ESI Communications Servers

ESI-1000 • ESI-600 • ESI-200 • ESI-100 • ESI-50

Programming Manual

0450-1050
Rev. U

We Make It Easy To Communicate

Contents

Important: For information concerning the **hardware installation** for an **ESI Communications Server** (the **ESI-1000**, **ESI-600**, **ESI-200**, **ESI-100**, or **ESI-50**), see the *ESI Communications Servers Hardware Installation Manual* (ESI document #0450-1049).

General description

ESI Communications Servers — the **ESI-1000**, **ESI-600**, **ESI-200**, **ESI-100**, and **ESI-50** — are versatile, scalable telecommunications systems for sophisticated enterprise applications. Each represents the latest generation of ESI's advanced communications systems, and provides much more than standard phone service. Standard features include voice mail, automated attendant, automated call distribution (ACD), external paging interface, and extensive call coverage features (such as off-premises "reach-me"). Optional features include computer/telephony integration and advanced voice over IP (VoIP) communications, allowing your customers to transition smoothly from traditional circuit-switched telephony to cost-efficient IP network-based telephony.

You or an Administrator can program the system locally or remotely, through either a phone or ESI's *Windows*®-based *ESI System Programmer* application. Each application runs on a *Windows*®-compatible computer which is connected to the system locally via serial port, remotely via the system's built-in modem, or over Ethernet® via the system's built-in Network Services Processor (NSP).

Important: **Throughout this document**, except where noted, we refer to each ESI port card by its **functional descriptor** (usually a number), **WITHOUT** any "E2" or "CS" modifiers. An "E2" card and a "CS" card with the same functional descriptor — *e.g.*, an E2-684 and a CS-684 — are functionally identical. The difference is that the ESI-100 accepts **only** "E2" port cards, while other ESI Communications Servers accepts both "E2" and "CS" port cards.[1] The ESI-50 accepts only its own specific cards.

Except where noted, the remainder of this "General description" chapter describes only **features**, rather than any system **capacities**. For **system-specific** capacity specifications — *e.g.*, CO lines, ports, message storage, *etc.* — see "System capacities" (page B.1).

The 48-Key Feature Phone has a dedicated **PROGRAM** key. If performing this programming with a 48-Key Feature Phone, press **PROGRAM** whenever the instructions tell you to press **PROG/HELP**.

Telephone system features

- **Impressive expansion capability** — Each system accepts one or more Expansion Cabinets to maximize its potential call-handling.
- **T1 and PRI support** — Can connect to higher-bandwidth lines, which more and more offices use.[2]
- **ESI phones** — Compact and stylish, yet rugged, each ESI phone includes a high-quality speakerphone, large and informative multi-functional display, and a specially designed key layout with several dedicated keys to minimize or eliminate the need to memorize codes. The ESI 60 comes in a digital version and two IP versions (one Gigabit Ethernet, one 10/100 Ethernet). The ESI 40 comes in digital and IP (10/100 Ethernet) versions. Each includes an integrated headset jack and is available with backlit display. Other ESI phone models include the 24-Key Feature Phone (available with backlit display) and the ESI Cordless Handset II (available in digital, local IP, and remote IP versions).[3]
- **Extensive help** — ESI's Verbal User Guide™ uses spoken and displayed help prompts to help everyone from the Installer through the Administrator down to the least experienced end user. Easily accessible with one press of the **PROG/HELP** key. One can also visit **www.esi-estech.com/users** for comprehensive help.
- **Enhanced Caller ID** — Allows one-touch automatic message return.[4] An ESI Communications Server passes Caller ID data to both digital and analog ports.
- **Live call recording** — Can record any conversation or personal memo, with moving or copying of any recording to another user's voice mailbox (see "Voice mail features," *below)*.
- **Call waiting** — Includes helpful display, showing both calls' Caller ID information, and easy one-key toggling between calls.

(Continued)

[1] In the ESI-1000, ESI-600, and ESI-200, use of an "E2" port card also requires a **"Hot Swap" Port Card Adapter** (ESI part # 5000-0385).
[2] The ESI-50 supports only PRI (not T1).
[3] See also the *ESI Communications Servers Hardware Installation Manual* (ESI document # 0450-1049).
[4] This and all other references to Caller ID service within this manual assume the end-user organization subscribes to Caller ID service from its telephone service provider.

- **Conference calling** — Includes up to 64 dynamic conference ports; a single conference may contain up to 16 members.[1] Conference bridges are dynamic, so possible conference sizes include: 21 three-member; 16 four-member; 10 six-party; and various combinations in-between. Analog phones on the system also may originate conferences.
- **Esi-Dex™ speed-dialing** — Calls any number using four separate lists (personal, station, system and — when Esi-Link is in use — cabinet location); uses Caller ID information or direct keypad entries.
- **Dedicated overhead paging interface** — Allows for external paging through overhead speakers or multi-zone paging units (amplification required) and separate, vendor-supplied zone page adapters.
- **Intelligent Call Forwarding™** — Lets users of compatible PRI-equipped ESI systems view the original Caller ID data of a call forwarded to an off-premises phone.
- **911 alert** — Provides immediate line access if any station[2] dials **9 1 1** to report an emergency; sends a message via the serial port indicating the start date, time, station number and end-time of the 911; also sounds an audible warning at the operator station and displays, for example:
  911 CALL FROM
  X102 JOHN JAMES

  Important: Remember to advise your customers **not** to make 911 calls using a remote IP phone.[3] Because such a phone isn't connected directly to the local telephone network, it's necessary instead to use a regular phone connected locally, not the remote IP phone, to make 911 or other emergency calls. (For more information, see the documentation included with the remote IP phone.)
- **Shared-office tenanting** — Tenant service allows multiple business entities to share a telephone system while maintaining separation of various facilities and features. For more details, see "Shared-office tenanting," page A.5.
- **Twinning** — Lets a user set his/her extension so that an incoming call will ring both it and an additional number simultaneously. The additional number can be either an internal extension or an off-premises number, such as a cell phone or home phone.

(Continued)

[1] See "System capacities" (page B.1).
[2] An ESI Remote IP Cordless Handset (II or original) sends 911 calls via the local analog CO line attached to the Cordless Handset's base station. The 911 alert information isn't available at the operator station or via serial port.
[3] A remotely installed ESI desktop IP phone, a Remote IP Cordless Handset, or a remote installation of *VIP Softphone*.

- **Support** for these **options:**
  - **Esi-Link** — Allows a multi-site enterprise to network any combination of dozens of compatible ESI systems across an IP-based network. For details, see the *Esi-Link Product Overview* (ESI document # 0450-0214).

    Notes: The ESI-50 uses only the G.726 speech compression algorithm and, therefore, can be in an Esi-Link network with only other ESI Communications Servers set to G.726 (in Function 835; for details, see page M.11).

    ESI's IVX® X-Class and IVX E-Class systems, as well as the original ESI-600 (prior to system software version 16.2.0), use only the G.729 speech compression algorithm; thus, an ESI-50 cannot be in an Esi-Link network with these systems.

  - ***VIP***™ — Provides a value-added interface to all ESI Communications Servers. Delivers call control and on-screen message handling; available in standalone and *Microsoft*® *Outlook*®-integrated versions. For details, see the *VIP Product Overview* (ESI document # 0450-0608) and *VIP ACD Product Overview* (ESI document # 0450-0988).
  - **ESI Presence Management** — Provides integrated building entry control, access control, status indication, personal call routing, and (optionally) time and attendance management. For details, see the *ESI Presence Management Product Overview* (ESI document # 0450-0794).
  - **ESI Cellular Management** — Part of ESI Bluetooth Voice Integration, ESI Cellular Management provides unique hardware and features to bridge the gap between cellular handsets and most ESI desktop phones. For details, see the *ESI Bluetooth Voice Integration Product Overview* (ESI document # 0450-1173).
  - **ESI Mobile Messaging**[1] — Lets users receive messages (voice mails and recordings) as .WAV attachments to regular e-mails; works with any standard e-mail client application.
  - **ESI Media Management**[2] — A hardware and software solution that offers storage of live video and audio as well as the storage of SMDR records and fob activity from ESI Presence Management RFID Readers.
  - **ESI Video Management**[3] — A hardware and software solution that offers live video monitoring, along with special added functionality when used in conjunction with ESI Presence Management.
  - **SIP trunking**[4] — Used with an Internet telephony service provider, allows connection to the PSTN via the Internet using the SIP (Session Initiation Protocol) VoIP standard.

[1] Requires ESI Communications Server with specific hardware and software. See the *ESI Mobile Messaging Installation Guide* (ESI # 0450-1231).
[2] Requires ESI Communications Server with specific hardware and software. See the *ESI Media Manager Installation Guide* (ESI # 0450-1240).
[3] Requires ESI Communications Server with specific hardware and software, as well as at least one camera (either a camera connected via an ESI Video Adapter or a compatible IP video camera). See the *ESI Video Adapter Installation and Programming Manual* (ESI # 0450-1241).
[4] Requires ESI Communications Server with specific hardware and software. See the *ESI SIP Trunking Installation Guide* (ESI # 0450-1227).

Voice mail features

- **Built-in voice mail ports** — These are **in addition to** the call-processing ports; thus, you may build the system to its maximum for call-handling without having to balance voice mail needs versus call-handling needs. For specific voice storage capacities on a system-by-system basis, see "System capacities" (page B.1).
- **Highest-grade voice quality** (64-kilobit/second sampling) for voice mail and other storage of voice messages.
- **Message-on-hold (MOH) recordings** — Among these are three prerecorded tracks; also supports live entry. With tenant service enabled (see "Tenant service features," page A.5), each tenant has its own MOH source.
- **Off-premises message delivery** — Automatically delivers voice messages to designated phone number, such as a cell phone, when one is out of the office.
- **Urgent messages** — Can deliver higher-priority messages first.
- **Several different mailbox types**, including group, broadcast, informational, cascade notification and Q & A.
- **Message Recycle Bin** (undelete) — Remembers, and can restore, each mailbox's 10 most recently deleted messages.
- **Quick Groups**™ — Makes it easy to leave voice mail messages for several users.
- **Quick Move**™ — Records a conversation into another user's mailbox.
- **Virtual Mailbox Key**™ allows easy monitoring of a second mailbox.
- **Optional ESI Mobile Messaging** delivers voice mail as a .WAV file to your smartphone or the inbox of nearly any e-mail client application.

Auto attendant features

- **Six levels, 100 branches** — Allow you and your customer to set up a more caller-friendly answering environment, including a company directory.
- **Virtually unlimited call routing** — Includes off-premises transfer, pager notification, more.

ACD features

- **Routes calls within designated departments for quickest possible call answering.**
- **Uses three-line ESI phone display** to provide up-to-the-second information on queues, wait times, delay announcement, priority queueing, and overflow routing.
- **Optional *VIP ACD Supervisor* and *VIP ACD Agent*** enhance ACD usage; *VIP ACD Supervisor* offers highly useful reports and also gives ability to customize reports.[1]

(Continued)

[1] Report customization requires either *Crystal Reports Standard Edition* or *Crystal Reports Professional Edition* (not available from ESI).

Shared-office tenanting

- **Can be configured to support up to eight tenants.**[1]
- **CO lines** — CO line groups and corresponding access codes can be used to separate each tenant's CO lines if required. "Pooled" or shared lines can be assigned to a line group to which all stations are allowed access. CO lines are assigned to tenants for the purpose of following each tenant's day/night mode.
- **Stations and departments** — Each station and department can be assigned to one tenant.
- **Automatic day/night mode** — If this is enabled, each tenant will follow day/night mode changes assigned in its unique table.
- **Day/night key** — A day/night key may be assigned to select day or night mode manually for each tenant.
- **Auto attendant day/night greeting** — Each tenant may use a dedicated day/night branch ID[2] to route to a destination. Day/night routing will be controlled either automatically by each individual tenant's day/night tables or manually by use of a day/night key for each tenant.
- **Message-on-hold (MOH)** — Each tenant will have a unique customer-recorded MOH source.
- **Central answering** — Central answering makes it possible for **one** extension (or department) to answer incoming calls to different tenants.
- **Operator (dial-"0") routing** — Unique operator call routing may be assigned to each tenant.
- **Hold** — For each tenant, a specific MOH can be assigned, based on CO line.

Flexible numbering

Flexible numbering provides the means to assign extension, voice mailbox, and department numbers based on specific customer requirements. ESI's flexible numbering is separated into three parts:

1. Selection of a starting numbering plan template.
2. Reassignment of **ranges** of extensions and (if needed) guest mailboxes.
3. Reassignment of **individual** extensions and (if needed) guest mailboxes and department numbers.

Selectable numbering plans (Function 169)

The **selectable numbering plan template** is the basis for flexible numbering assignment. When a numbering template is selected, all extensions, mailboxes, departments, and other system features are automatically assigned with the numbering plan of that template. Choosing the template that is closest to the customer's existing configuration greatly simplifies, or even eliminates the need for, number reassignment. (See "Selectable numbering plan," page D.2.)

> **Note:** Full system capacity can be achieved **only** through use of a **four-digit** selectable numbering plan (see page D.2).

(Continued)

[1] See "System capacities" (page B.1).
[2] See "Function 41: Auto attendant branch programming," pp. H.1–H.6.

Range reassignment (Function 34 extended; ESI System Programmer *only)*

Included in *ESI System Programmer*, **flexible number range assignment** is used to change the numbers of a block, or **range**, of extensions or guest mailboxes.[1] Range reassignment can be used either at time of installation or after the system is installed.

Number reassignment (Function 34)

Number reassignment lets you assign new (or reassign existing) **individual** extensions[2], departments, and guest mailbox numbers — all throughout the entire Esi-Link network.

Station move (Function 30)

Station move is used by the Installer or System Administrator to move, or exchange, extension numbers and other station information between extensions of the same station type.[3] Programmable feature keys, personal greetings, voice mail messages, and other system information are automatically and instantly exchanged between the two stations when this is done.

Esi-Link and flexible numbering: Limitations

The following table lists the Esi-Link compatibility of various ESI products with an ESI Communications Server using flexible numbering.

REMOTE site's ESI system	REMOTE site's system software version	LOCAL system's numbering plan template	Resulting Esi-Link compatibility
ESI-1000, **-200**, **-100**, or **-50**	[All]	Any	Complete
ESI-600	Feature Set II (16.1.0 or higher)	Any	Complete
	Feature Set I (15.2.x or lower)	Any	Limited
IVX X-Class	10.6.0 or higher	Any three-digit	Limited
		Any four-digit	None
	10.5.x or lower	Dial plan template 100	Limited
		Any other dial plan	None
IVX E-Class Generation II	2.5.2 or higher	Any three-digit	Limited
		Any four-digit	None
	2.5.1 or lower	Dial plan template 100	Limited
		Any other dial plan	None

In this chart, *limited compatibility* means that, when you use Function 34 (number reassignment), you must keep the extension and mailbox ranges within their original numbering plan template ranges.

> **Example:** Let's say your local system is an ESI-600 using numbering plan 100. If you swap extension 100 with mailbox 300 — *i.e.*, so that station 100 is now extension 300, and mailbox 300 is now mailbox 100 — an IVX X-Class system that dials station 300 over Esi-Link **won't** be able to process the call correctly, because that station is no longer within the numbering template. **However**, if you merely swap extensions 100 and 120 on that same ESI-600, an Esi-Linked IVX X-Class will be able to process a call to extension 120 (because the changed extension is still within the numbering template).

For proper operation, two or more Esi-Linked ESI Communications Servers of the same model should all be running the same system software version. However, an ESI system **without** flexible numbering-compatible system software will still be compatible with an ESI Communications Server **with** flexible numbering-compatible system software; **yet**, the ESI Communications Server with flexible numbering will remain subject to the same Function 34-related limitations described above.

---

[1] Range assignment of department numbers and special-purpose mailboxes is not supported at initial release of this system software. However, Function 34 can be used to reassign department numbers.

[2] Valid extensions also can be swapped throughout the Esi-Link network.

[3] Such stations must be like types — *e.g.*, ESI digital phone to ESI digital phone, ESI IP phone to ESI IP phone, or analog extension to analog extension.

System capacities

> **Important:** Each ESI Presence Management RFID Reader uses one digital station. The same is true for each ESI Cellular Management Access Device.

Stations and trunks

The specifications shown below reflect maximum capacities and configurations. **Not all of the station and trunk maximums can be reached simultaneously.**

> **Example:** The ESI-100 can't achieve 72 IP stations **and** 48 digital stations **and** 28 analog stations **and** 42 trunks **and** 24 Esi-Link stations **at the same time**, because the system's four-port-card limit makes such a configuration impossible. The maximum configuration for this system is 108 ports, which could be achieved by one DLC12 (24 T1 trunks, 12 digital stations), two IVC 24Rs (48 IP stations), and one IVC EL24 (24 Esi-Link channels).

	ESI-1000		ESI-600		ESI-200		ESI-100		ESI-50	
Dialing plans (-digits) ►	**Four**	**Three**	**Four**	**Three**	**Four**	**Three**	**Four**	**Three**	**Four**	**Three**
Max. port cards	42	14	28	14	14	14	5[1]	5	4[2]	4[2]
Max. port configuration[3]	1,128	276	624	276	300	276	108	108	87	87
– Max. stations	816	168	408	168	192	168	84	84	52	52
– Max. IP stations	816	168	408	168	192	168	72	72	12	12
– Max. digital stations	504	168	336	168	168	168	48	48	32	32
– Max. analog stations	384	56	188	56	56	56	28	28	8	8
Max. CO lines	240	84	168	84	84	84	42	42	35	35
Max. DLCs (T1/PRI)	6	3	6	3	3	3	1	1	1[4]	1[4]
Max. IVCs	34	7	17	7	8	7	3	3	1[5]	1[5]
Max. Esi-Link port cards (up to 24 Esi-Link channels[6] per card)	4	4	2	2	1	1	1	1	1	1
Max. SIP Cards	10	3	6	3	3	3	1	1	1	1
Total number of SIP trunks	240	72	144	72	72	72	24	24	24	24
Maximum lines available	240	84	168	84	84	84	42	42	35	35

Dedicated ports

	ESI-1000		ESI-600		ESI-200		ESI-100		ESI-50	
Dialing plans (-digits) ►	**Four**	**Three**	**Four**	**Three**	**Four**	**Three**	**Four**	**Three**	**Four**	**Three**
Voice mail/auto attendant ports	128	128	32	32	8, 16, or 24	8, 16, or 24	4 or 8	4 or 8	2, 4, or 6	2, 4, or 6
Conference ports (max. of 16 members per conference)	64	64	64	64	24	24	16	16	16	16
NSP[7]	1	1	1	1	1	1	1	1	1	1
Overhead paging ports[8]	1	1	1	1	1	1	1	1	1	1
Serial/SMDR ports	1	1	1	1	1	1	1	1	1	1

Voice mail capacities

	ESI-1000		ESI-600		ESI-200		ESI-100		ESI-50	
Dialing plans (-digits) ►	**Four**	**Three**	**Four**	**Three**	**Four**	**Three**	**Four**	**Three**	**Four**	**Three**
Voice mail storage (hours)	1,200	1,200	1,200	1,200	70, 140, or 600	70, 140, or 600	70 or 140	70 or 140	15 or 30	15 or 30
Broadcast mailbox (one to all extensions)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cascade notification mailboxes	40	10	20	10	10	10	10	10	10	10
Group mailboxes/max. members	64/200	32/200	32/64	32/64	16/64	16/64	16/32	16/32	16/32	16/32
Guest/info mailboxes	1,000	190	1,000	190	1,000	190	1,000	190	1,000	190
Maximum station mailboxes	816	168	408	168	192	168	84	84	52	52
Q & A mailboxes	20	10	20	10	10	10	10	10	10	10

---

1 Only a CS-ASC can be installed in the fifth slot of an ESI-100.
2 Includes built-in 482 port card.
3 Includes Esi-Link channels.
4 ESI-50 supports only PRI.
5 IVC 12 is built into ESI-50 main board.
6 Esi-Link channels are allocated to "reserved" ports; i.e. Esi-Link channels do not reduce CO or station capacity.
7 Network Services Processor; see the *ESI Communications Server Hardware Installation Manual* (ESI # 0450-1049).
8 **On the ESI-200:** A non-IVC card must be installed in slot 1 or 2. **On the ESI-100:** An IVC can't be installed in slot 1.

Departments

Dialing plans (-digits) ▶	ESI-1000		ESI-600		ESI-200		ESI-100		ESI-50	
	Four	Three	Four	Three	Four	Three	Four	Three	Four	Three
Max. departments	128	20	64	20	20	20	10	10	10	10
Department types: Ring-all, ACD, UCD, in-order, pick-up, attendant	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Max. members, non-ring-all depts.	64	64	64	64	48	48	32	32	32	32
Max members, ring-all depts.	48	48	48	48	48	48	32	32	32	32

Shared-office tenanting

Dialing plans (-digits) ▶	ESI-1000		ESI-600		ESI-200		ESI-100		ESI-50	
	Four	Three	Four	Three	Four	Three	Four	Three	Four	Three
Tenants	8	8	8	8	4	4	2	2	2	2

CO line groups

Dialing plans (-digits) ▶	ESI-1000		ESI-600		ESI-200		ESI-100		ESI-50	
	Four	Three	Four	Three	Four	Three	Four	Three	Four	Three
Line groups 9, 8, 71–76	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Max. members, CO ring assignment list	48	48	48	48	48	48	32	32	32	32

Translation tables

Dialing plans (-digits) ▶	ESI-1000		ESI-600		ESI-200		ESI-100		ESI-50	
	Four	Three	Four	Three	Four	Three	Four	Three	Four	Three
Pilot numbers (non-SIP)[1]	80	80	40	40	20	20	10	10	10	10
Pilot numbers (using SIP)[2]	100	100	100	100	100	100	100	100	100	100
Max. DID entries (non-SIP)	1,200	1,200	600	600	300	300	300	300	300	300

System speed-dial numbers

Dialing plans (-digits) ▶	ESI-1000		ESI-600		ESI-200		ESI-100		ESI-50	
	Four	Three	Four	Three	Four	Three	Four	Three	Four	Three
System speed-dial numbers	1,000	100	1,000	100	1,000	100	1,000	100	100	100

Maximum installations of *VIP* applications[3]

Dialing plans (-digits) ▶	ESI-1000		ESI-600		ESI-200		ESI-100		ESI-50	
	Four	Three	Four	Three	Four	Three	Four	Three	Four	Three
Installations, *VIP PC Attendant Console*	16	16	8	8	4	4	2	2	2	2
Installations, *VIP* auto-recording	32	32	16	16	8	8	4	4	4	4
Installations, *VIP ACD Supervisor*	16	16	8	8	4	4	2	2	2	2

[1] Prior to June 15, 2009.
[2] With the release on or after June 15, 2009.
[3] Standalone *(SE)* or *Outlook*-integrated versions.

