
```

Example input:

```
>7106274387
```

Note: The KEY field accepts 3, 6, or 10 digits.

MAP response:

```
TUPLE TO BE ADDED:
7106274387
ENTER Y TO CONTINUE PROCESSING OR N TO QUIT
```

```
>y
```

MAP response:

```
TUPLE ADDED
```

Note: A maximum of 5 patterns can be entered. Repeat step 2 as required.

3 Exit table HPCPATTN by typing:

```
>quit
```

4 Ensure the CLLI code for the trunk group required for HPC trunk queuing is datafilled in table CLLI.

Access table CLLI and position on the CLLI for the HPC trunk queuing group.

5 Ensure the trunk required for HPC trunk queuing is datafilled in table TRKGRP.

Access table TRKGRP and position on the group key (GRPKEY) field of the desired trunk group.

6 Ensure the trunk required for HPC trunk queuing is datafilled in table TRKSGRP.

Access table TRKSGRP and position on the subgroup key (SGRPKEY) field of the desired trunk subgroup members.

7 Ensure announcements are datafilled in table ANNS.

Access table ANNS and position on the CLLI field of the desired announcement.

Setting up GETS HPC in an office

8 Determine whether HPC Call Queuing, HPC Egress Queuing, or HPC Trunk Queuing is required.

If HPC queuing	Then go to
is required to queue on egress trunk group types	step 9
is required to queue on public trunk group types office wide	step 10
is required to queue on specific public trunk groups	step 11 and step 12
is required to prevent queuing on specific egress trunk groups when HPC_EGRESS_QUEUING is enabled office wide	step 11 and 13
is required to prevent queuing on specific public trunk groups when HPC_CALL_QUEUING is enabled office wide	step 11 and 13

9 Enable HPC calls to be queued on egress trunk group types.

a. Access table OFCVAR by typing:

```
>table ofcvar
```

MAP response:

```
TABLE OFCVAR:
```

b. Position on office parameter HPC_EGRESS_QUEUING by typing:

```
>pos hpc_egress_queuing
```

Example of a MAP response:

```
HPC_EGRESS_QUEUING              N
```

c. Execute a change to enable HPC_EGRESS_QUEUING and set any other required values by typing:

```
>cha
```

MAP response:

```
ENTER Y TO CONTINUE PROCESSING OR N TO QUIT
```

>y

Example of a MAP response:

```
PARMVAL: N
```

d. Enable HPC_EGRESS_QUEUING and set any other required values by typing:

>y <Timeout> <MaxCalls> <Treatment> <Annc>

where

Timeout	is 1 through 90 seconds, which indicates the maximum time an HPC call can wait in an egress trunk group queue for an available trunk
MaxCalls	is 1 through 256, which indicates the maximum number of calls that can simultaneously queue in an egress trunk group queue
Treatment	is NONE, TONE, or ANNC, which indicates the treatment, if any, to be provided on calls that are queued to an egress trunk group
Annc	is the CLLI code of the announcement to be provided when ANNC is entered for Treatment

Example input:

>y 60 100 annc hpceq_annc

Setting up GETS HPC in an office

MAP response:

```
TUPLE TO BE CHANGED:
          HPC_EGRESS_QUEUING   Y 60 100 ANNC HPCEQ_ANNC
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

>y

MAP response:

```
TUPLE CHANGED
```

e. Exit table OFCVAR by typing:

>quit

10 Enable HPC calls to be queued on supported public trunk group types.

a. Access table OFCVAR by typing:

>table ofcvar

MAP response:

```
TABLE OFCVAR:
```

b. Position on office parameter HPC_CALL_QUEUING by typing:

>pos hpc_call_queuing

Example of a MAP response:

```
HPC_CALL_QUEUING            N
```

c. Execute a change to enable HPC_CALL_QUEUING and set any other required values by typing:

>cha

MAP response:

```
ENTER Y TO CONTINUE PROCESSING OR N TO QUIT
```

>y

Example of a MAP response:

```
PARMVAL: N
```

d. Enable HPC_CALL_QUEUING and set any other required values by typing:

>y <Timeout> <MaxCalls> <Treatment> <Annc>

where

Timeout	is 1 through 90 seconds, which indicates the maximum time an HPC call can wait in an public trunk group queue for an available trunk
MaxCalls	is 1 through 256, which indicates the maximum number of calls that can simultaneously queue in an public trunk group queue
Treatment	is NONE, TONE, or ANNC, which indicates the treatment, if any, to be provided on calls that are queued to an egress trunk group
Annc	is the CLLI code of the announcement to be provided when ANNC is entered for Treatment

Example input:

>y 60 100 annc hpccq_annc

MAP response:

```
TUPLE TO BE CHANGED:
          HPC_CALL_QUEUING   Y 60 100 ANNC HPCCQ_ANNC
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

>y

MAP response:

```
TUPLE CHANGED
```

e. Exit table OFCVAR by typing:

>quit

Setting up GETS HPC in an office

11 Access table TRKOPTS by typing:

>table trkopts

MAP response:

```
TABLE TRKOPTS:
```

12 Execute an add to add a trunk group with option HPCTQ to table TRKOPTS by typing:

>add

MAP response:

```
ENTER Y TO CONTINUE PROCESSING OR N TO QUIT
```

>y

MAP response:

```
OPTKEY:
```

><clli> hpctq

where

clli	is the common language location identifier (CLLI) code for the trunk group to which the HPCTQ option is to be added

Example input:

>isup_montreal hpctq

MAP response:

```
OPTION:
```

>hpctq

MAP response:

```
TIMEOUT:
```

Example input:

>5

MAP response:

```
MAXCALLS:
```

Example input:

>100

MAP response:

```
PLAYANN:
```

Example input:

>y

MAP response:

```
ANNC:
```

Example input:

>annc1

MAP response:

```
TUPLE TO BE ADDED:
ISUP_MONTREAL HPCTQ HPCTQ 5 100 Y ANNC1
ENTER Y TO CONTINUE PROCESSING OR N TO QUIT
```

>y

MAP response:

```
TUPLE ADDED
```

Proceed to step 14.

Setting up GETS HPC in an office

Note: If HPC_CALL_QUEUING is enabled, then the following warning message will be displayed:

```
HPC_CALL_QUEUING is ON. HPCTQ parameters will
have precedence over HPCCQ parameters.
```

Note: The HPCTQ option and the HPCNOTQ option are mutually exclusive.

13 Execute an add to add a trunk group with option HPCNOTQ to table TRKOPTS by typing:

>add

MAP response:

```
ENTER Y TO CONTINUE PROCESSING OR N TO QUIT
```

>y

MAP response:

```
OPTKEY:
```

><clli> hpcnotq

where

clli	is the common language location identifier (CLLI) code for the egress trunk group to which the HPCNOTQ option is to be added

Example input:

>pratrkgp hpcnotq

MAP response:

```
OPTION:
```

>hpcnotq

MAP response:

```
ENTER Y TO CONTINUE PROCESSING OR N TO QUIT
```

>y

MAP response:

```
TUPLE TO BE ADDED:
     PRATRKGP      HPCNOTQ    HPCNOTQ
ENTER Y TO CONFIRM, N TO REJECT, OR E TO EDIT.
```

>y

MAP response:

