Homeland Security

Office of Emergency Communications

# FACILITY TELECOMMUNICATIONS MANAGEMENT FOR THE GOVERNMENT EMERGENCY TELECOMMUNICATIONS SERVICE

## Introduction

This document provides telecommunications management information for organizations that use the Government Emergency Telecommunications Service (GETS). It identifies information on obtaining basic facility access to GETS, and optional steps that may be taken to improve GETS access. The GETS capability is based in the public wireline telephone networks, i.e., the Public Switched Telephone Network (PSTN).

## User Organization Responsibilities

GETS user organizations are required to work with the facility telephone access provider (e.g., the local exchange carrier (LEC) for circuit-switched connections, or the Voice over Internet Protocol (VoIP) service provider for IP connections) to determine how priority treatment can be provided for GETS calls. User organizations must determine the priority treatment for each facility or location where GETS users perform national security and emergency preparedness (NS/EP) functions.

GETS user organizations are also required to test the proper functioning of GETS on a regular basis. As the carrier's telecommunications networks transition to packet-switching technology, regular testing is necessary to ensure continued GETS functionality. All GETS dialing patterns (e.g., 710 universal GETS access number, GETS toll-free carrier-specific access numbers, and Carrier Access Codes [if applicable]) should be tested using typical destinations, including the GETS test call number .

## Basic GETS Access

Access to GETS is possible through standard PSTN access arrangements. GETS can be accessed from a telephone service connected directly to a LEC end office, cellular service, an IP telephony service, or from telephones connected to the PSTN through a Private Branch Exchange (PBX) or Centrex (circuit-switched or IP). Figure 1 shows one of many possible connection architectures.

In addition to these normal PSTN access methods, the Federal Technology Service (FTS) Networx, the Diplomatic Telecommunications Service (DTS), and the Defense Switched Network (DSN) provide alternatives for access to GETS for authorized users. The GETS access requirements for user sites are described below.