ESI Presence Management features

Dialing plans (-digits) ▶	ESI-1000		ESI-600		ESI-200		ESI-100		ESI-50	
	Four	Three	Four	Three	Four	Three	Four	Three	Four	Three
RFID Reader access door records	50,000	50,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
RFID Reader entries in Fn. 372[1]	64	64	32	32	32	32	16	16	16	16
Max. RFID tags ("electronic keys")	2,000	2,000	500	500	500	500	500	500	500	500

ESI Cellular Management features

Dialing plans (-digits) ▶	ESI-1000		ESI-600		ESI-200		ESI-100		ESI-50	
	Four	Three	Four	Three	Four	Three	Four	Three	Four	Three
Support for ESI Cellular Mgmt.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

ESI Mobile Messaging features

Dialing plans (-digits) ▶	ESI-1000		ESI-600		ESI-200		ESI-100		ESI-50	
	Four	Three	Four	Three	Four	Three	Four	Three	Four	Three
Maximum stations[2]	816	168	408	168	168	168	84	84	52	52
Maximum guest mailboxes[2]	250	250	250	250	100	100	50	50	50	50

ESI Video Viewer and ESI Video Adapters

Dialing plans (-digits) ▶	ESI-1000		ESI-600		ESI-200		ESI-100		ESI-50	
	Four	Three	Four	Three	Four	Three	Four	Three	Four	Three
ESI Video Adapters	32	32	24	24	16	16	14	12	12	12
RFID Readers per ESI Video Adapter	1	1	1	1	1	1	1	1	1	1
User exts./depts. per ESI Video Adapter	64	64	64	64	48	48	32	32	32	32
ESI Video Viewer users	30	30	20	20	15	15	10	10	5	5

ESI Media Management features

Dialing plans (-digits) ▶	ESI-1000		ESI-600		ESI-200		ESI-100		ESI-50	
	Four	Three	Four	Three	Four	Three	Four	Three	Four	Three
Video recordings	48	48	36	36	24	24	12	12	12	12
Audio recordings	384	384	192	192	64	64	32	32	32	32
SMDR events	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fob activity	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ESI Media Manager users	30	30	20	20	15	15	10	10	5	5

[1] See the *ESI Presence Management Installation Manual* (ESI document #0450-0792).
[2] With release of system software on or after June 15, 2009.

Remote maintenance with *ESI System Programmer*

ESI System Programmer gives the **Installer** the capability to program all phone system features, including IP addresses for Remote Phones and Esi-Link. *ESI System Programmer* can be used from a PC or laptop connected directly to the system on-site; it can also connect to the system remotely via TCP/IP or dialup. *ESI System Programmer* can be used remotely by the Installer to make adjustments to a site's ESI Communications Server. This section will cover how to use *ESI System Programmer* in conjunction with the system's Network Services Processor (NSP) for remote maintenance.

Required equipment and information:

- A programmed and connected NSP must be in the site's ESI Communications Server. (The NSP itself is standard.)
- You will also need to know the site's NSP IP address.
- The PC or laptop must have an Ethernet interface and have a broadband connection to the LAN, WAN, or Internet (depending upon the type of remote connection involved).
- TCP/IP port number **59002** for the site's router.

ESI System Programmer setup

WARNING: Do **NOT** back-load *ESI System Programmer* to a version prior to 1.1.12.0. Doing so will cause *ESI System Programmer* to fail to launch, **and** could damage site files.

1. Contact the site to port-forward TCP/IP port 59002 from the router to the NSP's IP address. Verify that the port prefix of *59* hasn't changed (if it changed to *56*, for example, the port number would be *56002* rather than *59002*). If the customers are unaware how to port-forward, have them refer to the router's *User's Guide*.

   Important: For an explanation of how the port forwarding works, see "Configuring the remote office NAT router" in the *NSP/VIP Advanced Options Guide* (ESI part #0450-0667).

2. After port forwarding is complete, install *ESI System Programmer* on your PC. *ESI System Programmer* can be found on the software page of the Resellers' Web site: *www.esi-estech.com/Resellers/software*.
3. Follow directions in the *ESI System Programmer User's Guide* (# 0450-1046) for setting up a site.

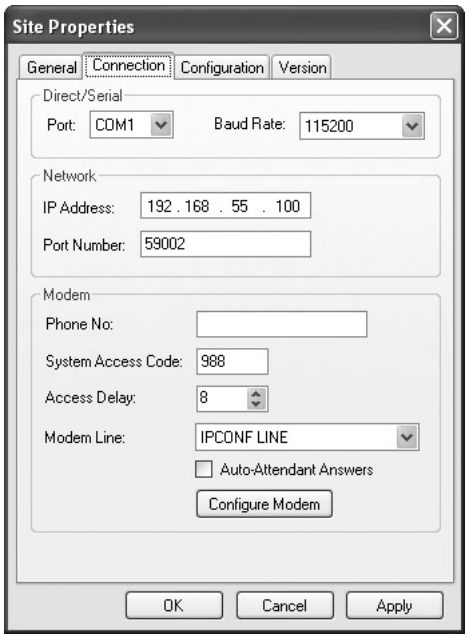
Connecting to the site

Important: ESI **strongly** recommends connecting to the ESI Communications Server via the NSP, for a faster and more stable connection.

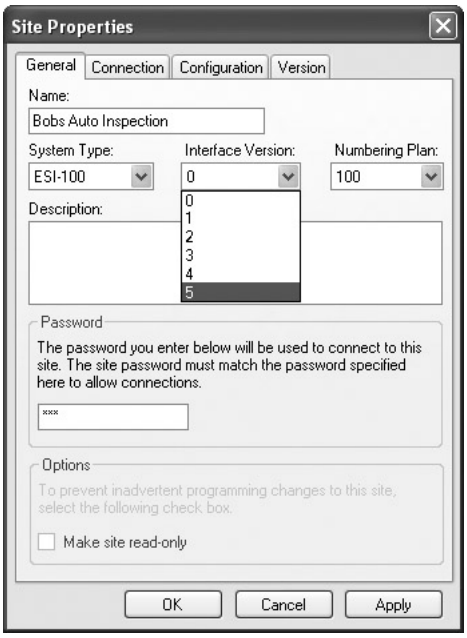
Once the site is created and the network settings are entered, connect to the site using network communications:

1. Highlight the site and **right**-click. In the resulting drop-down menu, click **Connect**, then **Network/NSP**.
2. Once the dialog box shows you're connected, click **Close** and then begin programming

Once you are connected to the site, you can program features as if you were actually there.



Interface Version field



The **General** tab in *ESI System Programmer* 1.2.0.0 (or later) includes an **Interface Version** (I.V.) field. This field provides six values — *0*, *1*, *2*, *3*, *4*, and *5*:

- *Zero* is synonymous with ESI Communications Server system software versions released **prior to** April 25, 2008.
- *One* is synonymous with ESI Communications Server system software versions released **after** April 25, 2008 and **before** April 24, 2009.
- *Two* is synonymous with ESI Communications Server system software versions released **on or after** April 24, 2009 and **before** June 15, 2009.
- *Three* is synonymous with ESI Communications Server system software versions released **on or after** June 15, 2009.
- *Four* is synonymous with ESI Communications Server system software versions released **on or after** September 2, 2010.
- *Five* is synonymous with ESI Communications Server system software versions released **on or after** June 22, 2011.

When you load *ESI System Programmer* 1.2.0.0 (or later), any sites you created with an earlier version of *ESI System Programmer* will automatically be set to an I.V. of *0*.

When you create a new site for an ESI-100, ESI-200, ESI-600, or ESI-1000, you'll have the choice to set the I.V. to *0*, *1*, *2*, *3*, *4*, or *5*. Set the I.V. to the appropriate version for the system software you're using, based on the dates listed above. (When you create a new site for an ESI-50, however, the I.V. will automatically be set to *5*.)

Once the site properties are entered and you choose **Apply** or **OK**, the I.V. for that site can't be changed (as is true for the system numbering plan; see "Selectable numbering plan," page D.2).

System programming: An introduction

You can program an ESI Communications Server either **(a.)** from an ESI desktop phone[1] in the system or **(b.)** with the *Windows*®-based *ESI System Programmer* package. Both methods follow the same programming steps. This manual focuses on programming from an ESI desktop phone; the respective documentation for *ESI System Programmer* details the differences in programming from that environment.

Read the *User's Guide* first. Programming features require a clear understanding of **user** interface and application.

Once you've accessed programming mode on an ESI desktop phone, the system will prompt for — and confirm — each keystroke action via voice commands and the display. You program both configuration data and recordings in the same manner.

> **Important:** During programming, the 24-Key Feature Phone's two-line display shares the same content as the top two lines of the three-line display found on most current ESI desktop phones. As a result, to save space, the sample displays shown herein will show only two lines.
>
> If installing ESI Presence Management on this system, refer to the *ESI Presence Management Installation Manual* (ESI # 0450-0792) for important information **before** you program the system.

Programming keys

During programming, the first line of the display will show the current **item** being programmed, and the second line will be the **entry** line. You can enter values as directed by the combination of the voice prompts and display. To enter multiple values, such as a list of extension numbers, separate each value by # (to exit the list, enter # #).

To...	Press ...	What this does
Enter	#	Confirms new or existing entry and advances to next programming step.
Back up (*i.e.*, reverse direction)	*	Backs up to previous prompt without changing its value.
Delete	**HOLD**	Deletes data or recording.
Exit	[Hang up]	Exits programming mode and removes extension from DND.
Help	**PROG/HELP**	Provides more detailed instructions during programming.
Select/scroll	▼ *(left-side scroll key)*	• During entry of a value, backs up. • If a list is present (">" is displayed), scrolls to left.
	▲ *(right-side scroll key)*	• Selects from options presented. • If a list is present (">" is displayed), scrolls to right. • Inserts a space during entry of a name.

> **Notes:** Either **<** or **>** in the display indicates that additional choices or values are available by pressing a corresponding scroll key (▼or ▲).

Only one person at a time can be performing Installer or Administrator programming.

[1] ESI doesn't recommend programming the system using a legacy 12-Key Feature Phone, and you cannot do so using an ESI Cordless Handset.

Entering alphanumeric characters

You enter names for **extensions, departments, branch IDs, CO lines, guest mailboxes and DIDs** by pressing the dial pad key that corresponds to the character to be entered. The key's possible entries will change each time the key is pressed, and the display will show this. When the desired character appears on the display, press # to confirm; the cursor will move to the next character position. You may move the cursor left (to correct an entry) by pressing the left scroll key (▼) or move right (to add a space) by pressing the right scroll key (▲).

Key	Options
0	0, - (hyphen), _ (underline)
1	Q, Z, q, z, 1, "_" (space)
2	A, B, C, a, b, c, 2
3	D, E, F, d, e, f, 3
4	G, H, I, g, h, i, 4
5	J, K, L, j, k, l, 5
6	M, N, O, m, n, o, 6

Key	Options
7	P, R, S, p, r, s, 7
8	T, U, V, t, u, v, 8
9	W, X, Y, w, x, y, 9
▼ (left scroll key)	Backs up and erases
▲ (right scroll key)	Adds a space
#	[Enter]
# #	Ends the name

Important: Lower-case letters are available only for programming Function 84 settings (page M.11).

Example: To enter a *B*, press **2** twice (the possible options to scroll through are **A**, **B**, **C**, **a**, **b**, **c**, and **2**). When **B** appears, press **#** to confirm; the cursor will move to the next character to be entered. To complete the name, press **# #**.

Note: On an incoming call, the name you assigned to the call's CO line or DID — rather than the Caller ID data — will appear until the call is answered.

Selectable numbering plan

The ESI Communications Server's selectable numbering plan offers up to nine pre-configured ranges — three **three-digit** plans and six **four-digit** plans. When an extension range is selected, department numbers and guest mailbox numbers are also changed. However, regardless of which extension range is selected, feature key codes, and CO line group access numbers will stay the same. The dial plan range is selected through Installer programming Function 169 (see page E.10 for more information).

Notes: The ESI Presence Management RFID Reader[1] uses one digital extension, regardless of dial plan.

An ESI desktop IP phone, the IP Cordless Handset (Local or Remote), *VIP Softphone*, and a SIP phone **each** use one IP port, regardless of dial plan.

Important: **Full** capacity on the ESI-1000, ESI-600, or ESI-200 can be achieved **only** by using a **four-digit** plan. (See "System capacities," page B.1.)

[1] For more information, see the *ESI Presence Management Installation Manual* (ESI # 0450-0792).

Three-digit numbering plan selections (all ESI Communications Servers)

Selection 100 (default)

From	To	Used for
100	267	Extensions
280	299	Departments
300	489	Guest/info mboxes

Selection 200

From	To	Used for
200	367	Extensions
380	399	Departments
100	199	Guest/info mboxes
400	489	Guest/info mboxes

Selection 300

From	To	Used for
300	467	Extensions
470	489	Departments
100	289	Guest/info mboxes

Common to all three-digit numbering plan selections (all models)

From	To	Used for
0	—	Operator
490	499	Q & A mailboxes
500	—	Broadcast mailbox
501	532	Group mboxes
533	542	Cascade notif. mboxes
600	699	System speed-dial

From	To	Used for
700	709	Esi-Link[1] locations
770	799	Esi-Link locations
71	76	Esi-Link/CO line grps.
8	—	CO line grp.
9	—	CO line grp./ARS
*	—	Call pickup
#	—	Paging

Four-digit numbering plan selections (ESI-600, ESI-200, ESI-100, and ESI-50)

> **Note:** The “From” number is the same on all systems. The “To” number is dependent on the system type because of the specific capacities of each system. See “System capacities” (page B.1).

Selection 1000

From	To	Used for
1000	1407	Extensions
1408	1471	Departments
3000	3999	Guest/info mboxes
4000	—	Broadcast mailbox
4001	4032	Group mboxes
4040	4059	Q & A mboxes
4060	4079	Cascade notif. mboxes
6000	6999	System speed-dial

Selection 2000

From	To	Used for
2000	2407	Extensions
2408	2471	Departments
3000	3999	Guest/info mboxes
4000	—	Broadcast mailbox
4001	4032	Group mboxes
4040	4059	Q & A mboxes
4060	4079	Cascade notif. mboxes
6000	6999	System speed-dial

Selection 3000

From	To	Used for
3000	3407	Extensions
3408	3471	Departments
2000	2999	Guest/info mboxes
4000	—	Broadcast mailbox
4001	4032	Group mboxes
4040	4059	Q & A mboxes
4060	4079	Cascade notif. mboxes
6000	6999	System speed-dial

Selection 4000

From	To	Used for
4000	4407	Extensions
4408	4471	Departments
3000	3999	Guest/info mboxes
2000	—	Broadcast mailbox
2001	2032	Group mboxes
2040	2059	Q & A mboxes
2060	2079	Cascade notif. mboxes
6000	6999	System speed-dial

Selection 5000

From	To	Used for
5000	5407	Extensions
5408	5471	Departments
3000	3999	Guest/info mboxes
4000	—	Broadcast mailbox
4001	4032	Group mboxes
4040	4059	Q & A mboxes
4060	4079	Cascade notif. mboxes
6000	6999	System speed-dial

Selection 6000

From	To	Used for
6000	6407	Extensions
6408	6471	Departments
3000	3999	Guest/info mboxes
4000	—	Broadcast mailbox
4001	4032	Group mboxes
4040	4059	Q & A mboxes
4060	4079	Cascade notif. mboxes
2000	2999	System speed-dial

Common to all four-digit numbering plan selections for these models

From	To	Used for
0	—	Operator
71	76	CO line grps. or Esi-Link loc. prefixes
700	709	Esi-Link locations
770	799	Esi-Link locations

From	To	Used for
8	—	CO line grp.
9	—	CO line grp./ARS
*	—	Call pickup
#	—	Paging

[1] See “Function 8: IP PBX programming,” beginning on page M.1.

Four-digit numbering plan selections (ESI-1000 only)

Selection 1000

From	To	Used for
1000	1815	Extensions
1872	1999	Departments
3000	3999	Guest/info mboxes
4000	—	Broadcast mailbox
4001	4064	Group mboxes
4065	4084	Q & A mboxes
4085	4124	Cascade notif. mboxes
6000	6999	System speed-dial

Selection 2000

From	To	Used for
2000	2815	Extensions
2872	2999	Departments
3000	3999	Guest/info mboxes
4000	—	Broadcast mailbox
4001	4064	Group mboxes
4065	4084	Q & A mboxes
4085	4124	Cascade notif. mboxes
6000	6999	System speed-dial

Selection 3000

From	To	Used for
3000	3815	Extensions
3872	3999	Departments
2000	2999	Guest/info mboxes
4000	—	Broadcast mailbox
4001	4064	Group mboxes
4065	4084	Q & A mboxes
4085	4124	Cascade notif. mboxes
6000	6999	System speed-dial

Selection 4000

From	To	Used for
4000	4815	Extensions
4872	4999	Departments
3000	3999	Guest/info mboxes
2000	—	Broadcast mailbox
2001	2064	Group mboxes
2065	2084	Q & A mboxes
2085	2124	Cascade notif. mboxes
6000	6999	System speed-dial

Selection 5000

From	To	Used for
5000	5815	Extensions
5872	5999	Departments
3000	3999	Guest/info mboxes
4000	—	Broadcast mailbox
4001	4064	Group mboxes
4065	4084	Q & A mboxes
4085	4124	Cascade notif. mboxes
6000	6999	System speed-dial

Selection 6000

From	To	Used for
6000	6815	Extensions
6872	6999	Departments
3000	3999	Guest/info mboxes
4000	—	Broadcast mailbox
4001	4064	Group mboxes
4065	4084	Q & A mboxes
4085	4124	Cascade notif. mboxes
2000	2999	System speed-dial

Common to all four-digit numbering plan selections for the ESI-1000

From	To	Used for
0	—	Operator
71	76	CO line grps. or Esi-Link loc. prefixes
700	709	Esi-Link locations
770	799	Esi-Link locations

From	To	Used for
8	—	CO line grp.
9	—	CO line grp./ARS
*	—	Call pickup
#	—	Paging

Line groups

The numbers *9, 8,* and *71–76* are designated as **line groups**. A line group is, as the name implies, a specific group of lines in a key system that are used for making outgoing calls. In an ESI Communications Server, line groups give phones access to outside lines without taking up any programmable keys on each phone.

> **Note:** Line groups 71–76 may conflict with Esi-Link locations 710–769 (if they're needed); refer to Function 164 (see page E.6).

System programming overview

1 System parameters
- 11 Initialize
- 12 Installer password
- 13 Administrator password
- 14 System clock
  - 141 Set time/date
  - 142 Automatic time setting
  - 143 Clock adjustment
- 15 System timing parameters
  - 151 Flash duration
  - 152 Transfer forward timer
  - 153 Recall timers
    - 1531 Exclusive hold or loop-key hold
    - 1532 System hold
    - 1533 Hold recall rings
  - 154 ACD timers
    - 1541 ACD exit timer
    - 1542 ACD wrap timer
    - 1543 ACD hold recall timer
  - 155 ACD wrap timer
  - 156 Cell phone delay
  - 157 Device timers
  - 158 *VIP Attendant* exit timer
- 16 System feature parameters
  - 161 Recording alert tone
  - 162 Connect tone
  - 163 Station feature set activation
  - 164 Esi-Link location no./line group access selection
  - 165 Auto attendant parameters
  - 166 CO line parameters
  - 167 Voice mail parameters
  - 169 Feature set activation
- 17 System speed-dial
- 18 Maintenance/SMDR serial port

2 CO line programming
- 21 Line programming
  - 211 Analog CO line programming
  - 212 T1 programming
    - 2121 CO line programming
    - 2122 T1 frame format and line coding
    - 2123 Line build-out
    - 2124 CSU emulation
  - 213 PRI programming
    - 2131 CO line programming
    - 2132 Line build-out
    - 2133 CSU emulation
    - 2134 Switch protocol
    - 2135 DID
  - 214 SIP trunk programming
    - 2141 SIP trunk programming day/night mode
    - 2142 SIP account programming
    - 2145 SIP pilot table programming
- 22 Translation table programming
  - 221 Centrex/PBX access code
  - 222 Toll restriction exception tables
  - 223 ARS (Automatic Route Selection)
  - 224 DID and DNIS/ANI translation table
  - 225 PRI pilot number translation table
  - 226 Local allow table
- 23 Line parameters
  - 231 Line receive volume
  - 232 Analog line disconnect
  - 233 T1 line receive volume
  - 234 PRI line receive volume
- 24 Caller ID programming

3 Extension programming
- 31 Extension definition and routing
- 32 Extension feature authorization
  - 321 Standard feature authorization
  - 322 Advanced feature authorization
- 33 Department programming
  - 331 Department definition and routing
  - 332 *VIP ACD* parameters
- 34 Dial plan assignment
  - 341 Flexible number assignment
  - 342 Network numbering
- 35 Extension button mapping
- 37 ESI device programming
  - 371 Access schedules
  - 372 RFID tag programming
  - 373 View RFID tag numbers
  - 374 ESI Presence Management parameters
  - 375 ESI Presence Management Reader parameters
  - 376 ESI Video Adapter programming
- 30 Station move[1]

4 Auto attendant programming
- 41 Auto attendant branch programming
- 42 Announce extension number
- 43 Automatic day/night mode table

5 Voice mail programming
- 51 Maximum message/recording length
- 52 Message purge control
- 53 Guest/info mailboxes
- 54 Group mailboxes
- 55 Message notification options
  - 551 Station delivery options
  - 552 Delivery/paging parameters
- 56 Cascade notification mailboxes
- 57 Q & A mailboxes
- 58 Move and delete messages

6 Recording
- 61 Record system prompts
- 62 Record directory names
- 63 MOH programming
  - 631 MOH source
  - 632 Record MOH
  - 633 MOH volume
- 64 Call recording settings
  - 641 CO line recording settings
    - 6411 Analog line recording settings
    - 6412 T1 line recording settings
    - 6413 PRI line recording settings
    - 6414 SIP trunk recording settings
  - 642 Extension and department recordings
  - 643 Call recording parameters

7 Reports
- 71 System reports
  - 711 Programming report
  - 712 Diagnostic reports
- 72 ESI Presence Management access door report
- 73 ACD department detail report
- 74 Voice mail statistics report
- 75 System speed-dial list
- 76 NDDS report

8 IP programming
- 81 Display licenses
- 82 Local programming
  - 821 IP programming
  - 822 Local phone starting address
  - 824 Network Services Processor
- 83 Esi-Link programming
  - 831 Local location number
  - 832 Esi-Link location programming
  - 833 Delete Esi-Link location
  - 834 Esi-Link publish list programming
  - 835 Compression algorithm
- 84 ESI SIP Card programming
- 85 ESI ASC programming
- 86 ESI Mobile Messaging selection

[1] Shown in the same order as it appears in the programming menu on an ESI desktop phone.

Entering programming mode

You may program from **any** ESI desktop phone[1] in the system:

1. Press **PROG/HELP** at any station. The normal **station** programming menu prompts will begin to play.
2. Press **HOLD**. The "enter password" prompt will play.
3. Enter the **Installer password** (default is **7 8 9**).[2] Then, to confirm the password, either press **#** or wait two seconds. **You are now in programming mode.** The extension will be automatically placed in DND, and its display will show:

   ```
   INSTALLER
   CMD:
   ```

4. The system will play the **system** programming menu. Follow it to program as you wish.
5. When finished, hang up.

Warning: Always **FINISH** programming in **ANY** function **BEFORE** exiting programming mode (as needed, press **#** to accept current entries for function parameters you're **not** changing).

Note: The system will automatically exit programming mode after 10 minutes of inactivity.

Example: If your Installer password is *864*, **enter** programming mode by pressing **PROG/HELP HOLD 8 6 4 #**. (To **exit** programming mode, hang up.)

[1] Although a legacy 12-Key Feature Phone allows you to **enter** Installer and Administrator programming, we don't recommend that you use a 12-Key Feature Phone for programming because of its one-line display and small number of programmable feature keys.

[2] If you prefer to enter Administrator programming mode, use the Administrator password, instead (the default is **4 5 6**).

Function 1: System parameters

Function 11: Initialize

This function will return all components and software to their initial state. Initialization will erase all data and custom recordings — but **not** the time, date, or dial plan[1] (see **Important** notes, *below*).

> **Important:** Always initialize the system before initial programming for a new installation.
>
> You must confirm the command to initialize, when prompted, by entering the Installer password (and then pressing # to finish confirmation).
>
> Be sure to set the time and date (Function 14) **before** initializing.

System initialization will take several minutes to complete. When completed, the phone's display will return to the idle state. **You must then re-access Programming Mode** by following the steps described earlier (see page D.6).