```
TUPLE ADDED
```

14 Exit table TRKOPTS by typing:

>quit

15 Set the value of office parameters MAX_HPC_CALLS_QUEUED, HPC_IAM_PRIORITY and NORM_CALL_SS7_IAM_MSG_PRIORITY.

a. Access table OFCENG by typing:

>table ofceng

MAP response:

```
TABLE OFCENG:
```

b. Position on MAX_HPC_CALLS_QUEUED by typing:

>pos max_hpc_calls_queued

Example of a MAP response:

```
MAX_HPC_CALLS_QUEUED                    256
```

c. Change the value to the desired maximum number of calls to be held simultaneously in all trunk group queues by typing:

>cha

Setting up GETS HPC in an office

MAP response:

```
ENTER Y TO CONTINUE PROCESSING OR N TO QUIT
```

>y

Example of a MAP response:

```
PARMVAL: 256
```

d. Enter the desired value.

Example input:

>125

MAP response:

```
TUPLE TO BE CHANGED
MAX_HPC_CALLS_QUEUED 125
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT
```

>y

MAP response:

```
TUPLE CHANGED
```

e. Position on HPC_IAM_PRIORITY by typing:

>pos hpc_iam_priority

Example of a MAP response:

```
HPC_IAM_PRIORITY                        ALWAYS_ONE
```

f. Change the value, if desired to ONE_OR_HIGHER_BASED_ON_IAM_RCVD by typing

>cha

MAP response:

```
ENTER Y TO CONTINUE PROCESSING OR N TO QUIT
```

>y

Example of a MAP response:

```
PARMVAL: ALWAYS_ONE
```

g. Enter the desired value.

Example input:

>one_or_higher_based_on_iam_rcvd

MAP response:

```
TUPLE TO BE CHANGED
HPC_IAM_PRIORITY ONE_OR_HIGHER_BASED_ON_IAM_RCVD
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT
```

>y

MAP response:

```
TUPLE CHANGED
```

h. Position on NORM_CALL_SS7_IAM_MSG_PRIORITY by typing:

>pos norm_call_ss7_iam_msg_priority

Example of a MAP response:

```
NORM_CALL_SS7_IAM_MSG_PRIORITY          ALWAYS_ONE
```

i. change the value to ALWAYS_ZERO by typing:

>cha

MAP response:

```
ENTER Y TO CONTINUE PROCESSING OR N TO QUIT
```

>y

Example of a MAP response:

```
PARMVAL; ALWAYS_ONE
```

Setting up GETS HPC in an office

j. Enter the GETS HPC value.

Example input:

```
>always_zero
```

MAP response:

```
TUPLE TO BE CHANGED
NORM_CALL_SS7_IAM_MSG_PRIORITY ALWAYS_ZERO
ENTER Y TO CONFIRM, NO TO REJECT OR E TO QUIT

>y

TUPLE CHANGED
```

16 Exit table OFCENG by typing:

```
>quit
```

17 Setting up GETS HPC in an office is complete.

Setting up EADAS/DC for GETS HPC

Purpose of this procedure

The purpose of this procedure is to add the GETS HPC OM group HPCBASIC to the EADAS Data Collection (EADAS/DC) interface, in order to accumulate HPCBASIC OM data in 30-minute intervals.

When to use this procedure

Use this procedure in an office which has EADAS functioning, to define the EADAS Data Collection section for OM group HPCBASIC.

Note: Offices using EADAS for the first time will have this section added to the EADAS/DC EADAS30M class automatically.

Prerequisites

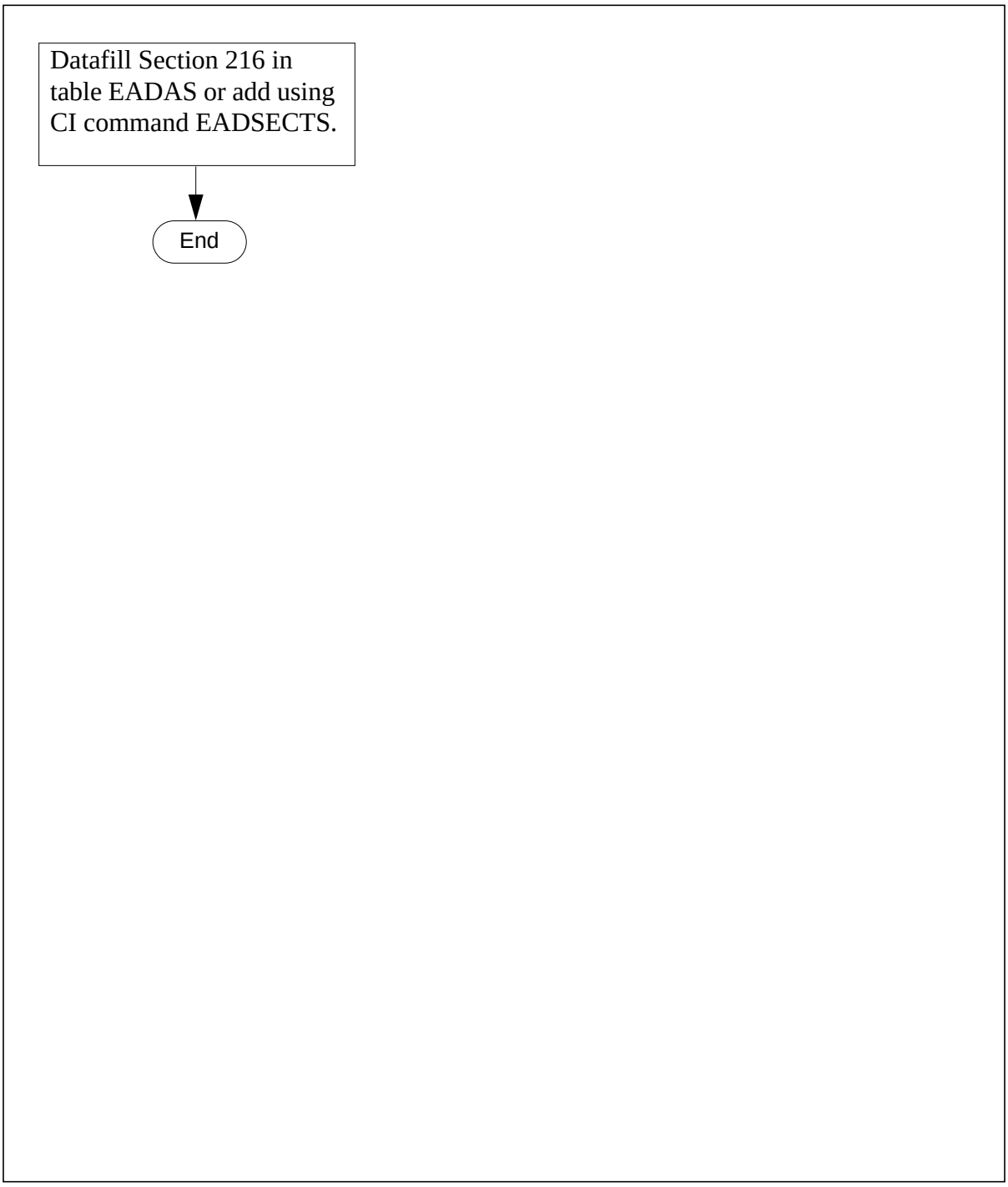
Prior to performing this procedure, ensure proper MPC data connections link the DMS to the EADAS OSS computers. For more information, refer to the EADAS document entitled *EADAS Interface Product Guide*.

Action

The following flowchart is a summary of this procedure. Use the step-action instructions that follow the flowchart to perform the procedure.

Setting up EADAS/DC for GETS HPC

Summary of Setting up EADAS/DC for GETS HPC



Setting up EADAS/DC for GETS HPC

Step	Action

At the CI level of the MAP

1 Determine whether to enter EADAS/DC Section 216 through table EADAS, or through CI command EADSECTS.

If entering EADAS/DC through	Then go to
table EADAS	step 2
CI command EADSECTS	step 4

2 Access table EADAS by typing:

```
>table eadas
```

MAP response:

```
TABLE EADAS:
```

3 Add the new section number 216 by typing:

```
>add
```

MAP response:

```
EADASKEY:
```

Example input:

```
>eadas30m 216 precision
```

MAP response:

```
EADASDATA:
```

Example input:

```
>single hpcbasic lineatt
```

```
>add
```

Setting up EADAS/DC for GETS HPC

MAP response:

EADASKEY:

Example input:

>eadas30m 216 reg 1

MAP response:

EADASDATA:

Example input:

>hpcbasic trkatt

>add

MAP response:

EADASKEY:

Example input:

>eadas30m 216 reg 2

MAP response:

EADASDATA:

Example input:

>hpcbasic termline

>add

MAP response:

EADASKEY:

Example input:

>eadas30m 216 reg 13

MAP response:

EADASDATA:

Setting up EADAS/DC for GETS HPC

Example input:

```
>hpcbasic acgblock
```

Go to step 5

4 Enter EADAS/DC Section 216 data using CI command EADSECTS by typing:

Example input:

```
>eadsects eadas30m 216 add single hpcbasic lineatt
hpcbasic trkatt +

>hpcbasic termline hpcbasic termtrk hpcbasic termnc
hpcbasic termiec +

>hpcbasic termiecn hpcbasic exnmctrl hpcbasic tqqatt
hpcbasic tqqovfl +

>hpcbasic tqqabdn hpcbasic tqqtmrex hpcbasic eqqatt
hpcbasic eqqovfl

>hpcbasic eqqabdn hpcbasic eqqtmrex hpcbasic acgexmpt
hpcbasic acgblock
```

5 Setting up EADAS/DC for GETS HPC is complete.

Activating and deactivating SOC option GETS0001

Activating and deactivating SOC option GETS0001

Purpose of this procedure

The purpose of this procedure is to activate or deactivate SOC option GETS0001. This task is performed by operating company personnel.

The use of HPC Network Capabilities is restricted in the United States and U.S. Territories (Puerto Rico and U.S. Virgin Islands) to National Security/ Emergency Preparedness (NS/EP) users authorized by the Office of the Manager, National Communications System (OMNCS). Operating company deployment of these HPC Network Capabilities must be coordinated with the OMNCS at the following address:

Office of the Manager
National Communications System
Attn: GETS Program Office
701 South Courthouse Rd.
Arlington, VA 22204-2198
email: gets@ncs.gov

When to use this procedure

Use this procedure once the software load that includes the GETS HPC feature is added to the switch.

Note: HPC service can be provisioned with the SOC option in the IDLE state; however, the call processing functions are disabled. HPC service is fully functional only when the SOC option is in the ON state.

Prerequisites

Obtain the right-to-use (RTU) key code (password) from your Nortel Networks representative to activate or deactivate SOC option GETS0001.

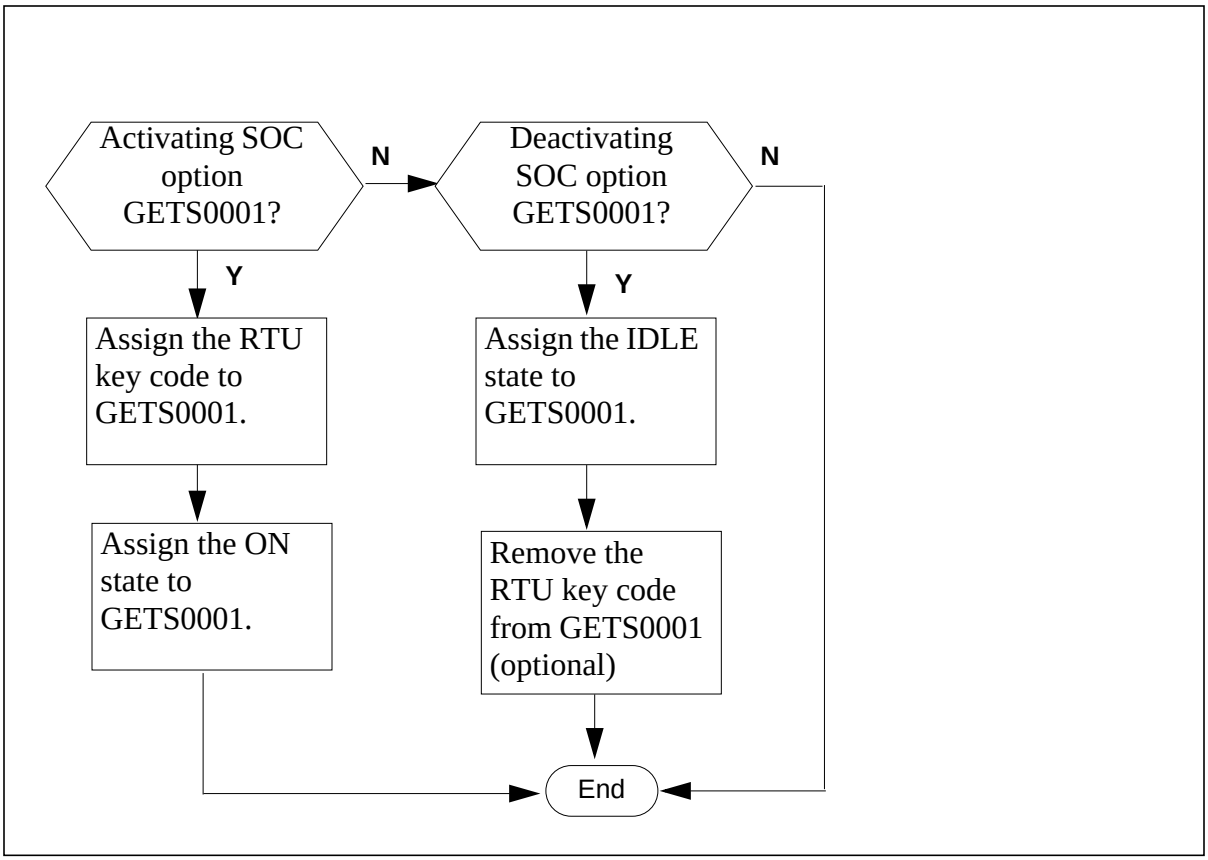
Note: The RTU key code is provided upon authorization from GTE Government Systems.

Activating and deactivating SOC option GETS0001

Action

The following flowchart is a summary of this procedure. Use the step-action instructions that follow the flowchart to perform the procedure.

Summary of Activating and deactivating SOC option GETS0001



Step	Action

Activating SOC option GETS0001

1 Access the SOC utility by typing:

>soc

MAP response:

SOC:

Activating and deactivating SOC option GETS0001

2 Display the status of the GETS HPC software option by typing:

```
>select option gets0001
```

MAP response:

```
GROUP: GETS
OPTION NAME    RTU STATE USAGE LIMIT UNITS    LAST_CHG
-------------------------------------------------------
GETS0001 GETS   N  IDLE   -     -     -       98/05/10
```

3 Assign the right-to-use (RTU) key code to the GETS HPC software option by typing:

```
>assign rtu <key_code> to gets0001
```

where

key_code — is the password obtained from your Nortel Networks representative.

Note: The RTU key code is provided upon authorization from GETS Integration Contractor.

MAP response:

```
Done.
```

4 Verify the RTU status change of the GETS HPC software option by typing:

```
>select option gets0001
```

MAP response:

```
GROUP: GETS
OPTION NAME    RTU STATE USAGE LIMIT UNITS    LAST_CHG
-------------------------------------------------------
GETS0001 GETS   Y  IDLE   -     -     -       98/05/10
```

5 Assign the ON state to the GETS HPC software option by typing:

```
>assign state on to gets0001
```

Activating and deactivating SOC option GETS0001

MAP response:

```
Done.
```

6 Verify the status change of the GETS HPC software option by typing:

```
>select option gets0001
```

MAP response:

```
GROUP: GETS
OPTION NAME    RTU STATE USAGE LIMIT UNITS    LAST_CHG
-------------------------------------------------------
GETS0001 GETS   Y  ON   -     -     -       98/05/10
```

7 Exit the SOC utility by typing:

```
>quit
```

8 Activating SOC option GETS0001 is complete.

Activating and deactivating SOC option GETS0001

Deactivating SOC option GETS0001

1 Access the SOC utility by typing:

```
>soc
```

MAP response:

```
SOC:
```

2 Display the status of the GETS HPC software option by typing:

```
>select option gets0001
```

MAP response:

```
GROUP: GETS
OPTION NAME    RTU STATE USAGE LIMIT UNITS    LAST_CHG
-------------------------------------------------------
GETS0001 GETS   Y  ON   -     -     -       98/05/10
```

3 Assign the IDLE state to the GETS HPC software option by typing:

```
>assign state idle to gets0001
```

MAP response:

```
Confirm state change of option GETS0001 to state IDLE by
entering the textual option name.

>gets
```

MAP response:

```
Done.
```

4 Verify the status change of the GETS HPC software option by typing:

```
>select option gets0001
```

Activating and deactivating SOC option GETS0001

MAP response:

```
GROUP: GETS
OPTION NAME    RTU STATE USAGE LIMIT UNITS    LAST_CHG
-------------------------------------------------------
GETS0001 GETS   Y  IDLE   -     -     -       98/05/10
```

If the RTU key code	Then go to
needs to be removed	step 5
does not need to be removed	step 7

5 Remove the RTU key code from the GETS HPC software option by typing:

```
>remove rtu <key_code> from gets0001
```

MAP response:

```
Done.
```

6 Verify the status change of the GETS HPC software option by typing:

```
>select option gets0001
```

MAP response:

```
GROUP: GETS
OPTION NAME    RTU STATE USAGE LIMIT UNITS    LAST_CHG
-------------------------------------------------------
GETS0001 GETS   N  ON   -     -     -       98/05/10
```

7 Exit the SOC utility by typing:

```
>quit
```

8 Deactivating SOC option GETS0001 is complete.

Activating and deactivating SOC option GETS0001

GETS HPC translations

This chapter contains the tables that require datafill to provide GETS HPC functionality.

The use of HPC Network Capabilities is restricted in the United States and U.S. Territories (Puerto Rico and U.S. Virgin Islands) to National Security/ Emergency Preparedness (NS/EP) users authorized by the Office of the Manager, National Communications System (OMNCS). Operating company deployment of these HPC Network Capabilities must be coordinated with the OMNCS at the following address:

Office of the Manager
National Communications System
Attn: GETS Program Office
701 South Courthouse Rd.
Arlington, VA 22204-2198
email: gets@ncs.gov

GETS HPC

Datafill sequence

The following table lists the tables that require datafill to provide GETS HPC functionality.

Datafill tables required for GETS HPC

Table	Purpose of table
HPCPATTN	contains digit patterns for calls to be recognized as HPC calls
TRKOPTS	contains the following options: • HPCTQ enables HPC trunk queueing • HPCNOTQ prevents an HPC call from being queued on a supported egress trunk group (PX, P2, and PRA) when the GETS HPC egress queuing feature is enabled on an office-wide basis through office parameter HPC_EGRESS_QUEING. • HPCNOTQ prevents an HPC call from being queued on a supported public trunk group (IT, T2, TO, ATC, and CELL) when the GETS HPC call queuing feature is enabled on an office-wide basis through office parameter HPC_CALL_QUEING
OFCENG	contains the following office parameters: • MAX_HPC_CALLS_QUEUED sets the maximum number of calls that can be held simultaneously in trunk group queues in the switch • HPC_IAM_PRIORITY provisions the IAM message priority value for HPC calls to 1, or the value of the received IAM when equal to or greater than 1 • NORM_CALL_SS7_IAM_MSG_PRIORITY provisions the default SS7 message priority on an office-wide basis, for all non-HPC (or regular) calls
OFCVAR	contains two office parameters: • HPC_EGRESS_QUEUING, which enables or disables HPC calls being queued on egress trunk groups office wide • HPC_CALL_QUEUING, which enables or disables HPC calls being queued on supported public trunk groups office wide

Datafilling table HPCPATTN

The following table shows the datafill specific to GETS HPC for table HPCPATTN.

Datafilling table HPCPATTN

Field	Refinement	Entry	Explanation and action
KEY		3, 6 or 10 digits	Enter the digit patterns which are to be used to identify calls as HPC calls. ***Note:*** If a specific pattern, for example 416722 exists in the database and a generic pattern, for example 416 is entered, the request is disallowed. Similarly, if a generic pattern, for example 710 exists in the database and a specific pattern, for example 7107221234 is entered, the request is denied.

Datafill example for table HPCPATTN

The following example shows sample datafill for table HPCPATTN.

MAP display example for table HPCPATTN