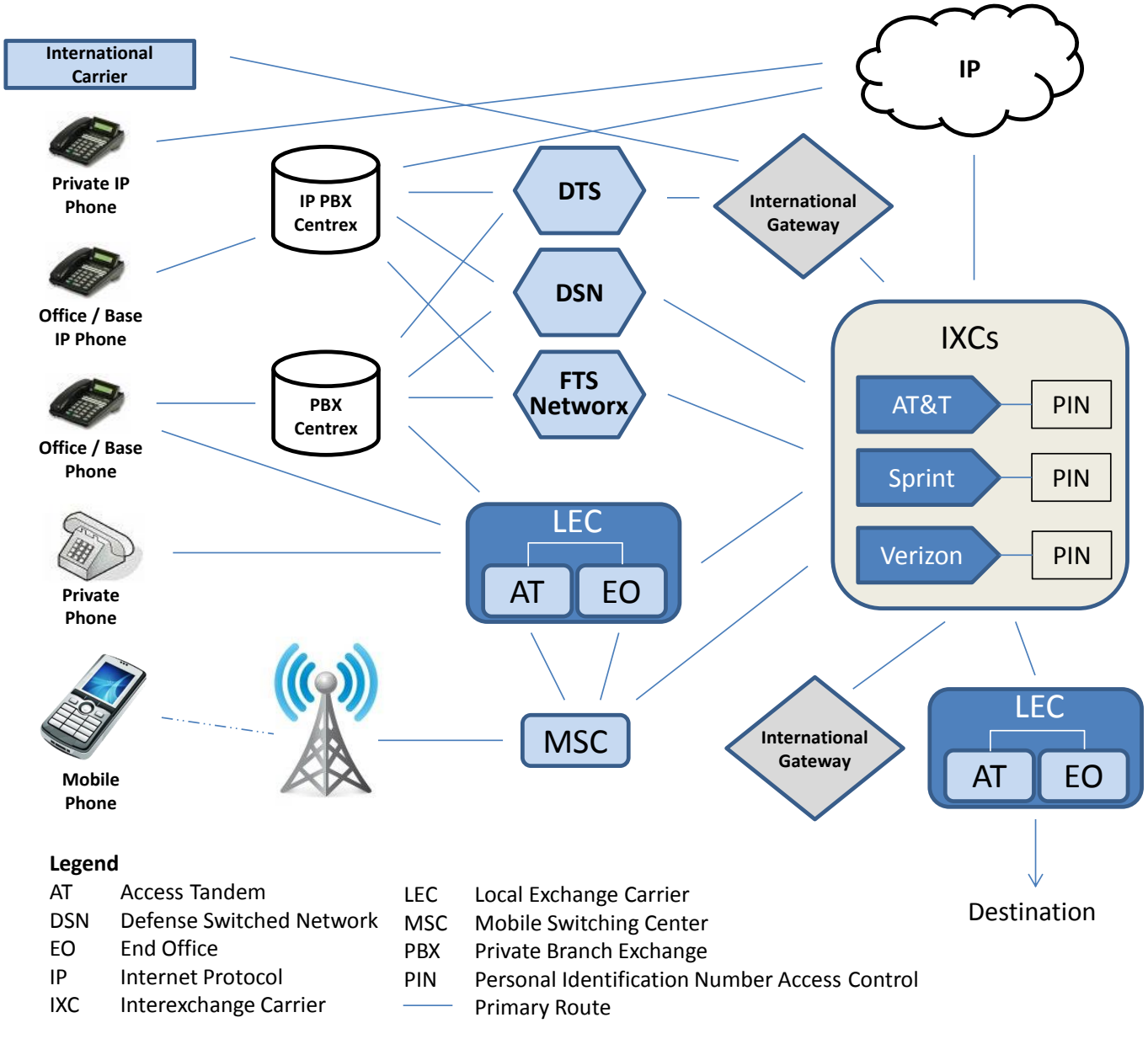


**Figure 1: GETS Access to the PSTN**

Circuit switched solutions and packet switched (i.e., IP) solutions are applicable to each of the categories. The "Private IP Phone" in Figure 1 includes cable phone service providers. Note that a traditional, or legacy, phone could be used to access a VoIP service using "Terminal Adapter" equipment that converts the legacy analog communication to VoIP packets.

# Access from Private and Public Telephones

Private residence telephones, public pay phones, and many business and government phones are connected directly to a telephone access provider's network and can be used to place GETS calls. However, a dial tone is required to place a GETS call. If GETS users experience dial tone delays during call congestion, users can minimize delays by remaining on the line, rather than hanging up and dialing again. Remaining on the call prevents interruption of the LEC's dial tone queuing process and provides dial tone in turn to the customer who has been holding for the longest period of time.

Most pay phones will accept the GETS universal access number (710-627-4387). If the pay phone does not accept the universal access code, users should dial the GETS Toll-Free access numbers (located on the back of the GETS card), or contact GETS User Assistance at 1-800-818-4387 for special instructions on completing the GETS call.

# Access from PBXs and Centrexes

A PBX or Centrex switching system provides customized telephone service for an office, building, or facility. The legacy PBX or Centrex service is connected to the telephone service provider's network via circuit-switched trunks. An IP PBX or Centrex will be connected to the VoIP service provider via an IP connection. VoIP telephone calls follow the same procedures provided on the GETS card. Users can access GETS from the PBX or Centrex by dialing the appropriate local access code (e.g., dialing 8, 9, 94, etc.). A PBX or Centrex service may provide the additional benefit of call queuing while waiting for a dial tone. Also, to ensure incoming GETS calls are promptly answered, these systems can be configured to route calls destined for a busy telephone to an alternate answering position. These PBX or Centrex systems may also provide users access to other networks, such as FTS Networx and DSN.

## Considerations Common to Legacy and IP PBXs/Centrex

GETS access through a PBX or Centrex requires the following:

- The 710 NPA code must be opened (see Appendix A, Bellcore letter and Appendix B, Lockheed Martin letter).
- All telephones designated for GETS use must be able to access the LEC end office or VoIP service provider without blocking or toll restriction on the 710 NPA code, similar to 800 toll-free calls. Toll restricted trunks from the facilities to the telephone access provider's network must exempt the 710 NPA code from the toll restrictions as is done with toll-free NPA codes (e.g., 800 and 888).
- The user organization should verify with the telephone access provider that the access network routes 710 calls to a GETS interexchange carrier (i.e., AT&T, Sprint, or Verizon).
- GETS user organizations should provide basic customer site telecommunications equipment or special telecommunications equipment, such as a standard desk sets, Secure Terminal Equipment (STE), mobile phones, data modems, or facsimile devices, if required.