Functions 12 and 13: Installer and Administrator passwords

These functions will display the existing password and prompt for entry of a new password. The passwords can be 2–8 digits long, followed by #. **The Installer can change either the Installer or Administrator Password. Only those functions listed in the *Administrator Manual* can be programmed via the Administrator Password.** The default passwords are:

Installer Password (Function 12) = **7 8 9**
Administrator Password (Function 13) = **4 5 6**

> **Note:** Be sure to write down the new passwords, store them in a safe place, and give the new Administrator's Password to the Administrator.

Accessing user station programming

Should a user forget his password or if an employee leaves the organization, this feature allows the Installer or Administrator to enter a user's station programming and operate within it as if he were the user. From the user's station, enter the **Installer** or **Administrator** password when the system prompts for the **user** password.

> **Example:** From station 105, entering **7 8 9 #** or **4 5 6 #** instead of the user password (**1 0 5 #**) will enter the station's user programming. (Default passwords shown for this example).

Function 14: System clock

Function 141: Set time/date

1. Enter a new time in a **twelve**-hour format.

   > **Example:** Enter **1 2 3 3** for *12:33*, or **3 1 5** for *3:15* (note that you need **no** leading zero for the time).

2. Select AM or PM by pressing a scroll key (either ▼ or ▲).
3. Enter a new date in an **eight-digit** format, **including** leading zeroes.

   > **Example:** Enter **0 7 0 4 2 0 0 7** for July 4, 2007 (note that leading zeroes **are** required here, unlike in Step 1).

4. Press # to finish the entry.

> **Note:** A built-in battery maintains the correct time and date, even in the event of a power loss.

[1] Dial plan is set in Function 169 (see page E.10).

Function 142: Automatic time setting

1: Synchronize with Caller ID[1]

This function, when enabled, synchronizes the real-time clock with Caller ID (CID) messaging: call processing compares the time of a CID message to the system real-time clock and, if the difference is more than two minutes, resets the real-time clock to match the time (minutes) of the CID message. The system will analyze each such message (or — if it receives more than four calls with CID information within a one-minute period — as is needed). Select *ENABLE* or *DISABLE* by pressing a scroll key (either ▼ or ▲). Choosing *ENABLE* will allow the CID data to update the time and date.
Default: Disabled.

Esi-Link-related notes (see also "Function 83: Esi-Link programming," pages M.9–M.10)**:**

If "synchronize with Caller ID" is enabled, Esi-Link time synchronization (from location 700) will be disabled.

If "synchronize with Caller ID" is disabled, Esi-Link time synchronization will be allowed (minutes only).

When Esi-Link is used, all cabinets' time will be synchronized by cabinet 700, unless "synchronize with Caller ID" is enabled in Function 142.

2: Adjust for Daylight Saving Time

This function, when enabled, causes the real-time clock to adjust itself automatically for Daylight Saving Time (DST). Select *AUTO* or *DISABLE* for DST by pressing a scroll key (either ▼ or ▲). Choosing *DISABLE* is best for those areas that don't observe DST.
Default: Disabled.

Note: If this function is enabled and it causes an automatic time change, the system won't update the real-time clock from either Caller ID messages (Function 1421, *above*) or Esi-Link time synchronization for 25 hours before and 25 hours after the time change is due to be effective (*i.e.*, 2:00 AM Sunday).

Function 143: Clock adjustment

This function lets the Installer or Administrator have the system automatically compensate for a clock that's running too fast or too slow. The clock adjustment speeds up or slows down the clock over a 30-day period by the amount selected. If the system clock is running **slow**, select a **positive** value. If the clock is running **fast**, select a **negative** value.
Range: -2 to +5.5 minutes. **Default:** 0.

Example: If the clock is running two minutes fast over a month, select -2 (minus two minutes).

[1] Does not work with PRI.

Function 15: System timing parameters

Function 151: Flash hook duration

This sets the time (in seconds) that a flash hook will be sent on the current line to the Telco from a digital phone set. The default setting of **1.5** will cause disconnect and fresh dial tone from the CO.
Range: 0.2–2.0. **Default:** 1.5.

Function 152: Transfer forward timer

This sets the number of times a transferred or DID[1] call will ring before following the day/night routing for the extension or department.
Range: 1–9 rings. **Default:** 3.

Function 153: Recall timers

Function 1531: Exclusive hold or loop-key hold recall timer

This is the amount of time, in seconds, that a call will remain on exclusive hold or loop-key hold before recalling to the extension that initiated the exclusive hold or loop-key hold.
Range: 5–960 seconds. **Default:** 60.

Function 1532: Hold recall timer

This is the amount of time, in seconds, that a call will remain on hold before recalling to the extension that initiated the hold.
Range: 5–960 seconds. **Default:** 60.

Function 1533: Hold recall timeout timer

This is the number of times a station will recall-ring before being re-routed.
Range: 2–40 rings. **Default:** 6.

Function 154: ACD timers

Function 1541: ACD exit timer

This is the amount of time, in seconds, that a call will remain in ACD department queues before following the department reroute (see Function 33, page G.30).
Range: 5–600 seconds (or 0 for no limit). **Default:** 180.

Function 1542: ACD wrap timer

This is the maximum amount of time, in seconds, that an agent can remain in wrap mode. If this function is turned off, agents cannot place their stations in Wrap Mode (see the “ACD agent operation” chapter in the *User’s Guide*).

Range: 5–600 seconds (**0** for no limit). **Default:** 0 (no limit).

Function 1543: ACD hold recall timer

This is the amount of time, in seconds, that a call will remain on hold by a logged-in ACD agent before recall. (A logged-out user will follow the Function 1532 timer when placing someone on hold.)
Range: 5–960 seconds. Default: 60.

[1] Direct Inward Dialing.

Function 156: Cell phone delay

When one uses a cellular phone or cordless phone to pick up messages, this usually requires the user to move the phone away from the ear frequently in order to press command keys, making the user miss some portion of the next prompt. This function adds additional delay before the playback of system prompts during remote message pickup or message pickup from an analog station *(this does not affect ESI phone message pickup).* The value is in seconds.
Range: 0.0–5.0. **Default:** 1.0.

Function 157: Device timers

Field 1: Door unlock timer

Used only with ESI Presence Management. This is the number of seconds that a door-unlock relay will remain open after one has pressed a remote door-unlock key.
Range: 2–60 seconds. **Default:** 4.

Field 2: Fax dial delay

This is the amount of time the system will pause before sending the DID digits to a fax server after the call has been answered.
Range: 5–100. **Default:** 50 (500 ms).

Function 158: VIP Attendant *exit timer*

This is the amount of time it takes an Attend department call (see “Department hunting methods,” page G.30) to enter and exit the Attendant queue.
Range: 5–900 seconds. **Default:** 180.

Function 16: System feature parameters

Function 161: Recording alert tone

This sets whether the system plays a short beep tone every 15 seconds during a call recording, indicating to both parties that a recording is in progress.
Default: Disabled (the beep doesn’t play).

> **Important:** IN **MOST** JURISDICTIONS, IT IS PERMISSIBLE TO RECORD A CONVERSATION IF ONE OF THE TWO PARTIES IS AWARE THAT IT IS BEING RECORDED. HOWEVER, ESI TAKES **NO** RESPONSIBILITY AS TO ITS LEGALITY IN **ALL** JURISDICTIONS. IT IS THE RESPONSIBILITY OF THE INSTALLING COMPANY AND THE END USER TO DETERMINE AND FOLLOW THE APPLICABLE STATE AND LOCAL LAWS REGARDING RECORDING OF CONVERSATIONS.

Function 162: Connect tone

This sets whether the system plays a system connect tone (two short beeps a user hears when a station answers).
Default: Enabled (the beeps play).

Function 163: Station feature set activation

Field 1: Group listen enable/disable

With this feature **disabled**: if a station user presses **SPEAKER** while on a call, the ESI phone immediately turns off the handset and switches to hands-free mode.
If enabled, the group listen feature is available system-wide. If disabled, it is no longer available.
Default: Enabled.

Field 2: Privacy release enable/disable

With this feature **enabled**: if a station user presses a CO line key that is in use (lit red), the user will be immediately conferenced with the call in progress on that line. With this feature **disabled**: pressing an in-use CO line key has no effect.
Default: Disabled.

> **Warning:** Adjusting this parameter while calls are in progress may result in temporary loss of audio.

Field 3: Headset microphone gain adjust

Adjusts the gain of headset microphones connected either directly to the headset jack found on most ESI desktop phones or a headset box connected to a 24-Key Feature Phone. If the headset microphone gain is too high ("hot"), the user may perceive an annoyingly loud sidetone or hissing when on a station-to-CO call. The default level should provide a comfortable sidetone level and adequate transmit volume when used with recommended headsets.
Range: 0–5. **Default:** 2. (See table, *below*.)

Entry	Value
5	+9dB
4	+6dB
3	+3dB

Entry	Value
2	0dB *(default)*
1	-3dB
0	-6dB

> **Warning:** Changing the headset microphone gain will drop all calls in progress. **Before** making any changes to this parameter, make sure that all stations are idle.

Field 4: *VIP* text-messaging enable/disable

With this **enabled**, users of *VIP Professional*-compatible applications[1] can use *VIP* to text-message.
Default: Enabled.

Field 5: System-wide HOLD key lamp appearance

With this feature **enabled**: when a station user presses the **HOLD** key, the **HOLD** LED flashes on **all** ESI digital stations in the system when the call is placed on system-wide hold.
With this feature **disabled**: when a station user presses the **HOLD** key, the **HOLD** LED remains off on all ESI digital stations in the system **except** the station that placed the call on system-wide hold.

Default: Enabled.

Field 6: Exclusive hold as default

If **system-wide** is selected: when a station user momentarily presses the **HOLD** key, the call is placed on system-wide hold; pressing the **HOLD** key for an extended time period places the call on exclusive hold.
If **exclusive** is selected: when a station user momentarily presses the **HOLD** key, the call is placed on exclusive hold.

Options: System-wide and exclusive. **Default:** System-wide.

[1] *VIP Professional*, *VIP ACD Agent*, *VIP ACD Supervisor*, *VIP PC Attendant Console*, and *VIP Softphone*.

Function 164: Esi-Link location number/line group access selection

Without Esi-Link installed, line group access codes 71–76 aren't reserved for a particular purpose.[1] But, with Esi-Link installed, these codes are automatically reserved for Esi-Link location access, as shown in the chart at *right*.

However, even if Esi-Link is installed, the Installer can manually change codes 71–76 using Function 164. Once these codes are manually changed, the Esi-Link location numbers beginning with the same two digits can no longer be used (*e.g.*, if line access code 71 is changed for non-Esi-Link use, Esi-Link location numbers 710–719 are no longer available).

Numbering of locations or line groups

Esi-Link location number range *(default)*	Line group access *(if selected)*
710–719	71
720–729	72
730–739	73
740–749	74
750–759	75
760–769	76

Function 165: Auto attendant parameters

Field 1: Auto attendant inter-digit timer

Make this setting higher if callers complain that they don't have enough time to dial before either the system sends them to the wrong destination or they hear "Your entry was not valid"; make it lower if they say it pauses too long after they dial digits. This sets the time after the first digits has been entered and before the entered number is accepted as being complete (time between each digit dialed). Expressed in 1/100s of seconds.
Range: 40–1000 (*i.e.*, 400 ms to 10 seconds). **Default:** 200 (*i.e.*, 2 seconds)

Field 2: Auto attendant no-response timer

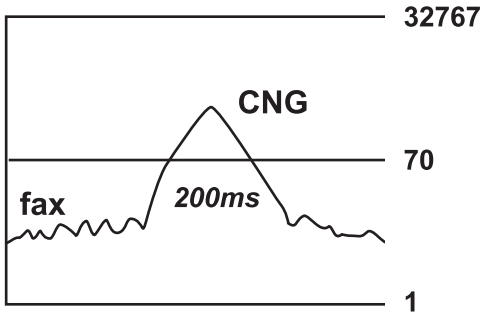
Adjust if the time after the playing of the auto attendant greeting is too long (or too short) before the system follows the no-response (call-forward) destination of a menu or directory. Sets auto attendant's no-response timeout time. This is how long the auto attendant waits until after the menu plays all options. Expressed in 1/100s of seconds.
Range: 50–6000 (*i.e.*, 500 ms to 1 minute). **Default**: 300 (*i.e.*, 3 seconds).

Field 3: ACD beep

Enables or disables the ACD beep tone (same as the "new message" beep) given to agents logged into an ACD department when they're in a busy condition and a call goes into queue.
Range: 0 (enabled) or 1 (disabled). **Default:** 0 (enabled).

Field 4: Fax energy level (CNG tone)

Adjust this level if fax calls aren't routing properly when the auto attendant answers. Increasing (or decreasing) this field causes the system to look for more (or less) CNG tone to detect whether it's a valid tone. This is a threshold level, so setting it too low may cause the system to route **all** calls to the fax port. The energy level of a fax signal must exceed this setting for more than 200 ms.
Range: 1–32767. **Default:** 70.



Field 5: Name key digits

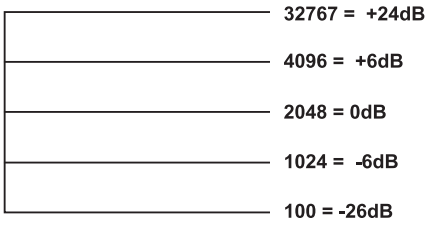
(Number of digits used for the auto attendant directory branch name key[2]) This is the number of digits corresponding to the number of letters the system will prompt an outside caller to enter when in an auto attendant directory branch.
Range: 1–3. **Default:** 3.

---

[1] *I.e.*, as are line access numbers *9* and *8*.
[2] See "Function 62: Record directory names," p. J.2.

Function 166: CO parameters

Field 1: CO-to-CO conference gain



Adjusts the volume level on CO lines when in a conference call. Increasing this level to a high setting can cause excessive noise or feedback on conference calls. This is a threshold gain level. Doubling or halving the current setting is in 6dB increments.
Range: 100–32767. **Default:** 2048.

> **Warning:** Adjusting field 1 while calls are in progress may result in temporary loss of audio.

Field 2: ARS inter-digit timer

Adjust this timer if the system disconnects the call before all digits are sent or there is an excessively long delay before the number is dialed. Sets the time **after** the first digit has been entered and **before** the entered number is accepted as being complete. This is when ARS (see "Function 223: Automatic route selection [ARS]," page F.36) is enabled and an outgoing call is made. Also controls the amount of time available for dialing when PRI lines are accessed. Expressed in 1/100s of seconds.
Range: 40–1000 (*i.e.*, 400 ms to 10 seconds). **Default:** 500 (*i.e.*, 5 seconds).

Field 3: CO playback gain

Adjusts the volume level the system uses to play back recordings, prompts or messages to a CO line. If this value is set too low, callers into the system may not be able to hear the greeting of a mailbox or the auto attendant when either answers the call. *6* = 0dB; going up or down from there is in 3dB increments.
Range: 1–12. **Default:** 6.

Field 4: Trunk-to-trunk CO gain

Adjust this if callers in a trunk-to-trunk connection — either through the "reach-me" feature, manual connection or auto attendant — are unable to hear or have excessive noise or feedback.
10 = 0 dB; going up or down from there is in 3dB increments.
Range: 1–12. **Default:** 11.

> **Warning:** Adjusting field 4 while calls are in progress may result in temporary loss of audio.

Field 5: Delay before connection "beep-beep"

Adjust this if connection tones are played either too soon or too late after the system answers a CO or intercom call. Sets the amount of time before the connection "beep-beep" is started. Expressed in 1/100s of seconds.
Range: 10–100 (*i.e.*, 100 ms to 1 second). **Default:** 20 (*i.e.*, 200 ms).

Field 6: Caller ID gain

Adjust this level if Caller ID information isn't being displayed. Setting this field tells the system how much CID signal it needs to determine whether the signal is valid CID. This is a value set in the DSP and is similar to the fax energy level (see Function 165, field 4, page E.6).
Range: 1–32767. **Default:** 20000.

> **Warning:** Adjusting field 6 while calls are in progress may result in temporary loss of audio.

(Continued)

Field 7: PRI local number digit length

Tells the system whether there is seven- or 10-digit local dialing in the system's area. If the local calling area uses **only** seven-digit dialing, set this value to *7* (this tells the system not to wait for additional digits when a local seven-digit number is dialed).
Range: 7 or 10. **Default:** 10 (supports both 10- and seven-digit dialing).

Field 8: Dialing off-hold

Enables or disables outside callers' ability to dial off-hold only when MOH 590 (external source) is selected. When this is **enabled**, CO callers will be able to dial extension, department, and mailbox numbers while on hold. When this is **disabled**, the system will ignore digits dialed by CO callers. To enable or disable outside callers' ability to dial off-hold, press a scroll key to make the desired selection and then press # to confirm.
Default: Enabled.

Field 9: Re-sending of Caller ID in Intelligent Call Forwarding (PRI)

This parameter "turns off" the repeat Caller ID (re-sending) component of Intelligent Call Forwarding over PRI. Some service providers — local exchange carriers or inter-exchange carriers — don't allow repeating the caller's CID data when making an outgoing call.
If re-sending of Caller ID is **disabled**, the PRI pilot number of the station's tenant will be sent instead.
If re-sending of Caller ID is **enabled**, CO calls that are forwarded to an off-premises number over a PRI channel will send the original caller's CID data to the called person. To enable or disable this parameter, press a scroll key to make the desired selection and then press # to confirm.
Default: Enabled.

> **Note:** Call forwarding off-premises and call forwarding no-answer/off-premises will be unaffected by changes to this parameter.

Field 10: Re-sending of Caller ID in Intelligent Call Forwarding (SIP trunk)

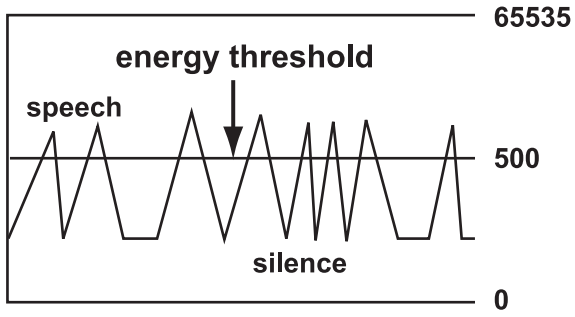
This parameter "turns off" the repeat Caller ID (re-sending) component of Intelligent Call Forwarding over a SIP trunk. Some Internet telephony service providers (ITSPs) don't allow repeating the caller's CID data when making an outgoing call.
If re-sending of Caller ID is **disabled**, the PRI pilot number of the station's tenant will be sent instead.
If re-sending of Caller ID is **enabled**, CO calls that are forwarded to an off-premises number over a SIP trunk will send the original caller's CID data to the called person. To enable or disable this parameter, press a scroll key to make the desired selection and then press # to confirm.
Default: Enabled.

> **Note:** Call forwarding off-premises and call forwarding no-answer/off-premises will be unaffected by changes to this parameter.

Function 167: Voice mail parameters

Field 1: Energy threshold

Adjust this downward if (a.) callers in a mailbox, on a conference call or in the auto attendant are being disconnected and/or (b.) messages in a mailbox are incomplete. Adjust this upward if mailboxes are storing messages with long periods of silence. This sets the value used to detect energy received by the system on any port. Lowering this value means less energy will be required to stay connected. Energy below this level is treated as silence.
Range: 0–65535. **Default:** 500.



Field 2: Recording silence value

This sets how much consecutive silence can be recorded in a mailbox before it stops and plays the “end of recording” prompt (537). Expressed in 1/100s of seconds.
Range: 200–3000 (2 to 30 seconds). **Default:** 350 (3.5 seconds).

Field 3: Maximum message length

Sets the maximum message length (same as in Function 51, page I.1). Expressed in minutes.
Range: 1–60. **Default:** 3.

Field 4: Page glare detection

Enables or disables the ignoring of page glare when using pager notification. When this is set to *1*, the system will go off-hook and send phone or pager strings regardless of dialtone detection. Enable this field if one or both of the following occur:

- CO lines are not releasing immediately after a pager notification.
- “Phantom” incoming calls (no caller and no Caller ID) are occurring.

Range: 0 (disabled) or 1 (enabled). **Default:** 0 (disabled).

Field 5: Maximum messages in Recycle Bin

Sets the maximum number of messages in the Message Recycle Bin.
This is a system-wide setting.
Range: 2–40. **Default:** 10.

Field 6: Unified messaging playback timeout

Sets the maximum duration in seconds to keep the ESI phone connected to voice mail (*i.e.*, wait for additional user entries) after a message stops playing via *VIP*.
Range: 0–20 (seconds). **Default:** 4.

Function 169: Feature set activation

Field 1: Tenant service

Enables/disables tenant service. When tenant service is enabled, stations and departments must be assigned to one of eight tenants in Functions 21, 31, or 33. Tenant service affects:

- Function 21 (CO line assignment, page F.1)
- Function 225 (pilot number translation table, page F.40)
- Function 31 (extension definition and routing, page G.2)
- Function 33 (department programming, page G.30)
- Function 4 (auto attendant programming, page H.1)
- Function 63 (MOH programming, page J.3)

Default: Disabled.

WARNING: When tenant service is enabled, ID branches 2 through 8 (see "Auto attendant programming," beginning on page H.1) will be initialized for each tenant's main menu branch.

Field 2: CO line tenant check

Note: Offered only if tenant service is enabled in Field 1.

Controls two functions. If CO line tenant check is enabled:

1. When a CO line is placed on hold, the **HOLD** key LED flashes only on stations whose tenant matches that CO line's tenant.[1]
2. When a station user presses the **HOLD** key to retrieve a call, the display shows only the CO lines on hold whose tenant matches that station's tenant.

Default: Disabled.

(Continued)

[1] If Function 163, field 5, is enabled. See page E.5.

Field 3: Selectable numbering plan template

> **Warning:** Changes to this parameter will result in system initialization, which will erase all programming, voice messages, greetings, and recordings. System programming backups that are of a different numbering plan range than the one selected cannot be restored.

> **Note:** If a three-digit dial plan is used, the ESI Communications Server's full capacity cannot be attained (see page "Selectable numbering plan," page D.2).

This parameter allows the installer to select one of nine pre-defined ranges of extension numbers (see "Selectable numbering plan," page D.2). However, regardless of which extension numbering range is selected, feature codes, and CO line groups access numbers will stay the same. Press a scroll key to select a new numbering plan, or press # to continue. If you select a new numbering plan, you will be prompted to initialize the system by entering the Installer password.

> **Note:** Initialization will take several minutes to complete.

Ranges: (See page **D.3**.) **Default:** 100.

Field 4: In/out DSS lamp

When a station is in off-premises mode[1] or the station is set to DND, any other station with a programmable feature key set as a DSS key for that station will light the key **amber**. This parameter controls **how** the key appears amber:

	Key's amber lighting if phone is in this mode. . .	
Setting	**DND**	**Off-premises**
Both solid	Solid	Solid
DND wink	Slow blink	Solid
Out office wink	Solid	Slow blink

Use the scroll keys to select and press # to confirm.
Default: Both solid.

[1] For more information, see the *ESI Presence Management Installation Manual* (ESI # 0450-0792).

Function 17: System speed-dial

Up to 1,000[1] system speed-dial names and associated numbers can be stored for access by any station. A user can initiate a system speed-dial by dialing the speed-dial location number or by accessing the name through the Esi-Dex feature. In Function 32, access to system speed-dial can be denied to individual stations (see page G.25).

> **Note:** System speed-dialing overrides extension toll restrictions (Function 32, page G.25).

1. Enter the three-digit or four-digit speed-dial number to program. (For acceptable system speed-dial numbers, see "Selectable numbering plan," page D.2.)
2. Enter a name up to **10 characters** in length (see "Entering alphanumeric characters," page D.2).
3. Enter the number to be dialed (including the line groups 9, 8, or 71–76). Press the left scroll key (▼) to delete any character or digit entered in error.