```
KEY
_____________________________________________________________
7106274387
711
710626
```

GETS HPC

Error messages for table HPCPATTN

In addition to the standard DMS table control error messages, the HPC-specific error message that can appear when attempting to datafill Table HPCPATTN is provided in the following table.

Error messages for table HPCPATTN

Error message	Explanation and action
HPC patterns must be 3, 6 or 10 digits	An incorrect HPC digit pattern was entered.
HPC patterns table is full	An attempt was made to add a sixth pattern to the table when only five are acceptable.

Datafilling table TRKOPTS

The following table shows the datafill specific to GETS HPC for table TRKOPTS.

Note: A warning is displayed when the HPCTQ option is assigned to an ATC trunk group and boolean ANNC is set to yes.

Datafilling table TRKOPTS

Field	Refinement	Entry	Explanation and action
OPTKEY		see subfields	*Option key.* This field consists of subfields CLLI and OPTION, which are described below.
	CLLI	1 through 16 alphanumeric characters	*Common language location identifier.* Enter the CLLI code of the trunk group on which the option is to be assigned.

Datafilling table TRKOPTS (Continued)

Field	Refinement	Entry	Explanation and action
	OPTION	HPCTQ or HPCNOTQ	*Option*. Enter HPCTQ for HPC trunk queuing. Enter HPCNOTQ to prevent an HPC call from being queued on one of the following: • a supported egress trunk group when the GETS HPC egress queuing feature is enabled on an office-wide basis through office parameter HPC_EGRESS_QUEING • or a supported public trunk group when the GETS HPC call queuing feature is enabled on an office-wide basis through office parameter HPC_CALL_QUEING.
OPTINFO	OPTION	HPCTQ or HPCNOTQ	*Option*. Enter HPCTQ to enable HPC trunk queuing and complete subfields TIMEOUT, MAXCALLS, PLAYANN, and ANNC. Enter HPCNOTQ to prevent an HPC call from being queued on one of the following: • a supported egress trunk group when the GETS HPC egress queuing feature is enabled on an office-wide basis through office parameter HPC_EGRESS_QUEING • or a supported public trunk group when the GETS HPC call queuing feature is enabled on an office-wide basis through office parameter HPC_CALL_QUEING. ***Note:*** The HPCNOTQ option can only be assigned to trunk group types IT, T2, TO, ATC, CELL, P2, PX, and PRA. When an attempt is made to assign the HPCNOTQ option on any other trunk group type, an error message is displayed.

GETS HPC

Datafilling table TRKOPTS (Continued)

Field	Refinement	Entry	Explanation and action
	TIMEOUT	1 through 90 seconds	*Time out*. This subfield indicates the maximum duration a call can be held in the queue.
	MAXCALLS	1 through 256	*Maximum calls*. This subfield indicates the maximum number of calls that can be queued on the trunk group.
	PLAYANN	Y or N	*Play Announcement*. This subfield indicates whether an announcement is to be played when a call is in queue.
	ANNC	1 through 16 alphanumeric characters	*Announcement.* This subfield indicates the CLLI code of the announcement to be played when PLAYANN = Y.

Datafill example for table TRKOPTS

The following example shows sample datafill for table TRKOPTS.

MAP display example for table TRKOPTS

```
            OPTKEY                                  OPTINFO
_____________________________________________________________
ISUP_MONTREAL          HPCTQ       HPCTQ 5 100 Y ANNC1
ISUP_MONTREAL_2        HPCTQ       HPCTQ 5 100 N
PRATRKGP               HPCNOTQ     HPCNOTQ
```

Error messages for table TRKOPTS

In addition to the standard DMS table control error messages, the HPC-specific error messages that may be displayed when attempting to datafill Table TRKOPTS are provided below:

Error messages for table TRKOPTS

Error message	Explanation and action
`HPCTQ option can only be assigned to TO, T2, IT, ATC, and CELL trunk types.`	An attempt was made to assign the HPCTQ option to an unsupported trunk group.
`Must be 2W or OUTGOING Trunk.`	An attempt was made to assign the HPCTQ or HPCNOTQ option to an incoming trunk.
`HPCNOTQ option can only be assigned to IT, T2, TO, ATC, CELL, P2, PX, and PRA trunk types`	An attempt was made to assign the HPCNOTQ option to a trunk group type other than the valid types.
`Incoming trunk not supported by HPCNOTQ option datafilled in table TRKOPTS. TRKSGRP data conflicts with data in table TRKOPTS`	An attempt was made to change the direction of a trunk group, with the HPCNOTQ option, to *incoming* in Table TRKSGRP.
`Must be 2W or OUTGOING Trunk`	An attempt was made to assign the HPCNOTQ option to an incoming trunk group.

Error messages about invalid signalling type for table TRKOPTS

Message	Description
`HPCNOTQ option can only be assigned on MF signaling for CELL trunk Type.`	An attempt was made to assign the HPCNOTQ option to a CELL trunk groups type that does not have MF signaling.
`HPCNOTQ option can only be assigned on SS7 and MF signaling for IT, TO, T2 and ATC Trunk Type.`	An attempt was made to assign the HPCNOTQ option to a IT, TO, T2, or ATC trunk groups type that does not have MF or SS7 signaling

GETS HPC

Error messages about invalid signalling type for table TRKOPTS

Message	Description

`Only MF signaling type is allowed for CELL Trunk Group Type for HPCNOTQ option in table TRKOPTS.`
 	
`TRKSGRP data conflicts with data in table TRKOPTS`
	The HPCNOTQ option is assigned to a CELL trunk type and an attempt was made to change the signaling of that trunk group in Table TRKSGRP.

`Only MF and SS7 signaling types are allowed for current Trunk Type for HPCNOTQ option in table TRKOPTS.`
 	
`TRKSGRP data conflicts with data in table TRKOPTS`
	The HPCNOTQ option is assigned to a supported public trunk type (IT, TO, T2, ATC) and an attempt was made to change the signaling of that trunk group in Table TRKSGRP.

`Current GROUP should be datafilled in Table TRKSGRP prior to datafilling HPCNOTQ option in Table TRKOPTS.”`	An attempt was made to assign HPCNOTQ option to a supported public trunk that is not datafilled in Table TRKSGRP.

Error messages about HPCTQ and HPCNOTQ option conflicts for table TRKOPTS

Message	Description
`HPCNOTQ cannot be assigned to a trunk group having HPCTQ option.`	An attempt was made to assign the HPCNOTQ option on a trunk group with the HPCTQ option already assigned.
`HPCTQ cannot be assigned to a trunk group having HPCNOTQ option.`	An attempt was made to assign the HPCTQ option on a trunk group with the HPCNOTQ option already assigned.

Warning messages for table TRKOPTS

In addition to the standard DMS table control warning messages, the HPC-specific error messages that may be displayed when attempting to datafill Table TRKOPTS are provided below:

Warning messages for table TRKOPTS

Error message	Explanation and action
`The announcement will not be played when the incoming agent is an IT trunk during Call Processing Time.`	The HPCTQ option is assigned to an ATC trunk group. No action is required.
`The announcement will not be played. Only STND announcement type will be played.`	The CLLI code provided for ANNC is a non-standard announcement. Enter the CLLI code for a standard announcement.
`HPC_CALL_QUEUING is ON. HPCTQ parameters will have precedence over HPCCQ parameters.`	The HPCTQ option has preference over the HPCCQ option; the HPCTQ option has been assigned on a trunk while HPCCQ is enabled.

GETS HPC

Datafilling table OFCENG

The following table shows the datafill specific to GETS HPC for table OFCENG.

Datafilling table OFCENG

Field	Refinement	Entry	Explanation and action
MAX_HPC_CALLS_QUEUED		0 TO 1024	Enter the maximum number of HPCTQ calls to be held simultaneously in trunk group queues on the switch. ***Note:*** The default value is 256.
HPC_IAM_PRIORITY		ALWAYS_ONE, or ONE_OR_ HIGHER_BASED _ON_IAM_RCVD	Enter ALWAYS_ONE, to make the message priority value of HPC outgoing IAM to 1, always. Enter ONE_OR_HIGHER_ BASED_ON_IAM_RCVD, to: - allow the message priority value of the HPC outgoing IAM to be taken from the message priority value of the received IAM, when it is equal to or greater than 1; - set the message priority value of the HPC outgoing IAM to 1, if the received message priority value is less than 1, or the signaling type of the incoming agent is not SS7.
NORM_CALL_SS7_IAM_MSG _PRIORITY		ALWAYS_ZERO, ALWAYS_ONE, PASS_OR_ZERO or PASS_OR_ONE	Enter ALWAYS_ZERO when GETS HPC is present in the switch. ***Note:*** The default value is ALWAYS_ONE.

Datafilling table OFCVAR

The following table shows the datafill specific to GETS HPC for table OFCVAR.

Datafilling table OFCVAR

Field	Refinement	Entry	Explanation and action
HPC_EGRESS_QUEUING	Enabled	Y or N	Enter Y to enable HPC calls to be queued on egress trunks on an office-wide basis. The default value is N.
	Timeout	1 through 90	Enter the maximum time an HPC call can wait in an egress trunk group queue for an available trunk.
	MaxCalls	1 through 256	Enter the maximum number of calls that can simultaneously queue in an egress trunk group queue.
	Treatment	NONE, TONE, or ANNC	Enter the treatment, tone or announcement, to be provided to HPC calls queued on egress trunk groups. Enter NONE if no treatment is required.
	Annc	CLLI code	Enter the CLLI code of the announcement.
HPC_CALL_QUEUING	Enabled	Y or N	Enter Y to enable HPC calls to be queued on supported public trunks on an office-wide basis. The default value is N.
	Timeout	1 through 90	Enter the maximum time an HPC call can wait in an supported trunk group queue for an available trunk.
	MaxCalls	1 through 256	Enter the maximum number of calls that can simultaneously queue in an supported trunk group queue.

GETS HPC

Datafilling table OFCVAR

Field	Refinement	Entry	Explanation and action
	Treatment	NONE, TONE, or ANNC	Enter the treatment, tone or announcement to be provided to HPC calls queued on supported trunk groups. Enter NONE if no treatment is required.
	Annc	CLLI code	Enter the CLLI code of the announcement.

Translation verification tools

The translation verification (TRAVER) tool is updated to support the HPC call recognition processing, by displaying table HPCPATTN and the tuple of table HPCPATTN, which is used to successfully recognize an HPC call. This information is shown in all TRAVER displays regardless of whether the call is an HPC call.

Examples on the pages that follow show TRAVER outputs.

- Figure 9-1 shows a TRAVER with HPC digits dialed.
- Figure 9-2 shows a TRAVER with normal digits dialed, and the call encounters the AINRES option. This TRAVER also displays a warning message indicating the GETS SOC state is not ON. This warning message is used to remind the operating company personnel to set the GETS SOC state to ON, in order to process GETS HPC calls.
- Figure 9-3 and Figure 9-4 provide examples of GETS HPC interactions with AIN queries and responses, respectively.
- Figure 9-5 illustrates TRAVER support for HPC Equal Access calls that are subject to recursive retranslation. When the call goes through the first pass of the recursive retranslation and the call is recognized as an HPC call, then all relevant information will be displayed accordingly. However, if the call is not recognized as an HPC call in the second pass, due to digits stripping for example, a warning message is displayed to inform the user that this last result overrides the previous one as shown in Figure 9-5.

GETS HPC

Figure 9-1 TRAVER Output Example for an HPC Call