# Considerations for Legacy PBXs/Centrex

For circuit-switched calls, all telephones designated for GETS use must be able to dial carrier access codes (CACs) (i.e., 1010288 for AT&T, 1010333 for Sprint, and 1010222 for Verizon). For example, a user receives an outside line dial tone, then dials 1010288+1+710-627-4387 to reach AT&T. Note that if, after receiving the outside dial tone, the user simply dials 1-710-627-4387 (i.e., without the CAC) then the call will be routed either to the originating phone's presubscribed long-distance carrier (if it is one of the three GETS Interexchange Carriers [IXCs]) or to any of the GETS IXCs.

The following recommendations apply to those circuit-switched PBXs and Centrexes that provide "second dial tone," collect (and "buffer") the customer's dialed digits, and transmit them to the central office (or other) switch:

- For PBXs and Centrexes that have "ground start" capability, the time-out interval in waiting for dial tone from a central office should be set to a minimum of 10 seconds.
- For PBXs and Centrexes with ground start capability, upon time-out waiting for central office dial tone, the switching system should attempt other routes, if possible.
- PBXs and Centrexes that buffer digits and do not have ground start capability should be modified to have this feature.

GETS users should wait for the first dial tone; if the PBX or Centrex collects all digits before seizing an access trunk, customers should wait again after dialing their digits for the call to be completed.

# Considerations for IP PBXs/Centrex

IP PBXs and Centrex may access the VoIP network via a Session Border Controller (SBC). The SBC serves as a boundary between networks, and provides security and addresses translation. The SBC is a key network element in providing priority treatment to GETS calls. Another important network element is the gateway network element which provides protocol conversion, typically between circuit-switched and IP networks. A facility's telecommunications manager should work with the telephone access provider to ensure these network elements are configured properly to provide priority treatment for GETS calls. User organizations using VoIP at an enterprise level can enhance priority treatment by following these steps:

- Avoid the use of VoIP service providers that utilize the public Internet for service connection, such as Vonage®, 8x8© and magicJack™. The Office of Emergency Communications (OEC) does not recommend these types of VoIP service providers for facilities hosting GETS users since priority treatment for calls cannot be provided on the public Internet.
- Work with the telephone access provider to ensure network IP protocol parameters are set properly to provide priority treatment as well as enable important IP PBX/Centrex features such as "Early Media Cut-Through" described in the next section.

For VoIP calling, packet switching equipment such as a router may be required at the facility along with the IP connection to the facility telephone access provider. Each facility telecommunications manager should advise GETS users concerning the access procedures for their facility's customized telecommunications equipment.

## Early Media Cut-Through Feature

For facilities using an IP PBX or Centrex, the equipment must be configured to allow for follow-on dialing that passes dual-tone multifrequency (DTMF) signaling after a call is connected. This permits the GETS user to enter the personal identification number (PIN) and destination number.

If the "early media cut-through" feature on an IP PBX providing VoIP telecommunications is not properly configured, callers may not hear the prompts for entry of the GETS PIN and destination number. In addition, entered PIN digits will not be received by the GETS authentication function.

The "early media" refers to the exchange of media on a new connection prior to receiving a confirmation (sometimes called "answer supervision") that an end-to-end connection has been established, i.e., that the target destination has accepted the call. Billing typically commences once the end-to-end connection has been established, IP PBXs may have early media cut-through disabled as the factory default.

Not enabling this feature can prevent GETS calls from being processed in the Next Generation Networks. OEC recommends that facility telecommunications managers review with their telephone access providers the early media cut-through provisioning in IP PBXs to ensure that GETS calls can be authenticated and completed. OEC recommends that early media cut-through be provisioned in all network components to allow GETS calls to be completed.

Facility telecommunications managers should contact their IP PBX vendors for provisioning instructions. For a Cisco IP PBX, for example, one possible solution is found in Cisco documentation, which says to provision the "voice rtp send-recv" command to establish the audio path in both directions (cut-through) prior to receiving a connect message from the PSTN. Another possible Cisco solution is enabling the following Cisco PBX setting: Device → Device Settings →SIP Profile Trunk Specific Configuration → Early Offer support for voice and video calls (insert MTP if needed). The facility telecommunications manager should consult with vendor technical assistance to determine the appropriate solution.