> **Important:** When using PRI, **don't** enter a pause ("P") after the line group number. If you do, the system will send all digits after the pause as DTMF digits, and the call won't be completed.

Here's an example:

1.	2.	3.
Speed-dial number	**Name**	**Number**
601	AUTO RENTL	915552221212

The number dialed in Step 3 can be up to 30 digits long **including** special characters:

Code	What it produces
#	# DTMF tone
*	* DTMF tone
F	Flash hook
P	2-second pause

Use the ▲ scroll key to enter special characters; use the ▼ scroll key to backspace. Press # to confirm the inserted character and continue. Press # # to complete the entry.

> **Example:** To create a system speed-dial number that dials *9*, then *214-555-5644*, then pauses for four seconds and finally dials *#104*, enter the following dial string:
>
> ***Entered via keypress***
>
> **9 2 1 4 5 5 5 5 6 4 4 P # P # # # 1 0 4 #**
>
> ***Entered via scroll-key method***

Deleting a speed-dial number

To delete an entire speed-dial number and name, delete the location number by pressing **HOLD** or the left scroll key (▼) during Step 1 in the speed-dialing procedure described above.

> **Note:** Speed-dial keys can't be used when the station is already connected to a CO line.

[1] Up to 100 if three-digit dial plan is used.

Function 18: Maintenance/SMDR serial port

As its name implies, the **Maintenance/SMDR** serial port provides not only SMDR data but also access to system maintenance.

> **Note:** The system will buffer up to 1,000 SMDR records in non-volatile memory when the **Maintenance/ SMDR** serial port is in use for programming or uploading (such as during use of *ESI System Programmer*). If the buffer becomes full, the system will discard the oldest records.

SMDR

Real-time SMDR call records are continuously output to the SMDR port.

> **Note:** Choose *STORED* in step 1 to have SMDR activity recorded to the ASC's Memory Module. Once *STORED* is selected, the second option (step 2) will remain available because the baud rate is used for modem connection; however, the third option (step 3) will no longer appear.

1. Select the output device by pressing the scroll keys (▼ and ▲):
   - *NONE* (Making this selection ends the process at this step.)
   - *SERIAL* (if connecting a printer or call accounting system).
   - *STORED* (if an ASC has been installed).
   - *ETHERNET* (if connecting to a LAN through an NSP board) — Skip to Step 3.
2. The system will then prompt you for the serial port *baud rate*. You can change this rate by pressing the scroll keys (▼ and ▲).
   Options: 300, 1200, 2400, 4800, 9600, 19200, 38400, 57600, or 115200 bps.
   Default: 115200[1].
3. Select the SMDR format, *STANDARD, EXTENDED,* or *CSV*, by pressing the scroll keys (▼ and ▲).
   Default: *STANDARD*.

   > **Note:** If *STORED* was selected in step 1, the SMDR format will be extended and no output will be seen via the serial or NSP ports.

Maintenance

A PC, such as a laptop, can be connected to this port for on-line programming and diagnostics. Reports (see "SMDR," pp. K.1–L.4) are also output to this port.

Maintenance mode begins for this port when you connect a PC to it and tap the PC's **Enter** key.

Baud rate for maintenance is the same as for SMDR (see "SMDR," *above*).

Capturing SMDR data over Ethernet

The NSP can be used to output SMDR data over an IP network; and a Telnet connection can be made to the NSP, using port xx003 (default is *59003*), to capture this data. For more information, see *NSP Installation Made Simple* (ESI # 0450-0669).

SMDR output

Examples of SMDR output are shown beginning on page L.1. Extended SMDR reports were introduced with ESI Communications Server software versions xx.3.xx.

[1] With system software version xx.4.15 (or later); if running an earlier version, the default is 38400.

Function 2: CO lines

An ESI Communications Server can operate either on a station-by-station basis as a PBX or as a combined key/PBX using standard loop-start lines. If a station has line keys programmed, the user accesses the lines by pressing one of these keys **or** by dialing the line group number **9** (or **8** or **71–76**). If a station does **not** have line keys programmed, the user **always** accesses CO lines by dialing **9** (or **8** or **71–76**). Since the system handles call transfer and auto attendant functions efficiently, operating in the PBX mode provides more programmable feature keys for other uses and the opportunity for glare is greatly reduced.

Notes: When a port card is **added to** or **removed from** the system — *i.e.*, thus changing the **number** and **configuration** of cards in the system — you must reprogram the CO lines. **However**, if a port card is replaced by the **same** type of port card (*e.g.*, when you replace a faulty 684 card with a new 684 card[1]), you **don't** have to reprogram the CO lines.

As a visual indication of CO line usage, the phone's display will show on/off-hook line status.

All phone programmable keys default to being unprogrammed (except on extension 100, where the first key defaults as a day/night key). Use *extension button mapping* (Function 35; see page G.43) to assign line keys system-wide. An individual station's keys can be reassigned using either **PROG/HELP 2** or "radio-key programming" at that station.

Important: Where any **gray shading** (▒) appears in an example, it represents values either **unavailable** to the function or **unused** in the particular example.

Function 21: CO line programming

This function lets you program analog COs (enter **1** to go to Function 211), T1 COs (enter **2** to go to Function 212), PRI COs (enter **3** to go to Function 213), or SIP trunks (enter **4** to go to Function 214). To return to the previous menu, press **#**.

```
CO LINE PROG
```

Important: When you modify the system configuration by changing cards, you must reprogram the CO lines.

The ESI-50 doesn't support T1.

Answer ring assignments

Each CO line can have up to four programmable **answer ring assignment** lists. The first list, "Ring 1," is used to send incoming calls on the first ring (or second ring if Caller ID is enabled) to an answer destination. The "Ring 3" list is invoked on the third ring, and so on.

Each list can be directed to be answered at up to 48[2] home location extensions, or a department, a mailbox, or an auto attendant branch ID[3]; these can be selected with the scroll keys. Destinations at a single remote destination (see numbered **Notes**, page F.3) can also be set as ring assignments in each list.

Ring assignments can be set to add or drop extensions, or add a department, a mailbox, or ID branch is ringing continues due to no-answer. Once a department, mailbox, or ID branch in either a home (local) location destination or remote location destination is encountered in any of the lists, no other ring assignments will be followed.

---

1 It doesn't matter whether both cards are "E2" or "CS" so long as the functional descriptor (in this example, the "684") is identical between them.
2 Except on the ESI-100 and ESI-50, where the limit is 32.
3 For more information about ID branches, see "Function 41: Auto attendant branch programming," pp. H.1–H.6.

CO ring assignments can include the following Esi-Link[1] remote location destinations:

- Location ID (7xx) + department
- Location ID (7xx) + extension
- Location ID (7xx) + mailbox

Default answer ring assignment for CO lines: *ID1*.

- The lines installed via TI can be loop, ground, E & M, or DID.
- All CO lines are programmed to route callers during the day mode and then can be programmed to route callers differently during the night mode. The display will indicate D (for day) or N (for night) to show which mode is currently being programmed. Lines that are to be programmed alike can be *grouped* to simplify programming.

Programming examples

Here are two examples of how to implement this programming; each shows a completed programming worksheet. Example 1 is simplified, to serve as an illustration for those installations not using Esi-Link; while Example 2 depicts an Esi-Link-enabled configuration. **In each case**, the step numbers correspond to the explanation in "Function 211: Analog CO line programming," pp. F.5–F.7.

Example 1 (Simplified; non-Esi-Link)

Incoming calls on Line 1 (default name used, here) ring live to extension 100, but are finally answered by the main greeting after nine rings.

1. CO	2. Name	3. Tenant	4. Out	5. Ring tone	6. Ring 1	Ring 3	Ring 5	Ring 9
1	LINE 1		9		X100	X100	X100	ID 1

(Continued)

[1] For more about Esi-Link, see "Function 83: Esi-Link programming," pp. M.9–M.10.

Example 2 (with Esi-Link)

CO line 1 answer ring destination
First ring — Line 1 (optionally named "SALES") rings at operator's extension.
Third ring — Extension 112 at Location 702 is added.
Fifth ring — Extension 100 and Location 702 extension 112 stop ringing; and Location 703 extension 101 starts ringing.
Ninth ring *(or no available Esi-Link channels for Ring 5)* — Call is answered by auto attendant.

CO line 2 answer ring destination

First ring — Line 2 (optionally named "MFG.") rings at extensions 118–119.
Third ring — Line 2 rings at Department 290 in Esi-Link Location 702.
Fifth ring — *(In this example, Ring 5 isn't programmed. If an Esi-Link connection to Location 702 is available, the call routing will follow the call forwarding for Department 290.)*

CO line 3 answer ring destination

First ring — Line 3 (optionally named "TECH") is answered by auto attendant (branch ID 4) in home location. Branch ID 4 is assigned as a GoTo: Remote branch to an ID branch at Location 703.[1]

1. CO	2. Name	3. Tenant	4. Out	5. Ring tone	6. Ring 1	Ring 3	Ring 5	Ring 9
1	SALES		9		X100	X100 X702112	X703101	ID 1
2	MFG.		76		X118 X119	X702290		
3	TECH				ID 4			

Notes:

1. If a CO line ring assignment needs to go to a remote location branch ID, see "Function 41: Auto attendant branch programming" (pp. H.1–H.6).
2. Each CO line ring assignment list can have destination extensions in the home location and in only one other remote location. You may enter up to 48[2] extensions, one of which can be a remote location.
3. If the remote location destination is a mailbox or department, no other ring assignments will be followed (see Example 2, *above*).
4. Ring assignment list 9 will be allowed to have only home location (local) destinations entered. If all local channels are busy, the ring assignment to the local destination in Ring 9 will be immediately executed if there are no other local destinations in the previous ring lists.
5. If a remote location destination is assigned in a ring list and there are no answer ring assignments to local destinations and there are no Esi-Link channels available to route the call, the call will ring to the local operator assignment (factory default is X100).
6. Night mode answer ring assignments for remote locations follow the same rules as day programming.
7. Ring assignments will not follow the call forwarding of stations in a ring list that are call forwarded to a remote location destination.
8. **Important:** If you're using *VIP PC Attendant Console*, you must assign the Attendant department to answer incoming calls on the preferred ring assignment (ring 1, 3, 5, or 9). Otherwise, incoming calls to the system won't appear in the **Incoming Calls** and **Holding Calls** windows in *VIP PC Attendant Console*. See "Department hunting methods" (page G.30) for information on the "Attend" department type.

[1] For more information about ID branches, see "Function 41: Auto attendant branch programming," pp. H.1–H.6.
[2] Except on the ESI-100 and ESI-50, where the limit is 32.

The steps for programming CO lines throughout Function 21 are:

1. Choose the CO lines to program.
2. Name the CO lines. **This is optional;** to retain the **default** values — "Line 1," "Line 2," and so on — press **#**.

> **Optional naming of the CO lines**
>
> During this step, you optionally can name the CO lines you're programming. Each name can contain up to 10 alphanumeric characters. If you press # while performing this step, the default names (*e.g.,* "Line 1," "Line 2," etc.) will be retained.
>
> If you select multiple CO lines to program, the name field will be left blank; at this point, you can either press # to keep all of the lines' default names or, by entering a name, assign the same name to all selected CO lines.
>
> To change an already programmed name to the default value, press **HOLD** to delete the name and then press **#** while the field is blank. This restores the default values for all selected lines.
>
> If used in conjunction with Caller ID, this feature causes the Caller ID name to appear on the first line, and the line name to appear on the second line, until the call is answered; then the phone number will appear for five seconds. After that, a call timer appears on the display. If Caller ID isn't enabled, the CO name will appear on the top line of the display. In either case, the third line of the display (on an ESI phone with a three-line display) shows line usage.
>
> **Default:** Line numbers.

3. Follow the remaining steps (as described herein) that are specific to the function you're programming — Function 211 (analog CO line programming), Function 2121 (T1 CO line programming) or Function 2131 (PRI CO line programming).

Function 211: Analog CO line programming

This function allows you to program the analog COs for both day and night mode. You can select the trunk groups and ring assignments for a group of COs or individual lines. The steps are:

1. Choose CO lines to program.
2. Name the CO lines (optional).
3. Assign the CO lines' tenant[1].
4. Assign outbound CO line groups.
5. Assign distinctive CO ring tone.
6. Assign answer rings.

1. Choose CO lines to program

During this step, you use the programmable keys to represent CO lines. Select lines to be programmed by pressing one or more of the programmable keys. Press the scroll keys (▼ or ▲) to "page" in increments appropriate for the port card configuration.[2] The display will indicate which CO lines the programmable keys currently represent.

Software will identify the port card type installed in each slot. The display will show the following information: the first line will show the port card number, the type of card, the COs available to program and a *D* or *N* for day or night mode. The second line will show the CO currently selected and the circuit that is being programmed. The appropriate programmable feature key lights will light red to indicate the lines available to program.

If the port card in the first slot is a 612, the display will be:

```
PC1 612 1-6    D
CO1 CIRCUIT 1  >
```

If the port card in the third slot is a 684, the display will be:

```
PC3 684 13-18  N
CO16 CIRCUIT 4 >
```

In both examples, the first six DSS LEDs glow red. Select the COs to program alike (you can scroll to select the next port card and continue to select COs to be programmed alike) and press the # key to confirm. The LEDs will now glow green.

2. Name the CO lines

This is optional; to retain the **default** values — "Line 1," "Line 2," and so on — press #.
(See "Optional naming of the CO lines," pg. F.4, for more details.)

> **Note:** Naming the CO lines will replace the Caller ID number (if supplied by the provider) on an incoming call. However, the number will appear after the call is answered.

[1] If tenant service is enabled in Function 169 (see page E.10).
[2] If all cards support only analog lines, the lines will appear in six-line increments: 1–6, 7–12, 13–18, etc. If at least one DLC is installed, the numbering plan will be different.

3. Assign each CO line's tenant

The tenant parameter[1] is used here to have each CO line follow the day/night mode of the tenant to which it's assigned. The day/night mode can be changed **either** by the day/night programmable feature key on a station in the same tenant as the CO **or** by the day/night table assigned for that tenant in Function 43 (see page H.7).

4. Assign outbound CO line groups

CO lines can be grouped for outbound, pooled access into one of eight line groups: 9, 8, 71, 72, 73, 74, 75, or 76.

> **Note:** A line can only be in one line group or designated as a private line.

Select the line group and press the # key to confirm. Outgoing calls will be assigned from the highest CO to the lowest available. Or, to delete the line group number (whereupon the line can only receive inbound CO line calls), press **HOLD**.
Default: 9 (i.e., all CO lines in Group 9).

> **Note:** To assign a CO line for incoming traffic only, don't enter a CO line group here.

Private line

You can designate a line as a **private line** by entering an extension number, instead of a line group number, in this step. The line is then programmed as outlined in the following explanation, giving the private line great flexibility for handling call routing.

> **Notes:** Private lines **don't** follow ARS.[2]
>
> A private line can be assigned only to an ESI phone (desktop model or Cordless Handset). A line key must be programmed on the phone to access the line for outgoing calls. If the line key is programmed on another phone, it can be used **ONLY** for incoming access (it may also serve just as a purely visual indicator).

5. Assign a distinctive CO ring tone

A distinctive CO ring tone overrides the station ring tone for incoming calls. Select one of the six available tones to enable the feature, or select *NORMAL* to disable the feature.
Range: 1–6 and normal (disabled). **Default:** Normal (disabled).

[1] To view and change the tenant number, you must first have enabled tenant service in Function 169 (see page E.10).
[2] Automatic route selection.

6. Assign answer rings

Lines can be directed to be answered at up to 48[1] extensions, a department, a mailbox or an auto attendant branch ID (see "Auto attendant programming," page H.1). The destination can be set to add or drop extensions, departments, mailboxes or ID branches if ringing continues due to no answer.

Example: First ring — Line 1 will ring at the operator's extension.
Third ring — Extensions 112 and 113 are added.
Fifth ring — The operator's station is dropped from ringing.
Ninth ring — The call will be answered by the auto attendant.

CO	Name	Tenant	Out	Ring tone	Ring 1	Ring 3	Ring 5	Ring 9
1			9		100	100 112 113	112 113	ID1

Once you have programmed all desired CO lines for day mode, repeat the programming steps for all desired CO lines for night mode.
Default: Answer on ring 1 with ID1 (main greeting) in both day and night modes.

Example: To have after hours calls directed to a general delivery mailbox, program the system as follows. During night mode, Line 1 (and other lines to be programmed alike) will be answered immediately by MB 301 (a guest mailbox set up for general delivery). The personal greeting for MB 301 might be:

"Hello, thank you for calling ABC Company. Our offices are closed. Our normal business hours are 8 to 5 Monday through Friday. Please leave a message at the tone and your call will be returned when we resume normal business hours."

A Virtual Mailbox Key programmed at the operator's phone will allow easy pick-up of calls left during the night.

Night mode

CO	Name	Tenant	Out	Ring tone	Ring 1	Ring 3	Ring 5	Ring 9
1					MB301			

Note: The *CO line groups, tenant*, and *ring tone* parameters aren't programmable from night mode.

[1] Except on the ESI-100 and ESI-50, where the limit is 32.

Using a DLC for T1 and PRI: An overview (Functions 212 through 2135)

Digital Line Cards (DLCs) are plug-in designs that can be in certain card slots on the system highway. Refer to the following chart for information specific to each available DLC:

	DLC0	DLC12	DLC82
Compatible with	ESI-1000, ESI-600, ESI-200, ESI-100	ESI-1000, ESI-600, ESI-200, ESI-100	ESI-50
Installable in cabinet slot	Any	Any	Slot 2 only
PRI/T1 support	Either a T1 interface supporting 24 DSO channels or an ISDN PRI interface supporting 23 B (bearer) channels and one D (datalink) channel	Either a T1 interface supporting 24 DSO channels or an ISDN PRI interface supporting 23 B (bearer) channels and one D (datalink) channel	An ISDN PRI interface supporting 23 B (bearer) channels and one D (datalink) channel
Digital/analog support	None	12 digital stations	Eight digital stations and two analog stations
Jumper placement for PRI	Location J3, horizontally onto pins 7 and 8	Location J3, horizontally onto pins 7 and 8	Location J3, horizontally onto pins 7 and 8

Notes: If jumper J3 is removed from or added to an already installed DLC or DLC12, all CO line programming will return to system defaults, and all of the systems' stations will revert to default settings for station options (hands-free answer, call waiting, background announce, monitor mode, outside dialtone preference, headset operation, *etc.*).

Mailbox 598 is a special-purpose mailbox for monitoring T1/PRI alarms. Whenever the system detects a severe T1 or PRI alarm, it will store a message in this mailbox. You also can program outdial notification (in mailbox settings) to alert someone when the system detects such an alarm.

See "Function 7: Reports" (page K.1) for reports on PRI activity.

Function 212: DLC and DLC12 programming for T1

Important: The ESI-50 doesn't support T1.

This function allows you to program the trunks and line parameters for a DLC. The system will identify the number of DLCs installed[1] and allow you to scroll through the 24 channels on each port card.

```
T1 PROGRAMMING
```

Function 2121: CO line programming

Note: Set **trunk type emulation**, as explained below, **before** proceeding to name any line.

The first line of the display will show the port card number, the type of card, the COs available to program and a *D* or *N* for day or night mode. The second line will show the CO currently selected and the circuit that is being programmed. If multiple COs are selected, then the last CO selected is displayed. All DSS LEDs will glow red until selected for programming.

[1] See "System capacities," beginning on page B.1, for a table of maximum DLCs per system type.

1. Choose CO lines to program

You can select from the first set of 12 CO lines on the first card. Use the scroll keys to view the next 12 CO lines on the same card. To see the first 12 CO lines on the second card (if installed), scroll again; if there is only one DLC or DLC12 installed, scrolling will return you to the first 12 CO lines.

> **Note:** A 48-Key Feature Phone will display the first set of 24 CO lines on the card; scrolling again will allow you to select the 24 CO lines on a second card.

Select the CO lines to be programmed alike and press # to confirm. The LEDs on the keys for the selected lines will glow green; then, after a CO line is programmed, its key's LED will glow amber. Programming of the first CO line should default forward for the remaining CO lines selected. After the selected CO line are programmed, their keys' LEDs will glow amber.

For example: if the port card in the third slot is an DLC12 card, the display will be:

```
PC3 DLC12 13-36D
CO22 CIRCUIT 10>
```

2. Select trunk type emulation

Use the scroll keys to select the **trunk type emulation**: either *E&M DNIS/DID, E&M, LOOP START* or *GROUND START*. Press # to confirm. (Default is *E&M DNIS/DID*.)

```
TRUNK EMULATION
E&M DNIS/DID   >
```

If you select *LOOP START* or *GROUND START*, continue with the outbound CO line groups and answer ring assignment.
If you select *E&M DNIS/DID*, the lines are routed to the DNIS/DID table.[1] After the E&M programming is complete, name the CO lines and then select the outbound CO line groups.
If you select *E&M*, the lines are routed to the answer ring assignment. After the E&M programming is complete, name the CO lines and then select the outbound CO line groups and the answer ring assignment.

To **complete** the programming of the E&M trunks selected:

1. Use the scroll keys to select the **outgoing signal type** — *WINK START, IMMEDIATE START* or *DIAL TONE START*. Press # to confirm.
   Default: *WINK START*.

```
OUTGOING SIGNAL
DIAL TONE START>
```

2. Use the scroll keys to select the **incoming signal type** — either *WINK START* or *IMMEDIATE START*. Press # to confirm.
   Default: *WINK START*.

```
INCOMING SIGNAL
IMMEDIATE START>
```

(Continued)

[1] Also if *E&M DNIS/DID* is selected: Caller ID over T1 is not supported.

3. Use the scroll keys to select the **trunk mode** — *2-WAY TRAFFIC, INBOUND ONLY* or *OUTBOUND ONLY*. Press # to confirm.
Default: *2-WAY TRAFFIC*.

```
TRUNK MODE
2-WAY TRAFFIC  >
```

4. Use the scroll keys to set **dial tone transmit** to either *OFF* or *ON*. Press # to confirm.
Default: *OFF*.

```
DIAL TONE TRANS.
OFF            >
```

5. Use the scroll keys to set **ringback transmission** to either *OFF* or *ON*. Press # to confirm.
Default: *OFF*.

```
RINGBACK TRANS.
OFF            >
```

3. Name the CO lines

This is optional; to retain the **default** values, press #. (See "Optional naming of the CO lines," pg. F.4, for more details.)

4. Assign outbound CO line groups

Select the line group — *9, 8, 71, 72, 73, 74, 75*, or *76* — and press # to confirm. Outgoing calls will be assigned from the highest CO to the lowest available. Default is *9*. (You can designate a private line by entering an extension number instead of a line group in this step.)

> **Note:** To assign a CO line for incoming traffic only, don't enter a CO line group here.

5. Assign distinctive CO ring tone

A distinctive CO ring tone overrides the station ring tone for incoming calls. Select one of the six available tones to enable the feature, or select *NORMAL* to disable the feature.
Range: 1–6 and normal (disabled). **Default:** Normal (disabled).

6. Make answer ring assignments

> **Note:** Ring assignments don't apply to E&M DID. See Function 224 (pages F.37–F.39) for translation table.

Lines can be programmed with four different ring assignments — Ring 1, Ring 3, Ring 5 and Ring 9. Each ring count can be programmed for up to 48[1] extensions, a department, a mailbox or an auto attendant branch ID. E&M lines must be answered by the auto attendant under Ring 1.

After all lines are programmed for day mode, the steps are repeated for night mode.

[1] Except on the ESI-100 and ESI-50, where the limit is 32.