```
 >traver l 6211500 16136216502 b
TABLE LINEATTR
71 1FR NONE NT NSCR 1 613 P621 L621 TSPS 10 NIL NILSFC USEA1 0 NIL NIL 00 N $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
%% Entries deleted
TABLE STDPRTCT
P621 ( 1) (65021) 0
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 16136216502 16136216502 T NP 1 OFRT 1 11 11 NONE
AIN Info Collected TDP: no subscribed trigger.
TABLE HPCPATTN
6136216502
An HPC pattern has been matched.
LNP INFOANAL
 . LNP ( DG LNPDIG) (ESCDN ) (ESCEA )$ NIL
Trigger AIN LNP is applicable to office.
 . PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.
 .  . TABLE OFRT
 .  .    1 N D ISUPIT2WA 3 N N
 .  . EXIT TABLE OFRT
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
OVERLAP CARRIER SELECTION (OCS) APPLIES
TABLE LATAXLA
TUPLE NOT FOUND
ASSUMED TO BE DEFAULT INTRALATA, INTRASTATE, STD

+++ TRAVER: SUCCESSFUL CALL TRACE +++


DIGIT TRANSLATION ROUTES

1 ISUPIT2WA             6216502            ST

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 T120
2 LKOUT

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

Figure 9-2 TRAVER Output Example for a Non-HPC Call (with AINRES Option) GETS SOC not on

```
 >traver l 6211088 6137234000 ainres r01 ar b
TABLE IBNLINES
HOST 00 0 01 04 0 DT STN RES 6211088 14 $
TABLE LINEATTR
14 INW WAT0 NT NSCR 0 613 P621 L613 NONE 10 NIL NILSFC NILLATA 0 NIL NIL 00
Y RESG271 0 0 $
%% Entries deleted
TABLE STDPRTCT
P621 ( 1) (65021) 1
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 6137 61385 N DD 3 NA
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HNPACONT
613 Y 998 1 ( 161) ( 1) ( 107) ( 0) 3
 . SUBTABLE HNPACODE
 . 723 723 DN 613 723
TABLE FNPA7DIG
EMPTY TABLE: TUPLE NOT FOUND
TABLE HPCPATTN
TUPLE NOT FOUND
WARNING-The GETS SOC state is not ON.
TABLE TRIGGRP
PODPTRIG INFOANAL
 . PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.
TABLE TOFCNAME
613 723 $
TABLE DNINV
613 723 4000 D BLDN
AIN Term Attempt TDP: no subscribed trigger.
TABLE DNFEAT
TABLE DNFEAT
TUPLE NOT FOUND
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE TMTCNTL
LNT ( 111)
 . SUBTABLE TREAT
 . BLDN Y T OFRT 50
 . TABLE OFRT
 .   50 S D VDN
 .      S D *FRA0
 .      S D LKOUT
 . EXIT TABLE OFRT

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

GETS HPC

Figure 9-3 TRAVER Output Example for an HPC dialed call encountering an AIN trigger