# GETS Access from Non-Wireless Priority Service Cellular Communications Devices

While GETS calls can be placed from cellular communications devices that are not subscribed to Wireless Priority Services (WPS), a GETS card alone will not provide priority on initial access from a mobile handset to the wireless telecommunications networks. Therefore, GETS users requiring priority wireless access are encouraged to also subscribe to WPS. WPS used in conjunction with GETS will provide high probability of call completion across the wireline and the wireless networks, end-to-end, during times of high traffic volume.

GETS users should be able to access GETS through most Mobile Switching Centers (MSCs). However, cellular technology is not without limitations. GETS users may experience wireless access problems, especially while roaming out of the home area or when accessing the network via femtocells or microcell network extenders.

# Access from Government Networks

OEC, working with the General Services Administration, has incorporated GETS access through interoperability with FTS Networx. GETS interoperability with FTS Networx permits GETS users to dial 1+710-627-4387, which then routes the call for GETS user authentication and call completion. This access takes advantage of the off-net features of FTS Networx. GETS users supported by this network benefit by having an additional access route to GETS.

GETS can be accessed from DTS by following these instructions:

1. After receiving a dial tone, the user dials "96", which is the DTS PSN access code.
2. Next, the user should dial 1+710-627-4387, the Universal GETS Access Number.
3. After the user hears a tone, s/he should enter his/her PIN.
4. After the prompt, the user enters the destination number

GETS can be also accessed from the DSN through the following steps:

1. The user first dials the "94", which is the DSN PTS access code.
2. Next the user dials 1+710-627-4387, the Universal GETS Access Number.
3. The call will then be routed off-net to a GETS LEC enhanced end office for subsequent GETS call processing.

This end office should also support access to GETS Alternate Carrier Routing, which will route the call to alternate GETS interexchange carriers if the intended GETS interexchange carrier is not available for routing calls.

# Optional PSTN Enhancements

GETS user organizations are encouraged to consider a number of optional enhancements for improving user access to the PSTN and GETS if special survivability or reliability requirements exist. Although these optional enhancements are not necessary to use GETS, they will improve the probability of reaching an end office or obtaining a dial tone after damage has occurred to the network or during severe network congestion. At the user organization's request, the GETS Service Support Structure provides on-site support for the development of a plan for improved access to GETS. Requests for special site-specific analysis and planning for optional features should be submitted to the GETS Program Management Office. These optional analysis and planning activities will likely be funded by the requesting organization.

Circuit-switched Enhanced Call Completion (ECC) features are a set of network services that increase the probability that a GETS user will complete a call. The ECC alternatives for GETS may be divided into two enhancement categories: Local Loop Improvements and Dial Tone Access Improvements, which are discussed below.

Local loop improvements include providing several local routing alternatives. Organizations with critical NS/EP requirements for specific users or facilities should consider acquiring diverse routing or dual homing from the PBX to the normal LEC end office or to a second end office. Both services would provide trunking

over more than one route to an end office. A critical user may desire direct access lines that bypass the PBX and provide dial tone directly from the end office.

Dial tone access improvements includes Essential Line Service (ELS), which is generally available from LECs and provides dial tone on a priority basis to lines marked in the PSTN switch. One of the key factors in mitigating potential dial tone delay by using ELS is having GETS users assigned to stored program control switches. These control switches are available in nearly all metropolitan areas. ELS may also be known as Dial Tone Priority, Essential Service List, or Essential Service Protection. NCS Notice 3-0-1, "Essential Line Service," recommends that user organizations consider obtaining ELS for their NS/EP switched voice requirements. A copy of the NCS Notice may be requested from the OEC.

# Appendix A – Bellcore Letter

**Bellcore**
Bell Communications Research

## Bellcore Letter

| Letter Number | Type | Date |
|---|---|---|
| IL -94/01-002 | Informational | 1/3/94 |

| Title | Six Character Assigned Project Number(s) |
|---|---|
| Opening of 710 Numbering Plan Area (NPA) Code | 2W4011 |

| Related Documents | Distribution List Code(s) |
|---|---|
| None | NP062, NS001, SS002 |

To:
Recipients of North American Numbering Plan (NANP) Information

Related Companies
Unrestricted

From:
R. R. Conners, Director - North American Numbering Plan Administration (NANPA)

Abstract:
This IL provides notification of the opening of the 710 NPA code in all local exchange carriers' (LEC) and Cellular carriers' networks on 18 September 1994. This notification from the OMNCS of the US government is distributed for information purposes by Bellcore in its capacity as administrator of the North American Numbering Plan (NANPA).