Function 2122: T1 frame format and line coding

Use the scroll keys to select the frame format and line coding — either *ESF/B8ZS, SF/AMI, ESF/AMI* or *SF/B8ZS*. Press # to confirm. Default is *ESF/B8ZS*.

```
P-CARD 3   DLC12
FF/LC ESF/B8ZS >
```

If a second DLC or DLC12 is installed, the system will alternate to the next port card. Use the scroll keys to select the frame format and line coding. Press # to confirm.

Function 2123: Line build-out

Line compensation (or *line build-out*) is provided, as necessary, between the CSU and SmartJack and the ESI Communications Server. This function allows you to adjust the line build-out of the card. The level programmed depends on the application (CSU or DSX-1) indicated in the following table:

Level	CSU line build-out	DSX-1 line build-out
1	0 dB	0 to 133 feet
2	N/A	133 to 266 feet
3	N/A	266 to 399 feet
4	N/A	399 to 533 feet
5	N/A	533 to 655 feet
6	-7.5 dB	N/A
7	-15 dB	N/A
8	-22.5 dB	N/A

Use the scroll keys to select the line build-out and press # to confirm. Default is *1*.

If a second card is installed, the system will alternate to the next port card. Select the line build-out with the scroll key. Press # to confirm.

Function 2124: CSU emulation

Use the scroll keys to toggle between enabled and disabled. Default: Off. If there is no external CSU, the CSU emulation setting should be set to On but the remaining options should be left at the default setting of Off. When CSU emulation is enabled, the following test options will be available and **should be used only at the request of the carrier**.

Test option*	Description	Options	Default
ATT PRF	Loopback test per AT&T spec 62411 for performance assessments, sent to the carrier on ESF trunks only.	On/Off	Off
ANSI PRM	Loopback test per ANSI spec T1.403 for performance assessments, sent to the carrier on ESF trunks only.	On/Off	Off
PLB	(Payload loopback.) Accepts signal from the carrier at the chip level, puts it through the framer (de-frames and re-frames signal with data staying the same) and sends it back to the carrier. Used to determine whether the chip itself is functioning correctly.	On/Off	Off
LLB	(Line loopback.) Sends the signal back right at the point it enters the chip before it enters the framer. Helps determine whether the line itself is good.	On/Off	Off
NET LLB	(Network loopback.) Lets the carrier put the DLC's CSU into any of the loopback modes.	On/Off	Off

* Test options available only when CSU emulation is set to *On*.

Warning: The default setting is **Off** for those systems using an external CSU. If there is no external CSU, the CSU Emulation setting should be set to *On* **but** the remaining options should be left at the default of *Off*. **Use these other settings ONLY at the request of your carrier or the phone system manufacturer for testing purposes.**

Function 213: DLC (PRI) programming

The options under Function 213 are used to configure any ESI DLC for an ISDN PRI line with 23 B channels and one data channel (24). The first line of the display will indicate the card number and the type of card. The frame format and line coding will default to the ISDN standard of ESF/B8ZS.

One of the main features of PRI is dynamic channel allocation, meaning all telephone numbers on the PRI span can come in over any of the 23 channels. This eliminates the need to forecast call volume for the main published number, because as few as one channel or as many as 23 channels can be occupied at any time by callers to the main published number. For example, channels 1–20 can be occupied by callers to the main published number while channels 21–23 are open or occupied with DID callers; later, channels 1–15 can be occupied by DID callers while channels 16–23 are open or occupied by callers to the main number.

The components required for programming are CO line programming (Function 2131) and Switch protocol (Function 2134). In addition to the required fields, there are also fields for line build-out (Function 2132), CSU emulation (Function 2133) and DID enable/disable (Function 2135) that typically are left off at default.

> **Note:** **Mailbox 598** is a special-purpose mailbox for monitoring T1/PRI alarms. Whenever the system detects a severe T1 or PRI alarm, it will store a message in this mailbox. You also can program outdial notification (in mailbox settings) to alert someone when the system detects such an alarm.
>
> See "Function 7: Reports" (page K.1) for reports on PRI activity.

Function 2131: PRI CO line programming

The 23 voice channels support both inbound and outbound traffic. Answer ring assignments must be assigned for daytime and night routing. This routing will be followed only if DID is disabled. Because of the dynamic channel allocation on PRI, there is no control over the channel any given number rings in on. For this reason it is recommended that all channels be routed the same. For maximum flexibility, we allow each channel to be selected individually. For example: in some cases, the outbound line group needs to be different or possibly have the first five channels be live-answer, then send the overflow to ID 1.

When performing the CO line programming, remember that there are only 23 channels; the 24th channel is used for signaling, so it does not take up a port and it needs no programming. If the PRI card is in the first slot, the COs will be 1–23 and the next card will start with CO 24.

1. Choose CO lines to program

Using the programmable feature keys, select the line keys to be programmed.[1] Press # to confirm.

2. Select Dialtone transmit on or off.

Default: Off.

3. Select Ringback transmit on or off.

Default: On.

4. Name the CO lines

This is optional; to retain the **default** values, press #. (See "Optional naming of the CO lines," pg. F.4, for more details.)

5. Assign each CO line's tenant

The tenant parameter[2] is used here to have each CO line follow the day/night mode of the tenant to which it's assigned. The day/night mode can be changed **either** by the day/night programmable feature key on a station in the same tenant as the CO **or** by the day/night table assigned for that tenant in Function 43 (see page H.7).

---

[1] If using an ESI 60, ESI 40, or 24-Key Feature Phone to program, use the scroll keys to select lines 13–23.
[2] To view and change the tenant number, you must first have enabled tenant service in Function 169 (see page E.10).

6. Assign outbound CO line groups

Enter the CO line group (9, 8, or 71–76).

7. Make answer ring assignments

Lines can be programmed with four different ring assignments — Ring 1, Ring 3, Ring 5 and Ring 9. Each ring count can be programmed for up to 48[1] extensions, a department, a mailbox or an auto attendant branch ID.

> Notes: Ring assignments don't apply if DID is enabled in Function 2135.
>
> After you program a ring assignment for a department, mailbox or ID branch, no remaining ring assignments will be required because, upon reaching any of these, the call is considered answered.

Example:

Ring 1	Ring 3	Ring 5	Ring 9
X100	X100, X101, X102	ID1	Not used *(system won't prompt you to program)*

8. Repeat if needed for night programming

Repeat steps 1–7 for night programming.

Function 2132: Line build-out

Use the arrow keys to select a value of 1–8 (you can make one selection per installed DLC). Press # to confirm. The level programmed depends on the application (CSU or DSX-1) indicated in this table:

Level	CSU line build-out	DSX-1 line build-out
1	0 dB	0 to 133 feet
2	N/A	133 to 266 feet
3	N/A	266 to 399 feet
4	N/A	399 to 533 feet
5	N/A	533 to 655 feet
6	-7.5 dB	N/A
7	-15 dB	N/A
8	-22.5 dB	N/A

Default: 1.

[1] Except on the ESI-100 and ESI-50, where the limit is 32.

Function 2133: CSU Emulation

Use the arrow key to toggle between *On* and *Off*.
Default: Off.

If there is no external CSU, the CSU Emulation setting should be set to *On* but the remaining options should be left at the default setting of *Off*. When CSU emulation is enabled, the following test options will be available and **should be used only at the request of the carrier:**

- **ATT PRF** — Loopback test per AT&T spec 62411 for performance assessments, sent to the carrier on ESF trunks only.
- **ANSI PRM** — Loopback test per ANSI spec T1.403 for performance assessments, sent to the carrier on ESF trunks only.
- **PLB** (payload loopback) — Accepts signal from the carrier at the chip level, puts it through the framer (de-frames and re-frames signal with data staying the same) and sends it back to the carrier. Used to determine if the chip itself is functioning correctly.
- **LLB** (line loopback) — Sends the signal back right at the point it enters the chip before it hits the framer. This helps determine if the line itself is good.
- **NET LLB** (network loopback) lets the carrier put the CSU of the DLC or DLC12 into any of the loopback modes.

Function 2134: Switch protocol selection

Use the scroll keys to select from the four switch options for your carrier.

- **Nortel** — DMS100
- **AT&T/Lucent** — 5ESS
- **National** — NI2 (**Default**)
- **Siemens** — EWSD

> **Note:** Most switches can emulate the various protocols. Please be sure to base your selection on the protocol being used rather than the actual switch manufacturer. For example, your central office could have a Nortel DMS 100 switch but have the span configured as NI2; in this instance, you would select the option for National/NI2.

> **Warning:** After changing the switch protocol, be sure to **finish** programming all other remaining options **before** exiting programming mode (as needed, press # to accept current entries for function parameters you're not changing). Then, **wait at least four full minutes** and power-cycle the system.

(Continued)

Troubleshooting

One common issue with PRI on ESI's PRI-compatible systems is the failure of incoming or outgoing calls over PRI to connect or display Caller ID. The following discussion, derived from *Technical Update* 164 (ESI # 0450-0462, downloadable from *www.esi-estech.com/Resellers/tech*), discusses methods to address this:

1. **ESI has found that many PRI circuits have been set in Function 2134 to a switch protocol that's incompatible with the PRI provider.**
   ESI recommends that, regardless of the make and model of the CO or IXC switch that's providing the PRI, you **first** set the **default** switch protocol (**NI2**). If the PRI doesn't function properly using the NI2 protocol, **then** select the appropriate switch option for the make and model of the provider's equipment.

   > **Note:** Always complete programming in any function **before** exiting programming mode (**#** through all of the Function parameters).

2. **ESI has also determined that, after you change the PRI switch protocol programming, you also MUST power-cycle the system in order to correctly synchronize the PRI with the service provider's switch.**

   > **Important:** **Before** power-cycling the system, wait at least **four (4) full minutes** after you complete programming.

   After power-cycling the system, wait until the appropriate DLC is on-line — *i.e.*, its **Status** LED is no longer flashing. Note the **time** when the PRI came on-line. Make several outgoing and incoming calls via the PRI to insure that it's working properly. If the PRI appears to be functioning properly, contact the carrier and verify that no errors have occurred since the time when the PRI came on-line. If the carrier reports errors **or** if incoming or outgoing calls aren't functioning properly, select a **different** switch option in Function 2134 and power-cycle the system again (and then, again, wait at least four full minutes before exiting programming).

3. **Set Function 166, parameter 2** (ARS inter-digit timer) to between *500* and *600* (*i.e.*, between five and six seconds). This will set the timeout that occurs **after** the first digit has been dialed when making an outgoing call over the PRI, so that it's long enough to allow the entire entered number to be accepted. The ARS inter-digit timer value is expressed in $^{1}/_{100}$ seconds.
   Range: 40–1,000 (*i.e.*, 400 ms to 10 seconds).

4. **Contact ESI Technical Support** at 800 491-3609 and request that the PRI error counters be cleared.

Function 2135: DID

With DID enabled, call processing will check first the pilot number table and then the DID table, and route the call accordingly. Any number not found in the pilot number or DID tables (programmed in Functions 224 and 225) will be routed to the DID exception routing. With DID disabled, all calls will follow the routing as programmed in PRI CO line programming (Function 2131).

Default: Disabled.

Function 214: SIP trunk programming

For SIP trunk programming, press **1** to go to Function 2141. To create a SIP account, press **2** to go to Function 2142. For SIP pilot table programming, press **5** to go to Function 2145.

> **Important:** Perform SIP trunk programming **in this order**: Function 2142 (page F.18), **then** Function 2141 (starting below), **then** Function 2145 (page F.32). For more details, refer to the *ESI SIP Trunking Installation Guide* (ESI # 0450-1227).

Function 2141: SIP trunk programming day/night mode

Steps 1–7 affect SIP trunk programming for **day** mode, while steps 8–13 affect SIP trunk programming for **night** mode.

1. Select the line keys that are to have the same programming during **day** mode, and press **#** to confirm. If multiple SIP Trunking Cards have been installed, use the scroll keys to select the desired card. For this example, we'll be using a SIP Trunking Card in port card slot 11 ("PC 11"). Below, *XX–XX* represents the SIP ports as they are installed in the system.

   ```
   PC11 SIP XX-XX D
   CO: CIRCUIT
   ```

   > **Note:** You will be able to select only the number of CO lines for which you have licenses.

2. Use the scroll keys to select the **SIP provider** to be used for the selected trunks, and press **#** to confirm. For this example, we'll be using SIP provider 01.
   Range: *01–10* (as previously defined in Function 2142; for instructions on programming that function, see page F.18).

   ```
   SEL PROVIDER #
   01-BROADVOX
   ```

3. Enter the **line name** (if you want to use a different one than what appears), and press **#** to confirm. If you need detailed information about entering characters, press **HELP**.
   Range: Up to 10 characters. **Default**: [Blank].

   ```
   CO LINE
   NAME:
   ```

4. If tenant service is enabled in Function 169 (page E.10), use the scroll keys to select the **tenant number**, and press **#** to confirm. (If tenant service isn't enabled, press **#** to move to the next step.)
   Range: [Any valid tenant number]. **Default**: *1*.

   ```
   CO LINE
   TENANT: 1
   ```

5. This line is programmed for the line groups as displayed. Enter the new **group number** (if there is one), and press **#** to confirm.
   Range: *9, 8, 71–76* (if *71–76* were assigned as CO lines, in Function 164 [page E.6]). **Default**: *9*.

   ```
      DAY CO LINE
   CO GROUP: 9
   ```

(Continued)

6. To select a **distinctive ring tone** for the new line. and press # to confirm.
   Range: Normal and ring tones 1–6. **Default**: Normal.

```
CO RING TONE
TONE NORMAL
```

7. This line is programmed to be answered as displayed. To select a specific station, mailbox, or branch ID which should answer this, press a scroll key and enter the new value, and press # to confirm. (If the current value is acceptable, just press # to confirm.)
   Default: ID 1.

```
RING 1
ID: 1
```

8. Select the line keys that are to have the same programming during **night** mode, and press # to confirm. If multiple SIP Trunking Cards have been installed, use the scroll keys to select the desired card. For this example, we'll be using a SIP Trunking Card in port card slot 11 ("PC 11").
   Below, *XX–XX* represents the SIP ports as they are installed in the system.

```
PC11 SIP XX-XX N
CO: CIRCUIT
```

9. Use the scroll keys to select the **SIP provider** to be used for the selected trunks, and press # to confirm. Again in this example, we'll be using SIP provider 01.
   Range: *01–10* (as previously defined in Function 2142 [page F.18]).

> **Note:** During night mode programming, this is a read-only field.

```
SEL PROVIDER #
01-BROADVOX
```

10. Enter the **line name** (if you want to use a different one than what appears), and press # to confirm. If you need detailed information about entering characters, press **HELP**.
    Range: Up to 10 characters. **Default**: [Blank].

```
CO LINE
NAME:
```

11. If tenant service is enabled in Function 169 (page E.10), use the scroll keys to select the **tenant number**, and press # to confirm. (If tenant service isn't enabled, press # to move to the next step.)
    Range: [Any valid tenant number]. **Default**: *1*.

```
CO LINE
TENANT: 1
```

12. To select a **distinctive ring tone** for the new line. and press # to confirm.
    Range: Normal and ring tones 1–6. **Default**: Normal.

```
CO RING TONE
TONE NORMAL
```

(Continued)

13. This line is programmed to be answered as displayed. To select a specific station, mailbox, or branch ID which should answer this, press a scroll key and enter the new value, and press # to confirm. (If the current value is acceptable, just press # to confirm.)
Default: ID 1.

```
RING 1
ID: 1
```

14. Either press **1** to save your changes to the SIP Trunking Card or press **2** to exit without restarting the SIP Trunking Card.

```
RESTART SIP ITSP
 1=YES   2=NO
```

> **Note:** Changes made to SIP Trunking Card programming require that the card be restarted in order for the changes to be uploaded to the card. Press **1** to restart the SIP ITSP now or press **2** to exit and return to the main menu.

> **Warning:** Restarting the SIP ITSP will cause any calls in progress to be disconnected.

Function 2142: SIP account programming

The procedure in Function 2142 varies after step 2, depending on your selection in that step. Therefore, we have separated the first two (common) steps from the subsequent steps, as you see here.

Common steps 1–2: Selecting SIP provider and ITSP

1. Enter the name for the SIP provider number (or, to select a previously entered SIP provider, use the scroll keys, and press # to confirm.
For this example, we'll be using "SIP Provider 1," named *Broadvox*, with a SIP Trunking Card installed in slot number 11.
Range: Up to 10 characters in length.

```
SIP PROVIDER #1
BROADVOX      >
```

2. The ITSP is currently programmed as shown on the display. To select a new value, select a new value, and press # to confirm (or, to confirm the existing value, just press #).
Choices: *Broadvox-ND*, *Broadvox-NS*, *nTelos-BD*, *ClearFly-SS*, *Broadvox-FD*, *Broadvox-FS*, *Voxitas-FD*, *Voxitas-FS*, *Cbeyond-BD*.
Default: *Broadvox-ND*.

```
ITSP SELECTION
BROADVOX-ND   >
```

(Continued)

Subsequent steps for "Broadvox-ND" and "Broadvox-FD" . . .

If you selected *Broadvox-ND* or *Broadvox-FD*[1] in step 2 (see "Common steps 1–2: Selecting SIP provider and ITSP," page F.18), the **subsequent** steps are as follows:

3. Use the scroll keys to select which SIP Trunking Card will be associated with the selected ITSP, and press # to confirm.
Choices: Any available SIP Trunking Card. **Default**: First installed SIP Trunking Card.

```
ITSP ASSOC
PC11 SIP XX-XX >
```

4. Enter the **primary billing numbe**r assigned by the ITSP, and press # to confirm.
If you need detailed information about entering characters, press **HELP**.
Range: Up to 10 characters. **Default**: [Blank].

```
PRIMARY NUMBER

```

5. Enter the **optional account name** assigned by the ITSP, and press # to confirm.
If you need detailed information about entering characters, press **HELP**.
Range: Up to 32 characters. **Default**: [Blank].

```
ACCOUNT NAME

```

6. Enter the **account password** assigned by the ITSP, and press # to confirm.
If you need detailed information about entering characters, press **HELP**.
Range: Up to 32 characters. **Default**: [Blank].

```
ACCOUNT PASSWORD

```

7. Enter the **port number** that will be used for inbound SIP traffic to the SIP Trunking Card, and press # to confirm.
Range: *00000–65535*. **Default**: *5060*.

```
LOCAL SIP PORT
5060
```

8. Enter the **number of seconds** to use as the **initial offer** to the ITSP during negotiation of the SIP re-registration interval.
Range: *5–3600*. **Default**: *120*.

```
REGISTRATION
EXPIRE:     120
```

(Continued)

[1] Requires the use of system software version xx.5.23.0 (or higher) and appropriate RPMs on the SIP Trunking Card.

9. Enter the **URI of the ITSP**, and press # to confirm.
Range: Up to 64 characters. **Default**: [Blank].

```
ITSP URI
```

> **Note:** When using FS or FD trunk type, the Installer must select and enter only **one** of the three available URIs provided by the carrier.

10. Enter the **starting** port number of the RTP port range to be used, and press # to confirm.
Range: *00000–65535*. **Default**: *10000*.

```
RTP PORT RANGE
BEGIN: 10000
```

11. Enter the **ending** port number of the RTP port range to be used, and press # to confirm
Range: *00000–65535*. **Default**: *11000*.

```
RTP PORT RANGE
END: 11000
```

12. Use the scroll keys to select a codec, and press # to confirm.
Choices: *G.711, G.729.a*. **Default**: *G.711*.[1]

```
SIP CHAN CODEC
G.711
```

> **Important:** G.711 consumes approximately 106 Kbps of bandwidth per simultaneous call, while G.729a consumes approximately 43 Kbps of bandwidth per simultaneous call.
>
> G.711 offers superior call quality as compared to G.729a, but **only** if there is enough bandwidth to support all simultaneous calls.

13. Either press **1** to save your changes to the SIP Trunking Card or press **2** to exit without restarting the SIP Trunking Card.

```
RESTART SIP ITSP
 1=YES   2=NO
```

> **Note:** Changes made to SIP Trunking Card programming require that the card be restarted in order for the changes to be uploaded to the card. Press **1** to restart the SIP ITSP now or press **2** to exit and return to the main menu.

> **Warning:** Restarting the SIP ITSP will cause any calls in progress to be disconnected.

[1] System software version xx.5.21.0 (or higher) is required for support of G.729a.

Subsequent steps for "Broadvox-NS" or "Broadvox-FS" . . .

If you selected *Broadvox-NS* or *Broadvox-FS*[1] in step 2 (see "Common steps 1–2: Selecting SIP provider and ITSP," page F.18), the **subsequent** steps are as follows:

3. Use the scroll keys to select which SIP Trunking Card will be associated with the selected ITSP, and press # to confirm.
Choices: Any available SIP Trunking Card. **Default**: First installed SIP Trunking Card.

```
ITSP ASSOC
PC11 SIP XX-XX >
```

4. Enter the **primary billing numbe**r assigned by the ITSP, and press # to confirm.
If you need detailed information about entering characters, press **HELP**.
Range: Up to 10 characters. **Default**: [Blank].

```
PRIMARY NUMBER

```

5. Enter the **optional account name** assigned by the ITSP, and press # to confirm.
If you need detailed information about entering characters, press **HELP**.
Range: Up to 32 characters. **Default**: [Blank].

```
ACCOUNT NAME

```

6. Enter the **port number** that will be used for inbound SIP traffic to the SIP Trunking Card, and press # to confirm.
Range: *00000–65535*. **Default**: *5060*.

```
LOCAL SIP PORT
5060
```

7. Enter the **URI of the ITSP**, and press # to confirm.
Range: Up to 64 characters. **Default**: [Blank].

```
ITSP URI

```

> **Note:** When using FS or FD trunk type, the Installer must select and enter only **one** of the three available URIs provided by the carrier.

8. Enter the **starting** port number of the RTP port range to be used, and press # to confirm.
Range: *00000–65535*. **Default**: *10000*.

```
RTP PORT RANGE
BEGIN: 10000
```

9. Enter the **ending** port number of the RTP port range to be used, and press # to confirm
Range: *00000–65535*. **Default**: *11000*.

```
RTP PORT RANGE
END: 11000
```

[1] Requires the use of system software version xx.5.23.0 (or higher) and appropriate RPMs on the SIP Trunking Card.

10. Use the scroll keys to select a codec, and press # to confirm.[1]
Choices: *G.711, G.729.a*. **Default**: *G.711*.

```
SIP CHAN CODEC
G.711
```

> **Important:** G.711 consumes approximately 106 Kbps of bandwidth per simultaneous call, while G.729a consumes approximately 43 Kbps of bandwidth per simultaneous call.
>
> G.711 offers superior call quality as compared to G.729a, but **only** if there is enough bandwidth to support all simultaneous calls.

11. Either press **1** to save your changes to the SIP Trunking Card or press **2** to exit without restarting the SIP Trunking Card.

```
RESTART SIP ITSP
 1=YES   2=NO
```

> **Note:** Changes made to SIP Trunking Card programming require that the card be restarted in order for the changes to be uploaded to the card. Press **1** to restart the SIP ITSP now or press **2** to exit and return to the main menu.

> **Warning:** Restarting the SIP ITSP will cause any calls in progress to be disconnected.

[1] System software version xx.5.21.0 (or higher) is required for support of G.729a.

Subsequent steps for "nTelos-BD" . . .