```
>traver l 6216503 6136216666 b
TABLE IBNLINES
HOST 00 0 01 09 0 DT STN RES 6216503 271 613 $
TABLE LINEATTR
271 1FR NONE NT NSCR 1 613 P621 L621 TSPS 10 NIL NILSFC USEA1 0 NIL NIL
00 Y RESG2
71 0 0 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE IBNFEAT
TUPLE NOT FOUND
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP PODPTRIG
AIN Orig Attempt TDP: no subscribed trigger.
TABLE NCOS
RESG271 0 0 0 RNCOS $
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
RESG271 NXLA RXCMN271 RXCFNXXX 0 RES
TABLE DIGCOL
RES specified: RES digit collection
TABLE IBNXLA: XLANAME RXCMN271
TUPLE NOT FOUND
Default from table XLANAME:
RXCMN271
    (NET N N 0 N NDGT N Y GEN ( LATTR 271) (EA NILC Y 0) $ $)$ 9
TABLE DIGCOL
NDGT specified: digits collected individually
TABLE LINEATTR
271 1FR NONE NT NSCR 1 613 P621 L621 TSPS 10 NIL NILSFC USEA1 0 NIL NIL
00 Y RESG2
71 0 0 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE STDPRTCT
P621 ( 1) (65021) 0
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 613621 613621 N NP 0 NA
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HPCPATTN
6136216666
An HPC pattern has been matched.
```

TRAVER Output Example for an HPC dialed call encountering an AIN trigger (continued)

```
TABLE HNPACONT
613 Y 850 1 ( 105) ( 1) ( 107) ( 0) 2 $
 . SUBTABLE HNPACODE
 . 613 613 HNPA 0
 . 621 621 DN 613 621
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
PODPTRIG INFOANAL
 . PODP ( DG PODPDIG)$ NIL
Trigger AIN PODP is applicable to office.
 .  . TABLE TRIGDIG
 .  . PODPDIG PODP 6136216666 PODP EVENT TCAP R02 TCPIP 0 $
AIN Info Analyzed TDP: trigger criteria met.
Querying the database would occur now.
Use the AINMQG option to save the query to a file for use in TstQuery.
Use the AINRES option for further information

+++ AIN TRAVER: SUCCESSFUL CALL TRACE +++


AIN Info Analyzed TDP: trigger criteria met.
Querying the database would occur now.
Use the AINMQG option to save the query to a file for use in TstQuery.
Use the AINRES option for further information

+++ AIN TRAVER: SUCCESSFUL CALL TRACE +++
```

GETS HPC

Figure 9-4 TRAVER Output Example for HPC digits dialed from an AIN Response message

```
>traver l 6216503 n cdn na 5146266046 tns na cic '0602' ainres r02 ar b
Warning: Routing characteristics are present.
         Originator must be able to send in
         characteristics specified.
TABLE RTECHAR
 . NACAR (CDN NA (TNS NA)$)$
TABLE IBNLINES
HOST 00 0 01 09 0 DT STN RES 6216503 271 613 $
TABLE LINEATTR
271 1FR NONE NT NSCR 1 613 P621 L621 TSPS 10 NIL NILSFC USEA1 0 NIL NIL
00 Y RESG2
71 0 0 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE IBNFEAT
TUPLE NOT FOUND
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP PODPTRIG
TABLE NCOS
RESG271 0 0 0 RNCOS $
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
RESG271 NXLA RXCMN271 RXCFNXXX 0 RES
TABLE DIGCOL
RES specified: RES digit collection
TABLE XLAMAP
 . Tuple not found. Default is use original XLANAME.
TABLE IBNXLA: XLANAME RXCMN271
TUPLE NOT FOUND
Default from table XLANAME:
RXCMN271
    (NET N N 0 N NDGT N Y GEN ( LATTR 271) (EA NILC Y 0) $ $)$ 9
TABLE DIGCOL
NDGT specified: digits collected individually
TABLE LINEATTR
271 1FR NONE NT NSCR 1 613 P621 L621 TSPS 10 NIL NILSFC USEA1 0 NIL NIL
00 Y RESG2
71 0 0 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE PXLAMAP
 . NACAR P621 ( XLA NAT621)$
TABLE STDPRTCT
 . Tuple not found. Default to old pretranslator name.
TABLE STDPRTCT
P621 ( 1) (65021) 0
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
```

TRAVER Output Example for HPC digits dialed from an AIN Response message (continued)

```
. 10602 10602 EA DD 5 P GEA2 GETS2 Y OFRT 602 5 20 Y
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
 .  . TABLE OFRTMAP
 .  .  . Tuple not found. Default to old index.
 .  . TABLE OFRT
 .  .  602 CND EA INTNL SK 3
 .  .      N D G613C7ATC4 0 N N
.  .      N D G613C7IT2 15 D081 N
 .  .      CND ALWAYS SK 1
 .  .      N D G613C7IT1 15 D138 N
 .  . EXIT TABLE OFRT
TABLE PXLAMAP
 .  . Tuple not found. Default to old pretranslator name.
 . TABLE STDPRTCT
 . GEA2 ( 1) ( 0) 2
 .  . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 .  . 514 514 EA DD 0 T NA GETS2 Y OFRT 602 1 20 Y
 .  .  . TABLE OFRTMAP
 .  .  .  . Tuple not found. Default to old index.
 .  .  . TABLE OFRT
 .  .  .  602 CND EA INTNL SK 3
 .  .  .      N D G613C7ATC4 0 N N
 .  .  .      N D G613C7IT2 15 D081 N
 .  .  .      CND ALWAYS SK 1
 .  .  .      N D G613C7IT1 15 D138 N
 .  .  . EXIT TABLE OFRT
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HPCPATTN
5146266046
An HPC pattern has been matched.
TABLE HNPACONT
613 Y 850 1 ( 105) ( 1) ( 107) ( 0) 2 $
 . SUBTABLE HNPACODE
 . 514 514 FRTE 9
 . SUBTABLE RTEMAP
 .  . Tuple not found. Default to old index.
 . SUBTABLE RTEREF
 .    9 S D OCAM
 . EXIT TABLE RTEREF
EXIT TABLE HNPACONT
LNP00100 SOC Option is IDLE.
LNP Info: Called DN is not resident.
LNP Info: HNPA results are used.
```

GETS HPC

TRAVER Output Example for HPC digits dialed from an AIN Response message (continued)

```
TABLE LCASCRCN
613 L621 ( 85) MNDT N N
 . SUBTABLE LCASCR
 . TUPLE NOT FOUND.  DEFAULT IS NON-LOCAL
TABLE PFXTREAT
MNDT DD N DD UNDT
EA:Local override does not apply to this call.
TABLE LATAXLA
USEA1 514626 INTER INTER STD
TABLE OCCINFO
GETS2 0602 EAP Y Y Y N Y N N Y Y Y N LONG 61 FGRPD N N Y N N N N N Y N
N N N Y
TABLE EASAC
TUPLE NOT FOUND
OVERLAP CARRIER SELECTION (OCS) DOES NOT APPLY - AIN_OFFICE_TRIGGRP
DEFINED
Using Equal Access (EA) route   OFRT  602 from Pretranslation
TABLE OFRTMAP
 . Tuple not found. Default to old index.
TABLE OFRT
 602 CND EA INTNL SK 3
     N D G613C7ATC4 0 N N
     N D G613C7IT2 15 D081 N
     CND ALWAYS SK 1
     N D G613C7IT1 15 D138 N
TABLE OFRTMAP
 . Tuple not found. Default to old index.
EXIT TABLE OFRT