Letter information (includes safety liability disclaimer (if applicable), ordering information, originator's signature information)

The Office of the Manager, National Communications System (OMNCS) of the government of the United States has notified NANPA that the 710 NPA code will be opened in all US and Canadian LECs' and Cellular carriers' network on 18 September 1994. The 710 NPA code will provide caller access to the Government Emergency Telecommunication Service (GETS) in support of the US Government's National Security and Emergency Preparedness (NS/EP) telecommunications requirements. The use of the 710 code will be controlled by Personal Identification Numbers (PIN) by one of three interexchange carriers (AT&T, Sprint, and MCI) who are providing service for the GETS. No restrictions on the use of the code are anticipated. Specifically, the following applies:

- No home NPA (HNPA) calls will be permitted using the 710 NPA code (all calls will be treated as long distance and dialed using full 10 digit numbers).
- All foreign NPA (FNPA) calls must be prefixed with a "1" followed by the full 10 digits; i.e., 1+710+NXX+XXXX (1+10 digits).
- Local operator-assisted calls will not be permitted.
- Testing will be accomplished by the US Government.
- All 710 NPA code calls will be sent to the callers' presubscribed carrier unless the caller selects a carrier using a carrier access code (CAC) (e.g., 10288, 10222, 10333).
- The Local Exchange Routing Guide (LERG) identifies the 710 NPA code as "US Government."

Operational questions concerning the use and activation of the 710 NPA code should be directed to Frank J. Suraci, OMNCS, GETS Program Manager, on 703-692-0589.

Copies of this letter are being forwarded to achieve the widest possible industry distribution and may by reproduced for further distribution as needed.

R R Conners

# Appendix B – Lockheed Martin Letter

LOCKHEED MARTIN

NORTH AMERICAN NUMBERING PLAN PLANNING LETTER

Number: PL-NANP-172

Date: April 26, 1999

From: R. C. Breidenbaugh - NANP Administration
202 756-5779; E-mail: rose.breidenbaugh@nanpa.com

Subject: 710 Numbering Plan Area (NPA) for the U.S. Government

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Lockheed Martin IMS-NANPA publishes this PL as an update of Bellcore Letter IL – 94/01-002 dated January 3, 1994. The 710 NPA was assigned in 1983 to the U.S. Government for emergency services. The Office of the Manager, National Communications System (OMNCS) of the United States has notified the industry that the non-geographic 710 area code should allow unrestricted and ubiquitous access in all international and domestic carriers for authorized users of the 710 NPA. The 710 NPA will be treated as non-geographic with per-call compensation provided by the National Communications System (NCS).

The OMNCS notes that the 710 NPA has provided successful access to the Government Emergency Telecommunications Service (GETS) in most U.S. local exchange and cellular/PCS networks. GETS became operational on September 30, 1994, but the service and its dialing procedures have evolved from the description in the Bellcore letter. To augment the information provided in the earlier letter, the following dialing procedure also applies:

- Dialing 0/1+710-NXX-XXXX provides access to an emergency service for authorized users. The 710 NPA provides access to a tariffed service of the GETS interexchange carriers (AT&T, MCI WorldCom, and Sprint) and the call is billed to the U.S. Government.

In order to provide universal 710 accessibility in the appropriate service mode, owners and managers responsible for user-to-network access need to ensure their switching systems are programmed to accommodate the 710 NPA. Accordingly, the 710 area code will be unblocked to network access, including equal access. 710 access will be provided from any cellular/PCS phone, whether or not the phone is subscribed in the cellular/PCS area where the call is placed.

To the extent that the above requirements are different than those previously identified by OMNCS, they are subject to negotiation between individual service providers and OMNCS.

The OMNCS intends to achieve wide recognition for the non-geographic, government-paid status of the 710 NPA by drawing attention to this letter on the NANPA website [http://www.nanpa.com/]. Questions concerning the 710 area code and operational questions about GETS should be directed to Mr. Frank J. Suraci, GETS Technical Director - OMNCS, at 703-607-4800 or suracif@ncs.gov.

R. C. Breidenbaugh

North American Numbering Plan Administration