If you selected *nTelos-BD* in step 2 (see "Common steps 1–2: Selecting SIP provider and ITSP," page F.18), the **subsequent** steps are as follows:

3. Use the scroll keys to select which SIP Trunking Card will be associated with the selected ITSP, and press # to confirm.
Choices: Any available SIP Trunking Card. **Default**: First installed SIP Trunking Card.

```
ITSP ASSOC
PC11 SIP XX-XX >
```

4. Enter the **primary billing numbe**r assigned by the ITSP, and press # to confirm.
If you need detailed information about entering characters, press **HELP**.
Range: Up to 10 characters. **Default**: [Blank].

```
PRIMARY NUMBER
```

5. Enter the **optional account name** assigned by the ITSP, and press # to confirm.
If you need detailed information about entering characters, press **HELP**.
Range: Up to 32 characters. **Default**: [Blank].

```
ACCOUNT NAME
```

6. Enter the **account password** assigned by the ITSP, and press # to confirm.
If you need detailed information about entering characters, press **HELP**.
Range: Up to 32 characters. **Default**: [Blank].

```
ACCOUNT PASSWORD
```

7. Enter the **port number** that will be used for inbound SIP traffic to the SIP Trunking Card, and press # to confirm.
Range: *00000–65535*. **Default**: *5060*.

```
LOCAL SIP PORT
5060
```

8. Enter the **URI of the ITSP**, and press # to confirm.
Range: Up to 64 characters. **Default**: [Blank].

```
ITSP URI
```

9. Enter the **domain name of the outbound proxy server**, and press # to confirm.
Range: Up to 64 characters. **Default**: [Blank].

```
OUTBOUND PROXY
```

10. Enter the **starting** port number of the RTP port range to be used, and press # to confirm.
Range: *00000–65535*. **Default**: *10000*.

```
RTP PORT RANGE
BEGIN: 10000
```

11. Enter the **ending** port number of the RTP port range to be used, and press # to confirm **Range**: *00000–65535*. **Default**: *11000*.

```
RTP PORT RANGE
END: 11000
```

12. Use the scroll keys to select a codec, and press # to confirm.
Choices: *G.711, G.729.a*. **Default**: *G.711*.[1]

```
SIP CHAN CODEC
G.711
```

> **Important:** G.711 consumes approximately 106 Kbps of bandwidth per simultaneous call, while G.729a consumes approximately 43 Kbps of bandwidth per simultaneous call.
>
> G.711 offers superior call quality as compared to G.729a, but **only** if there is enough bandwidth to support all simultaneous calls.

13. Either press **1** to save your changes to the SIP Trunking Card or press **2** to exit without restarting the SIP Trunking Card.

```
RESTART SIP ITSP
 1=YES   2=NO
```

> **Note:** Changes made to SIP Trunking Card programming require that the card be restarted in order for the changes to be uploaded to the card. Press **1** to restart the SIP ITSP now or press **2** to exit and return to the main menu.

> **Warning:** Restarting the SIP ITSP will cause any calls in progress to be disconnected.

[1] System software version xx.5.21.0 (or higher) is required for support of G.729a.

Subsequent steps for "ClearFly-SS" . . .

If you selected *ClearFly-SS* in step 2 (see "Common steps 1–2: Selecting SIP provider and ITSP," page F.18), the **subsequent** steps are as follows:

3. Use the scroll keys to select which SIP Trunking Card will be associated with the selected ITSP, and press # to confirm.
Choices: Any available SIP Trunking Card. **Default**: First installed SIP Trunking Card.

```
ITSP ASSOC
PC11 SIP XX-XX >
```

4. Enter the **primary billing numbe**r assigned by the ITSP, and press # to confirm.
If you need detailed information about entering characters, press **HELP**.
Range: Up to 10 characters. **Default**: [Blank].

```
PRIMARY NUMBER

```

5. Enter the **optional account name** assigned by the ITSP, and press # to confirm.
If you need detailed information about entering characters, press **HELP**.
Range: Up to 32 characters. **Default**: [Blank].

```
ACCOUNT NAME

```

6. Enter the **port number** that will be used for inbound SIP traffic to the SIP Trunking Card, and press # to confirm.
Range: *00000–65535*. **Default**: *5060*.

```
LOCAL SIP PORT
5060
```

7. Enter the **URI of the ITSP**, and press # to confirm.
Range: Up to 64 characters. **Default**: [Blank].

```
ITSP URI

```

8. Enter the **starting** port number of the RTP port range to be used, and press # to confirm.
Range: *00000–65535*. **Default**: *10000*.

```
RTP PORT RANGE
BEGIN: 10000
```

9. Enter the **ending** port number of the RTP port range to be used, and press # to confirm
Range: *00000–65535*. **Default**: *11000*.

```
RTP PORT RANGE
END: 11000
```

(Continued)

10. Use the scroll keys to select a codec, and press # to confirm.[1]
Choices: *G.711, G.729.a*. **Default**: *G.711*.

```
SIP CHAN CODEC
G.711
```

> **Important:** G.711 consumes approximately 106 Kbps of bandwidth per simultaneous call, while G.729a consumes approximately 43 Kbps of bandwidth per simultaneous call.
>
> G.711 offers superior call quality as compared to G.729a, but **only** if there is enough bandwidth to support all simultaneous calls.

11. Either press **1** to save your changes to the SIP Trunking Card or press **2** to exit without restarting the SIP Trunking Card.

```
RESTART SIP ITSP
 1=YES   2=NO
```

> **Note:** Changes made to SIP Trunking Card programming require that the card be restarted in order for the changes to be uploaded to the card. Press **1** to restart the SIP ITSP now or press **2** to exit and return to the main menu.

> **Warning:** Restarting the SIP ITSP will cause any calls in progress to be disconnected.

[1] System software version xx.5.21.0 (or higher) is required for support of G.729a.

Subsequent steps for "Voxitas-FD" . . .

If you selected *Voxitas-FD*[1] in step 2 (see "Common steps 1–2: Selecting SIP provider and ITSP," page F.18), the **subsequent** steps are as follows:

3. Use the scroll keys to select which SIP Trunking Card will be associated with the selected ITSP, and press # to confirm.
Choices: Any available SIP Trunking Card. **Default**: First installed SIP Trunking Card.

```
ITSP ASSOC
PC11 SIP XX-XX >
```

4. Enter the **primary billing numbe**r assigned by the ITSP, and press # to confirm.
If you need detailed information about entering characters, press **HELP**.
Range: Up to 10 characters. **Default**: [Blank].

```
PRIMARY NUMBER
```

5. Enter the **optional account name** assigned by the ITSP, and press # to confirm.
If you need detailed information about entering characters, press **HELP**.
Range: Up to 32 characters. **Default**: [Blank].

```
ACCOUNT NAME
```

6. Enter the **account password** assigned by the ITSP, and press # to confirm.
If you need detailed information about entering characters, press **HELP**.
Range: Up to 32 characters. **Default**: [Blank].

```
ACCOUNT PASSWORD
```

7. Enter the **port number** that will be used for inbound SIP traffic to the SIP Trunking Card, and press # to confirm.
Range: *00000–65535*. **Default**: *5060*.

```
LOCAL SIP PORT
5060
```

8. Enter the **number of seconds** to use as the **initial offer** to the ITSP during negotiation of the SIP re-registration interval.
Range: *5–3600*. **Default**: *120*.

```
REGISTRATION
EXPIRE:     120
```

9. Enter the **URI of the ITSP**, and press # to confirm.
Range: Up to 64 characters. **Default**: [Blank].

```
ITSP URI
```

(Continued)

[1] Requires the use of system software version xx.5.23.0 (or higher) and appropriate RPMs on the SIP Trunking Card.

10. Enter the **starting** port number of the RTP port range to be used, and press # to confirm. **Range**: *00000–65535*. **Default**: *10000*.

```
RTP PORT RANGE
BEGIN: 10000
```

11. Enter the **ending** port number of the RTP port range to be used, and press # to confirm **Range**: *00000–65535*. **Default**: *11000*.

```
RTP PORT RANGE
END: 11000
```

12. Use the scroll keys to select a codec, and press # to confirm. **Choices**: *G.711, G.729.a*. **Default**: *G.711*.[1]

```
SIP CHAN CODEC
G.711
```

> **Important:** G.711 consumes approximately 106 Kbps of bandwidth per simultaneous call, while G.729a consumes approximately 43 Kbps of bandwidth per simultaneous call.
>
> G.711 offers superior call quality as compared to G.729a, but **only** if there is enough bandwidth to support all simultaneous calls.

13. Either press **1** to save your changes to the SIP Trunking Card or press **2** to exit without restarting the SIP Trunking Card.

```
RESTART SIP ITSP
 1=YES   2=NO
```

> **Note:** Changes made to SIP Trunking Card programming require that the card be restarted in order for the changes to be uploaded to the card. Press **1** to restart the SIP ITSP now or press **2** to exit and return to the main menu.

> **Warning:** Restarting the SIP ITSP will cause any calls in progress to be disconnected.

[1] System software version xx.5.21.0 (or higher) is required for support of G.729a.

Subsequent steps for "Voxitas-FS" . . .

If you selected *Voxitas-FS*[1] in step 2 (see "Common steps 1–2: Selecting SIP provider and ITSP," page F.18), the **subsequent** steps are as follows:

3. Use the scroll keys to select which SIP Trunking Card will be associated with the selected ITSP, and press # to confirm.
Choices: Any available SIP Trunking Card. **Default**: First installed SIP Trunking Card.

```
ITSP ASSOC
PC11 SIP XX-XX >
```

4. Enter the **primary billing numbe**r assigned by the ITSP, and press # to confirm.
If you need detailed information about entering characters, press **HELP**.
Range: Up to 10 characters. **Default**: [Blank].

```
PRIMARY NUMBER

```

5. Enter the **optional account name** assigned by the ITSP, and press # to confirm.
If you need detailed information about entering characters, press **HELP**.
Range: Up to 32 characters. **Default**: [Blank].

```
ACCOUNT NAME

```

6. Enter the **port number** that will be used for inbound SIP traffic to the SIP Trunking Card, and press # to confirm.
Range: *00000–65535*. **Default**: *5060*.

```
LOCAL SIP PORT
5060
```

7. Enter the **URI of the ITSP**, and press # to confirm.
Range: Up to 64 characters. **Default**: [Blank].

```
ITSP URI

```

8. Enter the **starting** port number of the RTP port range to be used, and press # to confirm.
Range: *00000–65535*. **Default**: *10000*.

```
RTP PORT RANGE
BEGIN: 10000
```

9. Enter the **ending** port number of the RTP port range to be used, and press # to confirm
Range: *00000–65535*. **Default**: *11000*.

```
RTP PORT RANGE
END: 11000
```

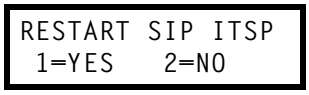
(Continued)

[1] Requires the use of system software version xx.5.23.0 (or higher) and appropriate RPMs on the SIP Trunking Card.

10. Use the scroll keys to select a codec, and press # to confirm.[1]
Choices: *G.711, G.729.a*. **Default**: *G.711*.

> **Important:** G.711 consumes approximately 106 Kbps of bandwidth per simultaneous call, while G.729a consumes approximately 43 Kbps of bandwidth per simultaneous call.
>
> G.711 offers superior call quality as compared to G.729a, but **only** if there is enough bandwidth to support all simultaneous calls.

11. Either press **1** to save your changes to the SIP Trunking Card or press **2** to exit without restarting the SIP Trunking Card.



> **Note:** Changes made to SIP Trunking Card programming require that the card be restarted in order for the changes to be uploaded to the card. Press **1** to restart the SIP ITSP now or press **2** to exit and return to the main menu.

> **Warning:** Restarting the SIP ITSP will cause any calls in progress to be disconnected.

[1] System software version xx.5.21.0 (or higher) is required for support of G.729a.

Subsequent steps for "Cbeyond-BD" . . .

If you selected *Cbeyond-BD* in step 2 (see "Common steps 1–2: Selecting SIP provider and ITSP," page F.18), the **subsequent** steps are as follows:

3. Use the scroll keys to select which SIP Trunking Card will be associated with the selected ITSP, and press # to confirm.
Choices: Any available SIP Trunking Card. **Default**: First installed SIP Trunking Card.

```
ITSP ASSOC
PC11 SIP XX-XX >
```

4. Enter the **primary billing numbe**r assigned by the ITSP, and press # to confirm.
If you need detailed information about entering characters, press **HELP**.
Range: Up to 10 characters. **Default**: [Blank].

```
PRIMARY NUMBER
```

5. Enter the **optional account name** assigned by the ITSP, and press # to confirm.
If you need detailed information about entering characters, press **HELP**.
Range: Up to 32 characters. **Default**: [Blank].

```
ACCOUNT NAME
```

6. Enter the **account password** assigned by the ITSP, and press # to confirm.
If you need detailed information about entering characters, press **HELP**.
Range: Up to 32 characters. **Default**: [Blank].

```
ACCOUNT PASSWORD
```

7. Enter the **port number** that will be used for inbound SIP traffic to the SIP Trunking Card, and press # to confirm.
Range: *00000–65535*. **Default**: *5060*.

```
LOCAL SIP PORT
5060
```

8. Enter the **URI of the ITSP**, and press # to confirm.
Range: Up to 64 characters. **Default**: [Blank].

```
ITSP URI
```

9. Enter the **domain name of the outbound proxy server**, and press # to confirm.
Range: Up to 64 characters. **Default**: [Blank].

```
OUTBOUND PROXY
```

10. Enter the **starting** port number of the RTP port range to be used, and press # to confirm.
Range: *00000–65535*. **Default**: *10000*.

```
RTP PORT RANGE
BEGIN: 10000
```

11. Enter the **ending** port number of the RTP port range to be used, and press # to confirm **Range**: *00000–65535*. **Default**: *11000*.

```
RTP PORT RANGE
END: 11000
```

12. Use the scroll keys to select a codec, and press # to confirm.
Choices: *G.711, G.729.a*. **Default**: *G.711*.

```
SIP CHAN CODEC
G.711
```

> **Note:** Cbeyond does not support the G.729a codec.

13. Either press **1** to save your changes to the SIP Trunking Card or press **2** to exit without restarting the SIP Trunking Card.

```
RESTART SIP ITSP
 1=YES   2=NO
```

> **Note:** Changes made to SIP Trunking Card programming require that the card be restarted in order for the changes to be uploaded to the card. Press **1** to restart the SIP ITSP now or press **2** to exit and return to the main menu.

> **Warning:** Restarting the SIP ITSP will cause any calls in progress to be disconnected.

Function 2145: SIP pilot table programming

With DID enabled, call processing will check first the pilot table and then the DID table (programmed in Functions 225 and 224, respectively), and route the call accordingly. Any number not found in the pilot table or DID table will be routed to the DID exception routing. With DID disabled, all calls will follow the routing as programmed in SIP trunk programming (Function 2141, beginning on page F.16).

Default: Disabled.

Function 22: Translation table programming

Function 221: Centrex/PBX access code

If the system is to be used behind Centrex or another PBX, you must list the **dial access code** used to gain access to a CO line from Centrex or the PBX, so that toll restriction can ignore the access code digit(s). Users must dial the access code after accessing a line by **either**:
(a.) Dialing **9**, **8**, **71**, **72**, **73**, **74**, **75**, or **76**.
or
(b.) Pressing a line key (if programmed).
The access code can be one or two digits — *e. g.,* 9, 81, *etc.* — and must be programmed for each line group.
Default: 0.

> **Note:** You must set the flash duration in Function 151 (page E.3) for the requirements of the host switch.

Function 222: Toll restriction exception tables

The system's toll restriction is based on outbound calls being defined as either *toll calls (i.e.,* calls in the *deny table)* or *non-toll calls* (calls in the *allow table*). Four tables exist for this purpose:

1. **Allow exception table** (programmable). Up to 100 entries; no entry can exceed 26 digits.
   Default: No entries.
2. **Deny exception table** (programmable). Up to 100 entries; no entry can exceed 26 digits.
   Default: No entries.

A number listed in the allow exception table — e.g., a branch office or vendor's location — will be allowed to all stations, regardless of how they're set in Function 32 (see page G.25). Conversely, a number listed in the deny exception table (e.g., a "1-900" number) will be denied to all stations.

3. **Fixed allow table** (not programmable).
   Default: 1800, 1888, 1877, 1866, 1855, 1844, 1833 and 1822.
4. Fixed deny table (not programmable).
   Default: 976, 1976, 1xxx976, 900, 1900, 1xxx900, 555, 1555, 1xxx555, 0, 10, 411, 1411 and 11+-digit restriction.

In extension feature authorization (Function 321; see page G.25), each extension is set to be toll-restricted one of two ways: **TOLL CALLS = Y** (yes) or **TOLL CALLS = N** (no).

> **Note:** System speed-dial numbers (Function 17; see page E.12) are **not** affected by toll restriction.

(Continued)

If **TOLL CALLS = Y** (yes) in Function 321 (page G.25), the system checks the number dialed against the **Deny Exception** table. If the number matches an entry in this table, the call is restricted. Otherwise, it's allowed.

If **TOLL CALLS = N** (no) in Function 321 (page G.25):

1. **First**, the system checks the number dialed against the **Allow Exception** table.
   If the number matches an entry in this table, the call is allowed.
   Otherwise . . .
2. The number is checked against the **Deny Exception** table.
   If the number matches an entry in this table, the call is restricted.
   Otherwise . . .
3. The number is checked against the **Fixed Allow** table.
   If the number matches an entry in this table, the call is allowed.
   Otherwise . . .
4. The number is checked against the **Fixed Deny** table.
   If the number matches an entry in this table, the call is denied.
   Otherwise . . .
5. The call is allowed.

How toll restriction works

As a number is dialed (or a speed-dial key is pressed), the system compares the number dialed, starting with the first digit, until a match is found in one of the toll-restriction tables, in the order described above under "If **TOLL CALLS = N** (no)." If no match is found, the **default** is to allow the call.

Example: Extension 101 is set with **TOLL CALLS = N** in Function 321. The user dials **1 5 5 5 1 2 1 2**. The system finds the first digits in the number dialed match the entry **1 5 5 5** in the **Fixed Deny** table. Since extension 101 isn't allowed toll calls, the call will be restricted (blocked).

(Continued)

How to program the allow and deny exception tables

1. Select the table to which you'll be adding or changing entries, **Allow** or **Deny**.
2. Enter each number pattern that will be allowed or denied, pressing # after each pattern. To delete an entry, use the scroll keys to select the number and press **HOLD** to delete.

> **Example:** For "1-900," enter **1 9 0 0 #.**

> **Notes:** Press **MUTE/DND** to insert a **"**wild card" digit. A "wild card" digit is needed only when followed by more numbers; e.g., to allow/deny 1-555, enter just 1 5 5 5 # — however, to allow/deny all "1+" area codes and *555*, enter 1 X X X 5 5 5 # (where ***X*** indicates a pressing of **MUTE/DND**).
>
> If a number that's already entered in one table is entered in the other table, this will automatically delete the number from the first table. **For example**:
> - If **8 9 0** is an entry in the **Deny Exception** table . . .
> - . . . and, later, **8 9 0** is entered in the **Allow Exception** table . . .
> - . . . then **8 9 0** will be automatically deleted from the **Deny Exception** table.

> **Warning:** Do **not** include system line access codes (*9, 8,* or *71*–76) in **any** of the toll restriction entries.

3. After the last number, enter **# #** to end the list. The system will apply the numbers you enter to their most significant digit.

> **Example:** Entering **1 5 0 5** into the deny exception table tells the system to deny **all** "1+" calls to area code 505. **But** entering **1 5 0 5 5 5 5 8 7 8 7** into the table tells the system to deny "1+" calls **specifically** to (505) 555-8787 while **allowing** *other* "1+505" calls.

To allow information calls, enter into the allow table: *411, 1411, 5551212, 1XXX5551212* (where *X* is a wild card digit, entered by using **MUTE/DND**).
Default: None.

Function 223: Automatic route selection (ARS)[1]

Within an ESI Communications Server, route selection is normally accomplished by assigning lines to line groups (9, 8, or 71–76). The user then manually selects the line group for the type of call to be made. Typically, the same carrier handles both local and long distance calls so the user will only have to select an alternate group (71–76) for rare occasions.

If a DLC is used, different line groups may be required to allow the user to access the local loops (via regular loop lines or T1) and long distance trunks (via T1). ARS is designed to eliminate the need for the user to manually select a line group when calling in this situation (such as *9* for local and *8* for LD).

If ARS has been enabled in Function 223, the system will not connect to a line immediately when the user dials 9 (or goes off-hook with outside dial tone preference enable). Instead, the system will "play" outside dial tone to the user, store the digits dialed, and check the toll restriction tables and if allowed, then determine the ARS call type: Local (9), LD (8), or other (line groups assigned in tables 3–10).

If the call is determined to be "Local," it will then be dialed on a line in line group 9. If the call is determined to be an "LD" call, it will be placed on a line programmed in line group 8. Therefore, if ARS is to be used, local lines must have been programmed in line group 9 and lines for long distance calls must have been programmed in line group 8 in CO line programming (Function 21).

In addition, a list of area codes or numbers can be created that will be dialed on the programmed line group and Other Common Carrier code[2].

Here's an example:

Fixed

Table	Line group(s)	OCC	Definition
1	9		7 or 10 digits, information
2	8		1+, 0+, 01+, 011+, or 101XXXX
[3–10]	9, 8, 71–76	**1010XXX**	1+XXX, 1+YYY, etc.

(Continued)

[1] A digital line card (DLC) is **not** necessary for ARS.
[2] A code (*e.g.*, 1010) to be dialed before the actual number, often to connect with a specific long-distance provider.

Programming Function 223 ARS

1. Enable/disable ARS (default is *DISABLED)*.
2. Select the ARS table to program (3–10).
3. Use the scroll key to select the line group.
4. Enter Other Common Carrier numbers.
5. Enter up to 100 numbers for the table, separating each number by #.

> **Example:** For "1-976," enter **1 9 7 6 #**.

> **Note:** Press **MUTE/DND** to insert a **"**wild card" digit. The **Hold** key will delete an entry.

> **Warning:** Do **not** include the system's line access codes (*9*, *8*, or *71–76*) in this table.

The system will apply the numbers you enter to their most significant digit.

> **Examples:** Entering **1 5 0 5** into the table tells the system to place **all** "1+" calls to area code 505 to the line group and Other Common Carrier listed.
>
> Entering **1 5 0 5 5 5 5 8 7 8 7** into the table tells the system to place "1+" calls **specifically** to (505) 555-8787 to the line group and Other Common Carrier listed while *other* "1+505" calls will follow regular LD routing to line group 8.

After the last number, enter # # to end the list. Enter another list or press # to exit.

> **Note:** Toll restriction, as set in Functions 222 and 321, will be applied to calls before released.

Function 224: DID and DNIS translation table

A translation table is programmed to translate DID or DNIS routing numbers to the corresponding ID branch (**ID**), mailbox (**MB**) extension (**EXT)** or department with both day and night destinations. An ESI Communications Server supports up to 10-digit DID and DNIS/ANI. Each model has a maximum number of entries that can be programmed into the table (multiple numbers programmed to the same destinations); see "Translation tables" in "System capacities" (page B.1). An entry for exceptions is provided and can be programmed for an ID branch (**ID**), mailbox (**MB**) or extension or department (**X**).
Default: First extension in the system.

```
DID/DNIS NUMBER
#:              >
```

```
DID/DNIS NUMBER
EXCEPTION:      >
```

(Continued)

To program the DID and DNIS translation table:

1. **Either** enter the **DID or DNIS number** (enter valid numerical digits) **or** use the scroll keys to select a previously programmed number or exception. When done, press #.
   Range: 3–10 digits.

   ```
   DID/DNIS NUMBER
   #:9724229700   >
   ```

   Notes: Pressing the **right** scroll key will start with a blank **number** field for entry and continue through all previously programmed numbers, ending with the exception entry (continuing to scroll will start over the blank entry).

   Pressing the **left** scroll key will start with the **exception** entry, continue in reverse order with previously programmed numbers, and end with the blank number entry (continuing to scroll will start over with the exception entry).

   Pressing **HOLD** will delete an entry.