+++ TRAVER: SUCCESSFUL CALL TRACE +++


DIGIT TRANSLATION ROUTES

1 G613C7ATC4            5146266046         ST
2 G613C7IT2             D081               ST

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 T120
2 LKOUT

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

Figure 9-5 TRAVER Output Example for an EA Recursive Retranslation

```
>traver l 6251512  18196261513 b
TABLE LINEATTR
75 1FR NONE NT NSCR 5 613 P625 L625 TSPS 10 NIL NILSFC CLATA 0 NIL NIL 00 N $

[...]
% Trace deleted

TABLE STDPRTCT
P625 ( 1) (65021) 0
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 181 182 N DD 1 NA
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HPCPATTN
8196261513
An HPC pattern has been matched.
TABLE HNPACONT
613 Y 998 1 ( 157) ( 1) ( 90) ( 0) 3 $

[...]
% Trace deleted

TABLE STDPRTCT
P625 ( 1) (65021) 0
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 10302 10302 EA DD 5 P EA28 BEL2 N
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
 . TABLE STDPRTCT
 . EA28 ( 1) (65021) 0
 .  . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 .  . 18 18 EA DD 4 T NA BEL2 N
TABLE HPCPATTN
TUPLE NOT FOUND
WARNING: This HPC recognition result overrides the previous one.
AIN Info Collected TDP: no subscribed trigger.
TABLE FNPA7DIG
TUPLE NOT FOUND
AIN Info Analyzed TDP: no subscribed trigger.


+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

GETS HPC

Service orders

The GETS HPC feature does not affect the Service Order utility.

Appendix A: HPC TQ announcement facility messages

If an announcement is datafilled for the instance of HPC TQ, then the following facility messages are sent depending on the type of incoming agents:

- for non-ISDN lines or per-trunk-signaling trunks, no messages are sent
- for ISDN BRI/PRI agents
  - — If only a SETUP ACK message has been sent in response to the SETUP message then send CALL PROC and PROG (PII[1]=”inband information or appropriate pattern now available”) messages.
  - — If a CALL PROC message but not yet a CONN message has been sent then only send a PROG (PII=”inband information or appropriate pattern now available”) message.
  - — If CONN message has been sent then no messages are sent.
- for ISUP trunks
  - — If an ACM has not been sent then send an ACM message with called party’s status in the BCI[2] set to “no indication”.
  - — Once the IAM is sent to the next office on an idle trunk, an ACM or a REL message can be received from the next office. If an ACM is received from the next office, the ACM is mapped to a CPG message which is sent to the previous office. If a REL is received from the next office, the call is provided with a local tone treatment and a REL message with “normal release” cause value is sent to the previous office, after the treatment is completed to initiate call take down.

[1]PII = progress indicator information
[2]BCI = backward call indicator

List of terms

1FR
Individual Flat Rate Service

1MR
Individual Message Rate Service

2FR
Two-Party Flat Rate Service

2WW
Two Way Wide Area Telephone Service

3WC
Three Way Call

4FR
Four-Party Flat Rate Service

ACC
Automatic Congestion Control

ACG
Automatic Call Gapping

ACODE
Area Code

ACR
Alternate Carrier Routing

AFR
Automatic Flexible Routing

AIN
Advanced Intelligent Network

AR
Alternate-Routed

ATC
Access To Carrier or Access Tandem to Carrier

AUL
Automatic Line

CANF
Cancel From

CANT
Cancel To

CBK
Code Blocking

CCF
Coin First Service

CCODE
Country Code

CCS7
Common Channel Signalling No 7

CDF
Coin Dial-Tone First Service

CELL
Cellular Trunk Group Type

CFD
Coin Free Dialing Service

CFB
Call Forward Busy

CFBL
Call Forward Busy Line

CFDA
Call Forward Don’t Answer

CFF
Call Forward Fixed

CFGDA
Call Forward Group Don’t Answer

CFI
Call Forward Intragroup

CFRA
Call Forward Remote Access

CFU
Call Forward Universal

CICR
Cancel-In-Chain-Routing

CLLI
Common Language Location Identifier

CND
Conditional Route Selector

CPC
Calling Party’s Category

CSP
Coin Semi-Postpaid Service

CXR
Call Transfer

DC
Data Collection

DCR
Dynamically Controlled Routing

DN
Directory Number

DOC
Dynamic Overload Control

DR
Directed-Routed

DRE
Directional Reservation Equipment

EA
Emergency Announcement

E-ACR
Enhanced Alternate Carrier Routing

EADAS
Engineering Administrative Data Acquisition System

EOW
Enhanced Outward Wide Area Telephone Service

ETW
Enhanced Two Way Wide Area Telephone Service

FRR
Flexible Re-Route

GETS
Government Emergency Telecommunications Service

GNCT
Generalized No Circuit Treatment

HPC
High Probability of Completion

HPC CQ
High Probability of Completion Call Queuing

HPC EQ
High Probability of Completion Egress Queuing

HPC TQ
High Probability of Completion Trunk Queuing

IAM
Initial Address Message

IBN
Integrated Business Network Station

IEC
Inter-Exchange Carrier

INW
Inward Wide Area Telephone Service

IT
Intertoll Trunk

LEC
Local Exchange Carrier

MEM
Trunk member

M5009
Meridian Set (9 Keys)

M5112
Meridian Set (12 Keys)

M5209
Meridian Set (9 Keys, Built-in Display)

M5212
Meridian Set (12 Keys, Built-in Display, Handsfree)

MCR
Multiple Carrier Routing

MPC
Multi-Protocol Controller

NAC
Non-Area Code

NCA
No Circuit Announcement

NEL
Next Event List

NOT
NOT Route Selector (This route will not be taken under selection conditions.)

NPOSDN
No Position to DN

NS/EP
National Security/Emergency Preparedness

NWM
Network Traffic Management

OM
Operational Measurement

OMNCS
Office of the Manager, National Communications System

OSS
Operational Support System

OWT
Outward Wide Area Telephone Service

PBM
PBX Message Rate Service

PBX
Private Branch Exchange

PFX
Prefix Code

PIC
Point in Call

PIN
Personal Identification Number

PPLN
Preplanned Control

PRA
Primary Rate Access

PRE
Protective Reservation Equipment

PRI
Primary Rate Interface

PSTN
Public Switched Telephone Network

PSET
Electronic Business Set Without Liquid Crystal Display

PX
PBX Digital Trunk

P2
PBX Analog Trunk

RND
Random

RT
Route

RX
Retranslate

SCP
Service Control Point

SOC
Software Optionality Control

SS7
Signaling System Number 7

STR
Selective Trunk Reservation

SWACT
Switch of Activity

SYSFL
System Failure

TI

Incoming Trunk Group Type

TO

Outgoing Trunk Group Type

TRMT

Treatment

T2

Two Way Trunk Group Type

VLN

Virtual Line

WML

Warm Line

ZMD

Zero Minus Denied Service

ZMZPA

Zero Minus Zero Plus Allowed Service

Government Alliances

Government Emergency Telecommunications Service High Probability of Completion (GETS HPC)

Feature Guide

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