2. The DID number entered in step 1 now carries over to the top line of the display, as the system prompts you to enter a **name** for this DID (the name will appear on the bottom line of the display of a station using the line):

   ```
   DID# 9724229700
   NAME:          >
   ```

   Enter a name (or leave it as it is) and press #. (For detailed help with this step, press **HELP** or see "Entering alphanumeric characters," page D.2).

   Note: If a name is entered for a DID and there is an inbound CO call, the DID name (instead of the Caller ID number) will be displayed until the call is answered.

3. The system will prompt you for the **day** mode's **call routing**:

   ```
   DID# 9724229700
   DAY EXT: >
   ```

   Use the scroll keys to select whether you're routing to a branch (ID), mailbox (MB), or extension or department (EXT); then enter the number. Here are two examples, based on the example table on page F.39:

   ```
   DID# 9724229702
   DAY ID: 12
   ```

   ```
   EXCEPTION:
   DAY EXT: 100
   ```

   When done with this step, press #.

(Continued)

4. The system will prompt you for the **night** mode's **call routing**:

```
DID# 9724229700
NGT EXT: >
```

Use the scroll keys to select whether you're routing to a branch (ID), mailbox (MB), or extension or department (EXT); then enter the number. Here are two examples, based on the example table below:

```
DID# 9724229702
NGT MB: 400
```

```
EXCEPTION:
NGT EXT: 100
```

When done with this step, press # to finish.

> **Note:** Pressing **HOLD** will delete an entry.

Here's an example:

DID or DNIS	Name	Day translation	Night translation
9724229700		X105	X105
9724229701		X290	MB410
9724229702		ID12	MB400
Exceptions		Operator (X100)	Operator (X100)

Function 225: Pilot number translation table

> **Note:** This feature is accessible only if Function 2135 (page F.15) or Function 2145 (page F.32) is enabled.

Every call on a PRI span or SIP trunk is sent with the called number in the setup message. This means you can determine whether to use a number as a pilot number or as a DID number. Pilot numbers are a means of routing a company's primary published phone number differently from a DID. Each ESI Communications Server has a different capacity for pilot entries, each with its own answer ring assignment; see "Translation tables" in "System capacities" (page B.1). This is important, because the dynamic channel allocation prevents you from routing based on channel.

Pilot numbers can be routed to an ID branch, department, extension or mailbox. This varies from DIDs in that, when a DID number is routed to an extension, it is considered answered and follows the busy/no-answer routing of the extension; but, with pilot numbers, the call will be routed to the extensions for live answer for the designated number of rings, then can be routed to an ID branch in the event of busy/no-answer. If the PRI span is used for outgoing calls, pilot table entry 1 is used for outgoing Caller ID, as well. Because of this, pilot number entry 1 should always be programmed with 10 digits.

> **Note:** An extension's Caller ID number setting (see "Function 31: Extension definition and routing," beginning on page G.2) overrides the pilot number's Caller ID information set here.

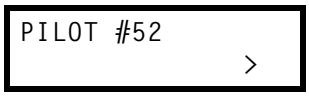
Max Channels value

Max Channels is the maximum number of channels that can be used simultaneously for incoming calls to a particular pilot number. Incoming calls to that pilot number are rejected (CO plays busy signal) when the Max Channels value is exceeded for the pilot number. Max Channels is applicable only to incoming calls.

> **Notes:** This setting works **only** if the digits in the pilot number entry **exactly match** the digits that the PRI carrier sends in its messaging.
>
> The sum of maximum channels of any PRI pilot number must not exceed 23.

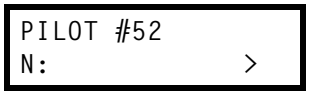
To program the pilot number translation table:

1. Either enter a pilot number or, to select a previously entered number, press a scroll key. Here, the entry is *52*.

   When done, press #.
   Range: 1–100.

2. The system prompts you to enter a **name** for this pilot number:

   Enter a name (or leave it as it is). Then, press #. (For detailed help with this step, press **HELP** or see "Entering alphanumeric characters," page D.2).

3. The system displays the maximum allowable channels for this pilot number:

   Enter a new value (or leave the setting as it is). Then, press #.
   Range: 1–24 (SIP) or 1–23 (PRI). **Default**: 24 (SIP) or 23 (PRI).

4. The system prompts you to select a distinctive CO ring tone for this pilot number:

```
CO RING TONE
TONE NORMAL   >
```

Use the scroll keys to make a selection (or leave the setting as it is). Then, press #.
Range: 1–6 or normal (disabled, thus using user-selected ring-tone). **Default:** Normal (disabled).

5. The system prompts you for the answer ring assignment for day mode.

```
RING 1        D
ID:1          >
```

To select a station, mailbox, or branch ID, press a scroll key and enter the new value (or leave the setting as it is). Then, press #.

6. The system prompts you for the answer ring assignment for night mode.

```
RING 1        N
ID:1          >
```

To select a station, mailbox, or branch ID, press a scroll key and enter the new value (or leave the setting as it is). Then, press #.

7. Repeat steps 1–6 for the remaining pilot numbers.

Example:

					Day				Night			
Entry no.	**Pilot no.**	**Name**	**Max chs.**	**Ring tone**	**Ring 1**	**Ring 3**	**Ring 5**	**Ring 9**	**Ring 1**	**Ring 3**	**Ring 5**	**Ring 9**
1	2145551452	ABC Co.	16		X100	X100, X101	X101	ID1	MB100	MB100	MB100	MB100
2	1245	Private line	1		X106	X106	MB106		MB106	MB106	MB106	
3												
4												
5												

Tenant service and pilot numbers

If tenant service is enabled, the first pilot number (*i.e.*, entry 1) is used for tenant 1's outgoing Caller ID, and so on through entry 8 for tenant 8's outgoing Caller ID. When a station (or the station's voice mailbox) originates an outgoing call via a PRI channel or SIP trunk, the pilot number of the station's tenant will be used for that call's outgoing Caller ID. Also: any auto attendant outdial branches that originate from branch ID 1 will use Caller ID for tenant 1, and so on through branch ID 8 for tenant 8.

If multiple PRI circuits (port cards) are installed

Example A: Pilot number to either PRI port card

Where there are multiple[1] PRI port cards installed, a pilot number can have calls directed to it from one or more of the cards. The Max Channels value entered sets the maximum number of channels the pilot number will use for each PRI port card. Therefore, the Max Channels value can't exceed *23* for each pilot number, even if there are three PRI port cards installed.

A customer has two PRI port cards (46 channels). Both PRI port cards handle calls to the main pilot number *(972 555-3200)* and Customer Service department *(972 555-3300)*. Up to 32 channels can be used for calls to the main number, and up to 10 channels can be used for Customer Service calls. Since there are two PRIs, the Max Channels value to assign is half of the actual number of channels for each pilot number.

Entry number	Pilot number	Max Channels
1	9725553200	16
2	9725553300	5

In Function 225, pilot number *972 555-3200* will be assigned a Max Channels value of *16*, and pilot number *972 555-3300* will be assigned a Max Channels value of *5*. This is because 16 Max Channels x 2 PRIs = 32 actual maximum channels for pilot number *972 555-3200*. Similarly, pilot number *972 555-3300* will have 10 actual maximum channels.

Example B: Pilot number to one PRI

There can be instances wherein one pilot number takes incoming calls from one PRI and another pilot number is used to take calls from the second PRI. In this case, don't divide the maximum channels by the number of PRIs installed.

A customer has two PRI port cards (46 channels). The first PRI has a toll-free pilot number *(800 555-4141)* that directs incoming calls to the Customer Service department, and can use all 23 channels of that PRI. The second PRI uses a pilot number to direct calls to the main business number *(214 555-5678)*; up to 12 channels can be used for that pilot number.

Entry number	Pilot number	Max Channels
1	8005554141	23
2	2145555678	12

Each of the pilot numbers are assigned to individual PRIs; so, in Function 225, pilot number *800 555-4141* will be assigned a Max Channels value of *23*, and pilot number *214 555-5678* will be assigned a Max Channels value of *12*.

Function 226: Local allow table

If some stations have not been allowed in Function 321 (page G.25) to dial seven-digit local calls, you can use the **local allow table** to allow certain calls.

Range: 1–100 entries; each entry's maximum length is 16 digits.
Default: No entries.

> **Note:** If you have any extensions that have been denied the ability to make local calls but you wish to let them dial toll-free numbers, an entry will be required in this field to allow those calls.

[1] An ESI-50 accepts only one DLC82.

Function 23: CO line parameters

Function 231: System CO line receive volume

Many variables can affect the volume of the CO lines. Weak lines can reduce the ESI Communications Server's ability to properly detect DTMF dialed by an outside caller. Conversely, **"**hot**"** lines can cause DTMF distortion and/or increase the opportunity for message talk-off (*i. e.,* messages being cut off before completion). Ideally, a message recorded from an outside call has the same playback volume as the system prompts. This function can be used to adjust the gain of the receive volume of the CO lines system-wide.
Range: 0–14 (lowest to highest gain, respectively). **Default:** 10.

Function 232: Line disconnect

You can set the lines to detect the open loop interval (if available from the CO) and disconnect more quickly. This will also allow the system to:

- Drop abandoned calls from hold.
- Reduce the opportunity for abandoned calls to be transferred by the auto attendant
- Reduce the possibility that abandoned calls could create messages that are either silent or contain CO-generated tones.

Since open loop intervals generated by the CO may vary in duration, use this function to program the system to less than or equal to the CO open loop interval. If this programmed value is set unnecessarily low, the system may falsely interpret static or a momentary loop break as an open loop and disconnect a caller on hold or in the process of leaving a message. If this value is set too high, the system may not detect a valid open loop signal for fastest call processing.
Range: 1–255 (10–2,550 ms) (or **0** to turn off open loop detect). **Default:** 6 (60ms).

Function 233: T1 line receive volume

> **Note:** This doesn't apply to the ESI-50, which doesn't support T1 lines.

Many variables can affect the volume of the T1 lines. Different volume levels may be required when connecting a DLC or DLC12, depending on the signal level of the T1. The volume level can be adjusted by increasing or decreasing the digital pad setting. By default, the digital pad setting is –6 db. Changes to the setting are in 2-db increments.

> **Example:** If calls received at the extension have low volume levels, the pad level for that T1 circuit can be adjusted to increase the volume. Select the circuit to adjust by pressing the appropriate programmable feature key and press # to confirm. Use the scroll keys to select the appropriate db level and press # to confirm.

(Continued)

Programming a circuit

To program a circuit, select the appropriate programmable feature key and press # to confirm. If programming with a 48-Key Feature Phone, you can select one or all of the channels on the first DLC, DLC12, or DLC82; otherwise, only the first 12 T1 channels will appear initially, and you must use the scroll keys to program T1 channels 13–24. If multiple DLCs, DLC12s, and/or DLC82s are installed, use the scroll keys to select channels from the additional cards.

```
PC3 DLC12 13-36
CO22 CIRCUIT 10>
```

After selecting the COs to program, use the scroll keys to select the new level of gain or loss in db. Press # to confirm. Select additional circuits to adjust and program as above.

```
RECEIVE VOLUME
LINE COMP -28DB>
```

Range: -28 db to 6 db (lowest to highest gain, respectively). **Default:** -6 db.

Function 234: PRI receive volume

Many variables can affect the volume of PRI lines. Different volume levels may be required when connecting a DLC, DLC12, or DLC82, depending on the signal level of the PRI line. The volume level can be adjusted by increasing or decreasing the setting in this function. By default, the setting is –6 dB; changes to the setting are in 2-dB increments.

Example: If calls received at the extension have low volume levels, you can adjust that PRI circuit's pad level to increase the volume. Select the circuit to adjust by pressing the appropriate programmable feature key and press # to confirm. Use the scroll keys to select the appropriate dB level and press # to confirm.

Programming a circuit

To program a circuit, select the appropriate programmable feature key and press # to confirm. If programming with a 48-Key Feature Phone, you can select one or all of the channels on the first DLC, DLC12, or DLC82; otherwise, only the first 12 PRI channels will appear initially, and you must use the scroll keys to program PRI channels 13–23. Use the scroll keys to select channels from a second DLC, DLC12, or DLC82 if it's installed.

```
PC3 PRI 13-36
CO22 CIRCUIT 10>
```

After selecting the COs to program, use the scroll keys to select the new level of gain or loss in dB. Press # to confirm. Select additional circuits to adjust and program as above.

```
RECEIVE VOLUME
LINE COMP -28DB>
```

Range: -28 dB to 6 dB (lowest to highest gain, respectively). **Default:** -6 dB.

Function 235: SIP receive volume

This function can be used to adjust the gain of the receive volume on the SIP trunks system-wide.
Range: *1–14* (lowest to highest gain). **Default:** *10*.

Note: At the time of release of system software version xx.5.23.0, this is a "phone-only" field.

Function 24: Caller ID

This function activates the Caller ID capability in an ESI Communications Server — **if** the customer has ordered Caller ID service from the Telco. The system will display the caller's name (or "out-of-area," etc.) for incoming calls or messages (or show the Caller ID number if the CO only provides a number).
Default: Disabled.

Esi-Dex and auto callback — This is accomplished by pressing **REDIAL** or **ESI-DEX** either during message playback or after an Esi-Dex search. Caller ID numbers received from the CO are 10 digits long (and include the area codes for local calls). **In auto callback, the system assumes all calls are to be long distance and will automatically add a "1" prefix to the 10 digits to be dialed.**

A table of local area codes can be programmed to indicate that calls to those area codes that are to be dialed as local calls. Select one of the following two types of **local** dialing for each area code entered:

- **Local 7** — Local calls that can be dialed only as seven-digit numbers (the system strips the area code before dialing and will **not** add a "1" prefix).
- **Local 10** — Local calls that can be dialed only as 10-digit numbers (the system will **not** add a "1" prefix).

Maximum area code entries: 16.

For an area code that can be called as a long distance number (with a "1" prefix) **and** as a local number (10 digits without a prefix), decide which case is the more prevalent and then add to or exclude from the area codes exception list accordingly. Thus, some of these calls must be made manually.

Notes: Since the Caller ID information is transmitted from the CO during the silence between the first and second rings, enabling this feature will delay the answer of inbound calls until the second ring.

ESI Caller ID works with the standard ring cycle — two seconds on, four seconds off.

Analog stations cannot use the auto-callback feature.

Function 3: Extension programming

This section provides programming for extensions and department groups.

> **Important:** Where any **gray shading** (▒) appears in an example, it represents values either **unavailable** to the function or **unused** in the particular example.

Function 30: Station move

This feature allows the Installer or Administrator to exchange the extension numbers of two extensions. It is used **only** for exchanging **extensions** — **not** guest mailboxes or departments.

> **Important:** Before you use this function on two extensions, make sure they're **both idle** at the time.

Along with the extension numbers, this function also will exchange the following parameters (depending on station type):

- Extension name and other assignments (including of the Operator to extension *0* from Functions 31 and 32).
- Mailbox information (personal greeting, notification, schedules).
- Programmable feature keys.
- Personal Dex.

Function 30 has the following **limitations**:

- Mailboxes cannot be exchanged. Instead, use Function 34 (flexible number assignment; see page G.37).
- Both extensions must be of the same "type" — *i.e.*., analog to analog, digital to digital, IP to IP — as shown in the following table:

From . . .	To . . .	Function 30 allowed?
Digital phone	Digital phone	Yes
Analog extension	Analog extension	Yes
IP Phone (local or remote)	IP Phone (local or remote)	Yes
Digital phone	Analog extension	No[1]
IP Phone (local or remote)	Analog extension	No[1]
IP Phone (local or remote)	Digital phone	No[1]
Fax, modem, door, ringer, server, RFID Reader, SIP station, *VIP Softphone*	Any type of phone	No[1]

To use this feature:

1. Enter Installer programming through an ESI digital or IP desktop phone and go to Function 30.
2. Enter the **first** extension and press #.

```
STATION MOVE
1ST EXT: 1044
```

3. Enter the **second** extension and then press #.

```
X1044 J SMITH
2ND EXT: 1056
```

(Continued)

[1] You must use Function 34 (see page G.37) to change the numbers of these types of extensions.

4. Both extensions will now appear in the display. Confirm the exchange by pressing #.

```
X1044 J SMITH
X1056 S BROWN
```

5. If one of the phones is in use, the display will show that extension:

```
STATION MOVE
EXT 1044 BUSY
```

(If both are in use, the display will show only the first extension.)
To back up to the previous step, press ✻ and then re-try the extension exchange by pressing # again.

Function 31: Extension definition and routing

Each extension is one of the following types.

- **ESI digital phone** extension[1] (*DIGITAL* in the chart below and succeeding charts).
- **Analog** port (*EXT, FAX*, *SERVER, MODEM*, *RINGER* or *DOOR* in the charts).
- **IP Phone** extension:
  - **Local IP** (*IP PHONE* in the charts) — A locally installed ESI desktop IP phone, Local IP Cordless Handset, or SIP phone.
  - **Remote IP** (*REMOTE IP* in the charts) — A remotely installed ESI desktop IP phone or Remote IP Cordless Handset.
  - **Local *VIP Softphone*** (*LOCAL PC* in the charts) — A local installation of *VIP Softphone* (standalone or *Outlook*-integrated).
  - **Remote *VIP Softphone*** (*REMOTE PC* in the charts) — A remote installation of *VIP Softphone* (standalone or *Outlook*-integrated).

[1] Includes ESI Presence Management RFID Readers. For more information about ESI Presence Management, see the *ESI Presence Management Installation Manual* (ESI # 0450-0792).

ESI digital phones

Below is an example of the portion of a completed programming worksheet[1] for ESI digital phones.

1. Ext.	2. Type	3. Name	4. Caller ID	5. Tenant	6. CO	7. CF day	8. CF night	9. Pg zone	10. Ext.
0		Operator		1		X100	X100		X100
100	DIGITAL	Jane	9725550010	1	9	MB100	X105	0,1,2	
101	DIGITAL	Roger	9725550011	1	9	MB101	MB101	0	
102	DIGITAL	Sally	9725550012	1	9,8	MB102	MB102	0,1	
103	DIGITAL	Sam	9725550013	1	9,8	MB103	MB103	0	
109	EXT	Roger2	9725550019	1	9	MB110	MB106		
110	FAX	FAX	9725550020	1		ID9999	ID9999		
111	SERVER	FAX SERVER		1	9	ID9999	ID9999		

Note: The first station in the system defaults as OPR (when a user dials **0**).

Each programming step for ESI digital phone extensions is defined as follows:

1. **Extension number** — Enter the extension. If you enter *0* (zero), skip to step 7.
2. **Type** — Based on the port card installed, the ESI Communications Server assigns the port as *digital*.[2] Special types can be assigned (see page G.13).
3. **Extension name** — Used for the display, reports, and as a programming aid. The name's length can be no longer than 10 characters (See "Entering alphanumeric characters," page D.2).
   Default: The extension number.
4. **Caller ID** — Used for outgoing calls to identify the extension and for callback to the specific extension or another extension nearby. Each entry must be valid and 10 digits in length.

   Notes: For Personal Caller ID, you must have PRI service.

   If there is no entry here, the PRI pilot number will be sent as Caller ID.
5. **Tenant** — Assign the extension to a tenant. This is used to direct-dial operator (**0**) calls to the tenant's operator destination; it's also used to play the tenant's MOH source when calls are placed on hold.

   Note: To view and assign a tenant, tenant service must be enabled in Function 169.

   Default: 1.
6. **CO line group** — Assigns the extension's ability to access one **or more** CO line groups (9, 8, and 71–76).
   Default: 9.
7. **Call forward busy/no answer for day mode** — The extension can be set to call forward busy/no answer to another extension (or department), a mailbox or a branch ID for day mode.
   Default: The extension's mailbox.
8. **Call forward busy/no answer for night mode** — Same as previous item, except night mode.
   Default: The extension's mailbox.

(Continued)

[1] For pre-formatted worksheets, see ESI document #0450-1051, available from *www.esi-estech.com/Resellers/docs*.
[2] For programming of analog ports, see pages G.13–G.14.

9. **Extension page zone assignment** — List the page zones (1–6, 8–9) that are to include this extension. (All stations are in all-page, and this cannot be edited.)
   Default: 0 (all-page).
   The overhead paging port (599) can be paged along with other extensions in a zone by including the desired page zone(s) for 599.
   All digital phone extensions are included in (and cannot be removed from) the all-page zone.
   Analog extensions cannot be included in page zones.

10. **Operator translation** — Extension **0** (Operator) programming requires:

    - Programming call forwarding for day and night mode (steps 5 and 6).
    - Entering the extension, department, mailbox, or branch ID number to which calls are to be directed when someone dials **0**.

    Default: First extension in the system.

> **Notes:** If you want more than one extension to ring when someone dials **0**, you must build a department in Function 33 (see page G.30) and enter the department in column 10 on page G.3.
> If operator translation is directed to a department or branch ID, and a call to the operator is not answered, operator call forwarding takes precedence.

Using VIP PC Attendant Console

If you're using *VIP PC Attendant Console* (standalone or *Outlook*-integrated), you must first establish an Attendant department in Function 33 (page G.30). Here in Function 31, set extension 0 to ring the Attendant department. This will let calls appear in *VIP PC Attendant Console*'s **Incoming Calls** and **Holding Calls** views.

Example: One attendant (extension 0) is assigned to Department 291 (Tenant 1). Department 292 is also assigned to extension 0, but for Tenant 2.

Ext.	Type	Name	Tenant	CO	Pg. zones	CF day	CF night	*[Ext.]*
0		Attendant	1			ID 1	MB100	X291
0	DIGITAL	Attendant	2			ID 2	MB102	X292
100	DIGITAL	Attendant A	1	9	0, 1	MB290	MB100	X291
101	DIGITAL	Attendant A	1	9	0, 1	MB290	MB100	X291
102	DIGITAL	Attendant B	2	8	2, 3	MB291	MB102	X292
103	DIGITAL	Attendant B	2	8	2, 3	MB291	MB103	X292

> **Note:** For more information on installing and using the optional *VIP PC Attendant Console* application, see the *VIP Setup and User's Guide* (ESI # 0450-0513).

ESI Presence Management digital RFID Reader assignment

Important: Before a digital ESI Presence Management RFID Reader can be programmed, it must first be connected to a digital station port on a "CS"- or "E2"-type port card for proper operation. (On the ESI-50, any port card can support up to two RFID Readers.) If necessary, consult the *ESI Presence Management Installation Manual* (ESI # 0450-0792).

1. Enter the extension number of the RFID Reader to be programmed and press # to continue.

```
STATION PROG
EXT: 123
```

2. Enter the name of the RFID Reader. The name can be up to 10 characters long. Suggested names include the name of the entrance ("MAIN LOBBY") or room ("STORAGE") near which the RFID Reader is mounted.

Press # to continue.

```
X123 READER NAME
NAME:
```

Notes: For instructions on entering alphanumeric characters, see page D.2.

If using an ESI system on which tenanting either isn't enabled or isn't available, skip to step 4.

3. Enter the tenant and press # to continue.[1]

```
X123 READER NAME
TENANT: 1
```

4. Select the RFID Reader **operation mode**:

- **Entrance/exit** — Used for entry doors into buildings or suites. Supports presence status, phone control, and attendance records. (Default.)
- **Access only** — Used for doors to secure areas. Doesn't provide in and out status, Personal Call Routing, or attendance records.

Both modes support remote door unlocking, automatic door control using electronic keys, and doorphone operation.

Select the desired RFID Reader operation mode and press # to continue.

```
X123 DOOR NAME
ENTRANCE/EXIT >
```

(Continued)

[1] You'll see this prompt only if the ESI system has shared-office tenanting enabled in Function 169.

5. Enter the **day**-mode destination for doorphone calls. This destination will be called when someone presses the **CALL** key on the RFID Reader while the system or tenant is in day mode.
(For **no** day-mode destination, press **HOLD**.[1])
Default: Extension 100.
Select a station, mailbox, or branch ID by pressing a scroll key and then entering a new value.
Press # to continue.

```
X123 RFID DOOR
DAY: 100
```

6. Enter the **night**-mode destination for doorphone calls. This destination will be called when someone presses the **CALL** key on the RFID Reader while the system or tenant is in night mode.
(For **no** night-mode destination, press **HOLD**.)
Default: Extension 100.
Select a station, mailbox, or branch ID by pressing a scroll key and then entering a new value.
Press # to continue.

```
X123 RFID DOOR
NIGHT: 100
```

ESI Presence Management local IP RFID Reader assignment

Important: If necessary, consult the *ESI Presence Management Installation Manual* (ESI # 0450-0792).

1. Enter the extension number of the IP RFID Reader to be programmed and press # to continue.

```
STATION PROG
EXT: 114
```

2. Use the scroll keys to select *LOCAL IP READER* and press # to continue.

```
X114 TYPE
LOCAL IP READER
```

3. Now you'll enter the local IP RFID Reader's MAC address, which appears on the second line of the IP RFID Reader's display when the device is powered-up. The MAC address is a 12-character alphanumeric address, the first six characters of which will always be *00 30 4D* (of course, the display below is merely for use as an example and shouldn't be assumed to show the address you'll be entering). Enter the **complete** 12-character alphanumeric address. If programming using an ESI desktop IP phone, use the first six programmable feature keys to enter the letters *A*, *B*, *C*, *D*, *E*, or *F*, respectively.

```
X114 MAC ADDRESS
>
```

(Continued)

[1] If no day/night destination is selected, *CALL* doesn't appear on the RFID Reader display.

4. Enter the name of the IP RFID Reader. The name can be up to 10 characters long. Suggested names include the name of the entrance ("MAIN LOBBY") or room ("STORAGE") near which the IP RFID Reader is mounted.

Press # to continue.

```
X114 READER NAME
NAME:
```

> **Notes:** Refer to page D.2 for instructions on entering alphanumeric characters.
>
> If using an ESI system on which tenanting either isn't enabled or isn't available, skip to step 6.

5. Enter the tenant and press # to continue.[1]

```
X114 READER NAME
TENANT: 1      >
```

6. Select the IP RFID Reader **operation mode**:

- **Entrance/exit** — Used for entry doors into buildings or suites. Supports presence status, phone control, and attendance records. (Default.)
- **Access only** — Used for doors to secure areas. Doesn't provide in and out status, Personal Call Routing, or attendance records.

Both modes support remote door unlocking, automatic door control using electronic keys, and doorphone operation.

Select the desired IP RFID Reader operation mode and press # to continue.

```
X114 DOOR NAME
ENTRANCE/EXIT  >
```

7. Enter the **day**-mode destination for doorphone calls. This destination will be called when someone presses the **CALL** key on the IP RFID Reader while the system or tenant is in day mode.
(For **no** day-mode destination, press **HOLD**.[2])
Default: Extension 100.
Select a station, mailbox, or branch ID by pressing a scroll key and then entering a new value.
Press # to continue.

```
X114 RFID DOOR
DAY: 100
```

8. Enter the **night**-mode destination for doorphone calls. This destination will be called when someone presses the **CALL** key on the IP RFID Reader while the system or tenant is in night mode.
(For **no** night-mode destination, press **HOLD**.)
Default: Extension 100.
Select a station, mailbox, or branch ID by pressing a scroll key and then entering a new value.
Press # to continue.

```
X114 RFID DOOR
NIGHT: 100
```

---

[1] You'll see this prompt only if the ESI system has shared-office tenanting enabled in Function 169.
[2] If no day/night destination is selected, *CALL* doesn't appear on the RFID Reader display.

ESI Presence Management remote IP RFID Reader assignment

Important: Before starting this programming, be sure you know the IP address the remote IP RFID Reader will be using at its remote site, because you have to enter this information in this procedure.

If necessary, consult the *ESI Presence Management Installation Manual* (ESI # 0450-0792).

1. Enter the extension number of the IP RFID Reader to be programmed and press # to continue.

```
STATION PROG
EXT: 115
```

2. Use the scroll keys to select *REMOTE IP READER* and press # to continue.

```
X115 TYPE
REMOTE IP READER
```

3. Now you'll enter the remote IP RFID Reader's MAC address, which appears on the second line of the IP RFID Reader's display when the device is powered-up. The MAC address is a 12-character alphanumeric address, the first six characters of which will always be *00 30 4D*. Enter the **complete** 12-character alphanumeric address. If programming using an ESI desktop IP phone, use the first six programmable feature keys to enter the letters *A*, *B*, *C*, *D*, *E*, or *F*, respectively.

```
X115 MAC ADDRESS
>
```

4. Now you'll enter the IP address that the IP RFID Reader will be using at its remote site.

Enter this address in dotted-quad notation (for example, *192.168.1.3*) by using the # key as the period between octets. The remote RFID Reader must be on the same subnet as the LAN interface of the gateway device (cable modem, router, *etc.*). For example: if the LAN interface's IP address is *192.168.210.1* and its subnet mask is *255.255.255.0*, the first three octets of the phone's address must be *192.168.210* and its last octet between *2* and *254*.

```
X115 IP ADDRESS
0.0.0.0
```

5. Enter the valid subnet mask of the gateway device to which the remote IP RFID Reader will be connected.
Range: *128.0.0.0* through *255.255.255.252*. **Default:** *0.0.0.0*.

```
X115 IP MASK
0.0.0.0
```

6. Enter the IP address of the remote IP RFID Reader's gateway — *i.e.*, the LAN interface of the gateway device at the remote site. The RFID Reader must be on the same subnet as the LAN interface of the remote gateway.

```
X115 GATEWAY IP
0.0.0.0
```

(Continued)

7. Enter the remote IP RFID Reader's UDP port. It doesn't have to be the same as for the IP PBX (as programmed in Function 81). The UDP port for the IP RFID Reader must be one that the remote WAN gateway can program as "open," and must not be already assigned to another device at the remote site.

> **Important:** The remote gateway will have to be programmed to recognize that traffic destined for that UDP port should be allowed to pass through its security system.

If the remote gateway can't open the UDP port — or if that port is already open but designated for another device — the Installer can choose any other UDP port number, *10000–65000*, inclusive.

```
X115 UDP PORT
59301
```

8. Enter the IP address that will be used for remote access to the ESI Communications Server. The display will default to the IP address entered in Function 82. If a remote IP RFID Reader will use this address to connect to the system, press # to confirm; if a remote IP RFID Reader will use an alternate IP address to connect to the system, enter that address and press # to confirm.

The message *SAVE PARAMETERS?* will appear on the display. If you have correctly entered the IP addressing parameters (steps 1–7), press # to program the parameters for any remote IP RFID Reader; or, to abort programming, press ∗ to restore the system parameters to their previously set values.

```
RMT ACCESS IP
209.164.111.1
```

9. Enter the name of the IP RFID Reader. The name can be up to 10 characters long. Suggested names include the name of the entrance ("MAIN LOBBY") or room ("STORAGE") near which the IP RFID Reader is mounted.

Press # to continue.

```
X115 READER NAME
NAME:
```

> **Notes:** Refer to the ESI system's *Installation Manual* for instructions on entering alphanumeric characters.
>
> If using an ESI system on which tenanting either isn't enabled or isn't available, skip to step 11.

10. Enter the tenant and press # to continue.[1]

```
X115 READER NAME
TENANT: 1      >
```

(Continued)

[1] You'll see this prompt only if the ESI system has shared-office tenanting enabled in Function 169.

11. Select the IP RFID Reader **operation mode**:

- **Entrance/exit** — Used for entry doors into buildings or suites. Supports presence status, phone control, and attendance records. (Default.)
- **Access only** — Used for doors to secure areas. Doesn't provide in and out status, Personal Call Routing, or attendance records.

Both modes support remote door unlocking, automatic door control using electronic keys, and doorphone operation.

Select the desired IP RFID Reader operation mode and press # to continue.

```
X115 DOOR NAME
ENTRANCE/EXIT  >
```

12. Enter the **day**-mode destination for doorphone calls. This destination will be called when someone presses the **CALL** key on the IP RFID Reader while the system or tenant is in day mode.
(For **no** day-mode destination, press **HOLD**.[1])
Default: Extension 100.
Select a station, mailbox, or branch ID by pressing a scroll key and then entering a new value.
Press # to continue.

```
X115 RFID DOOR
DAY: 100
```

13. Enter the **night**-mode destination for doorphone calls. This destination will be called when someone presses the **CALL** key on the IP RFID Reader while the system or tenant is in night mode.
(For **no** night-mode destination, press **HOLD**.)
Default: Extension 100.
Select a station, mailbox, or branch ID by pressing a scroll key and then entering a new value.
Press # to continue.

```
X115 RFID DOOR
NIGHT: 100
```

[1] If no day/night destination is selected, *CALL* doesn't appear on the RFID Reader display.

ESI Cellular Management programming

Important: Before an **ESI Cellular Management Access Device** can be programmed, it must first be connected to a digital station port on a "CS"- or "E2"-type port card for proper operation. If necessary, consult the *ESI Cellular Management Installation Guide* (ESI # 0450-1155).

1. Enter the extension number of the Access Device to be programmed and press # to continue.

```
STATION PROG
EXT: 133
```

2. Enter the name of the Access Device. The name can be up to 10 characters long; for clarity's sake, you may wish to include the name of the cell phone user ("ECM BOB J").
Default: ECM XXX or ECM XXXX (wherein *XXX* or *XXXX* is the extension number).

Press # to continue.

```
STATION PROG
NAME: ECM 133
```

Note: For instructions on entering alphanumeric characters, see page D.2.

3. Enter the destination for cell phone calls. This destination will be called when calls come in for the cell phone. Select a station, department, or mailbox by pressing a scroll key and then entering a new value.
Default: *100***.**
Press # to continue.

```
CELL ROUTING
EXT: 100
```

4. Enter a four-digit PIN for the ESI Cellular Management Access Device. This will be used when pairing the Access Device to a cell phone.
Default: *0000*.
Press # to continue.

```
CELL ACCESS PIN
0000
```

5. Use the scroll keys to select where unanswered cell phone calls will be forwarded.
Options: *CELL V-MAIL*; *SYSTEM V-MAIL* **Default**: *CELL V-MAIL*.
Press # to continue.

```
CELL VM FORWARD
CELL V-MAIL
```

(Continued)

6. Use the scroll keys to select a distinctive ring tone to distinguish incoming cell calls from regular calls.
Options: *NORMAL* (disabled) and *1–6*. **Default**: *NORMAL* (disabled).
Press # to continue.

```
DISTINCTIVE RING
TONE NORMAL
```

7. Use the scroll keys to select whether cellular line sharing is allowed or denied.
Options: *DENIED* and *ALLOWED*. **Default**: *DENIED*.
Press # to continue.

```
SHARED CELL LINE
DENIED
```

Analog ports

The last four station ports on a 684 port card, all 12 ports on an A12 port card, and the last two ports on a DLC82 or 482 port card are analog ports, and can be programmed only as follows:

1. Ext.	2. Type	3. Name	4. Caller ID	5. Tenant	6. CO	7. CF day	8. CF night	*[Ext.]*
0		Operator		1		X100	X100	X100
100	DIGITAL	Jane	9725550010	1	9	MB100	X105	
101	DIGITAL	Roger	9725550011	1	9	MB101	MB101	
102	DIGITAL	Sally	9725550012	1	9,8	MB102	MB102	
103	DIGITAL	Sam	9725550013	1	9	MB103	MB103	
109	EXT	Roger2	9725550019	1	9	MB110	MB106	
110	FAX/MODEM/ RINGER/DOOR	FAX/MODEM/ RINGER/DOOR	9725550020	1	9	ID9999	ID9999	
111	SERVER	FAX SERVER		1	9	ID9999	ID9999	

Note: All analog ports will send Caller ID of station calls and (where CID service is available) of CO line calls.

Here are the steps for programming analog ports:

1. **Extension number** — Enter the extension number.
2. **Type** — If *ANALOG PORT* is selected, then the ports can further be defined as follows; the words in parentheses **(EXAMPLE)** indicate what the display will show in each case.

   Note: If DTMF digits are to be received by a device connected to an analog station port (*i.e.,* IVR, zone paging, *etc.*), the analog port type must be assigned as EXT, DOOR, or SERVER (*below*).

   - **Phone (EXT)** — Designed to provide for standard phones. See the *User's Guide* for complete description of the capabilities.
   - **Common ringer (RINGER)**[1] — Connected via a tip and ring pair; will apply ring voltage whenever a line rings in night mode or when a call is directed to it (transfer, call forwarding, CO ring, etc.). **No other programming follows when you select this type.**
   - **Fax (FAX)** — If the Auto Attendant detects a fax tone, it will automatically forward the tone to the analog port programmed as FAX.
   - **Fax server (SERVER)** — Original incoming DNIS/DID digits transmitted to a device using DTMF tones.

     Note: When a fax server extension goes off-hook, the analog port will be presented with internal dial tone. The fax server must provide the trunk group access code and make an outbound call.

   - **Modem (MODEM)** — Incoming calls for a modem can be manually transferred to the modem extension; also, the modem can automatically generate outbound calls. Maximum connect speed through the PBX is 9600 bps.
   - **Door phone (DOOR)** — A telephone connected to this port will automatically dial the programmed ring-down extension number whenever the set is taken off-hook.
3. **Extension name** — This is used for the display, reports, and as a programming aid. The maximum length is 10 characters (See "Entering alphanumeric characters," page D.2).
   Default: The type selected.

   Note: The name for the ringer and door can be changed in Function 32.

4. **Caller ID** — Used for outgoing calls to identify the extension and for callback to the specific extension or another nearby extension. Each entry must be valid and 10 digits in length.

(Continued)

[1] No dial tone is presented for *common ringer*.

5. **Tenant** — Assign the extension to a tenant. This is used to direct-dial operator (**0**) calls to the tenant's operator destination; it's also used to play the tenant's MOH source when calls are placed on hold.

   > **Note:** To view and assign an tenant, tenant service must be enabled in Function 169.

   Default: 1.

6. **CO line/ring down** — For fax, modem, or phone, select the desired line group — 9, 8, or 71–76.
   Default: 9.

   If *door phone* is selected, an extension number is entered as a ring-down destination.
   Default: First extension number in the selected dial plan.

7. **and 8. Call forward busy/no answer for day and night modes** — The ports can be set to call forward busy/no answer to an extension, department, mailbox or a branch ID for day mode and differently for night mode.
   Default: ID9999 (automatic disconnect).

The default settings for each analog port type are shown below:

1. Ext.	2. Type	3. Name	4. Caller ID	5. Tenant	6. CO	7. CF day	8. CF night
111	EXT	Phone		1	9	MB106	MB106
	RINGER	Ringer*					
	FAX	Fax		1	9	ID9999	ID9999
	SERVER	Server		1	9	ID9999	ID9999
	DOOR	Door*		1	X100	ID9999	ID9999
	MODEM	Modem		1	9	ID9999	ID9999

***** Name can be changed in Function 32 (see page G.25).

IP phones

> **Important:** ***BEFORE*** assigning IP stations here, **complete** programming Function 821 (and, if necessary, Function 822); see "Function 8: IP PBX," page M.1.

The ESI Communications Server supports the following IP products:

Item	Product status	Local IP	Remote IP
ESI 60IP	Current	Yes	Yes
ESI 40IP	Current	Yes	Yes
48-Key IP Feature Phone II	Current	Yes	Yes
ESI Local IP Cordless Handset II	Current	Yes	No
ESI Remote IP Cordless Handset II	Current	No	Yes
VIP Softphone (standalone or *Outlook*-integrated)	Current	Yes	Yes
SIP phones [non-ESI]	—	Yes	No
ESI Local IP Cordless Handset ("I")	Legacy	Yes	No
ESI Remote IP Cordless Handset ("I")	Legacy	No	Yes

(See "System capacities," page B.1, for the maximum number of IP phones that your specific ESI Communications Server will support.)

The ESI-50 has a built-in IVC12. It can support up to 12 IP channels, which can be a combination of local IP, remote IP, and Esi-Link channels. The channels are activated in blocks of four for local IP, singles for remote IP, and four or twelve for Esi-Link. Here is an example of some possible ESI-50 IVC12 channel combinations:

- 12 all Esi-Link.
- 12 all local IP.
- Eight Esi-Link, four local IP.
- Four Esi-Link, four local IP, four remote IP.

When two or more Intelligent VoIP Cards (IVCs)[1] and the necessary licensing are installed in an ESI Communications Server, the first IVC (lowest-numbered slot) will be designated as the **primary** IVC, which acts as a "go-between" to associate a station to its IVC. To each IVC, the system automatically allocates 24 sequential extension numbers, as defined in the dial plan selected in Function 169.[2] Therefore, the **primary** IVC **must** be connected to the **same network** as all of the **other** IVC station cards.

If an IVC supports 12 IP stations, only the first 12 extension numbers can be assigned to IP stations.

Programming IP stations is similar to programming digital stations, except that additional, IP networking parameters are required for the former.

There are three ways IP networking parameters can be assigned to IP stations in an ESI Communications Server:

- Via Function 31, as described in the following pages.
- Using *ESI System Programmer*.
- Via "setup mode" **at an ESI desktop IP phone**.

> **Important:** If you choose "setup mode," **you must have at least one ESI desktop IP phone in the system** to perform this assignment of network parameters to IP stations.

[1] In the ESI-50, an IVC is built into the main board.
[2] Esi-Link IVCs are excluded from this operation.

Assigning an ESI IP phone using setup mode

ESI IP phones can easily have their IP networking parameters assigned at the same time they're being installed at the customer site. However, for this to occur, the following must be completed:

- Function 821 (system IP parameters; see page M.2) must already be assigned in the system.
- All of the IVCs must be connected to the site's LAN.[1]

After completing these, you can plug the ESI IP phone into the LAN, power it up[2], and assign its extension right from the phone by following these steps:

1. When the phone comes on-line, it'll try to contact the system. If it can, it will display *ENTER PASSWORD*, whereupon you can proceed to step 2.
   If this message **doesn't** appear within two minutes, refer to "Troubleshooting IP Phone setup mode programming" (page G.23).
2. Enter the Installer password and press **#**. The phone will display *ENTER EXTENSION*.
3. Enter the phone's extension number — which must be a valid extension number associated to an IVC installed in the system.
   The phone will display the date and time. This indicates that it is now assigned.

> **Notes:** Later, you'll have to use Function 31 to assign the extension's name and other parameters.
>
> If the date and time don't appear, refer to "Troubleshooting IP Phone setup mode programming" (page G.23).

[1] Each IVC must be plugged into **its own port** on a 100Base-TX Ethernet switch. **Don't** use a hub.
[2] The base unit for an IP Cordless Handset must be plugged into a Power over Ethernet (PoE) switch or mid-span repeater.

Assigning an IP phone using Function 31

Programming an ESI IP phone for local operation

> **Note:** For SIP phone programming, see page G.21.

For a list of ESI IP products that can be used locally, see the chart on page G.15.

> **Notes:** If the phone displays *LICENSE EXCEEDED*, there are no available licenses for this extension. Contact your ESI sales representative at 800 374-0422 to obtain more licenses **or** use Function 31 to "free up" licenses by deleting the MAC addresses of any unused IP extensions.
>
> Before enabling *VIP Softphone* (standalone or *Outlook*-integrated) in Function 322 (page G.28), you must first complete Function 31 programming for the local PC phone.

Here is a completed sample programming worksheet for locally connected ESI IP phones:

1. Ext	2. Type	3. MAC	4. Name	5. CID	6. Tenant	7. CO	8. CF day	9. CF night	10. Pg zone	11. Ext
112	Local IP	00304D13579A	Jane	9725550010	1	9	MB112	MB112	0,1,2	
113	Local IP	00304D135664	Roger	9725550010	1	9	MB113	MB113	0, 2	
114	Local IP	00304D1357FF	Sally	9725550011	1	9,8	MB114	MB114	0, 2	
115	Local IP	00304D144F5B	Dean	9725550012	1	9,8	MB115	MB115	0, 2	
116	Local IP	00304D144F5C	Sam	9725550019	1	9,8	MB116	MB116	0,1,2	
117	Local PC	00304D144FSE	George	9725550020	1	9,8	MB117	MB117	0,2	

Before you program extension definition for an IP phone, install the phone on the ESI Communications Server's network and power-up the phone.

1. **Extension number** — Extension numbers for IP phones, whether remote or local, will in be in a contiguous range of 24 extension numbers with a starting point dependent on the position of the IVC24 within the system.

   ```
   STATION PROG
   EXT:_
   ```

2. **Type** — If the extension entered is for an IP extension, use the scroll keys to choose whether it is to be a local IP phone *(LOCAL IP)* or local *VIP Softphone (LOCAL PC)*.

   ```
   X123 TYPE
   LOCAL IP
   ```

   > **Note:** To remove a phone and its MAC address, when prompted for type press **HOLD**.

3. **MAC address** — Enter the MAC[1] address for the IP phone to be used at this extension. If the IP station was programmed in setup mode, is powered on, and is connected to the system's network, the MAC address of that station will be displayed. On the MAC address is a 12-character alphanumeric address, of which the first six digits will always match (*00 30 4D*). Enter the complete 12-character alphanumeric address. If programming using an ESI desktop IP phone, use the first six programmable feature keys to enter the letters *A, B, C, D, E* or *F*, respectively.

   > **Notes:** On an ESI IP Cordless Handset, the MAC address appears on the base station.
   >
   > For *VIP Softphone*, use the computer's MAC address, located on the network interface card (NIC).

[1] Media Access Control.

4. **Extension name** — This is used for the display, reports, and as a programming aid. The name's length can be no longer than 10 characters (see "Entering alphanumeric characters," page D.2). Default: The extension number.
5. **Caller ID** — Used for outgoing calls to identify the extension and for callback to the specific extension or another nearby extension. Each entry must be valid and 10 digits in length.
6. **Tenant** — Assign the extension to a tenant. This is used to direct-dial operator (**0**) calls to the tenant's operator destination; it's also used to play the tenant's MOH source when calls are placed on hold.
   Default: 1.

   > **Note:** To view and assign a tenant, tenant service must be enabled in Function 169.

7. **CO line group** — Assigns the extension's ability to access one or more CO line groups (9, 8, and 71–76).
   Default: 9.
8. **and 9. Call forward busy/no answer** — The extension can be set to call forward busy/no answer to another extension (or department), a mailbox, or a branch ID for day mode, and differently for night mode.
   Default: The extension's mailbox.
10. **Extension page zone assignment** — List the page zones (0–6; 8–9) that are to include this extension. All stations are in All Page and cannot be edited.
    Default: 0 (All page).
11. **Operator translation** — Extension **0** (Operator) programming requires:
    - Programming call forwarding for day and night mode (steps 5 and 6).
    - Entering the extension number to which calls are to be directed when someone dials **0**.

    Default: First extension number in the selected dial plan.

The local IP phone will become active when the extension definition programming is completed for the assigned extension.

Programming an ESI IP phone for remote operation

For a list of ESI IP products that can be used remotely, see the chart on page G.15. **(An ESI Communications Server doesn't support remote operation of SIP phones.)**

When an IP phone is programmed for remote operation, this will automatically enable the phone for DHCP[1] configuration. If the phone will be connected to a network that has a DHCP server, it will automatically obtain the following parameters from that server:

- IP address
- IP subnet mask
- Gateway address

These parameters correspond to items 4, 5, and 6 in the following steps. If a DHCP server isn't available at the phone's location, the parameters entered here will be used.

> **Note:** If the phone displays *LICENSE EXCEEDED*, there are no available licenses for this extension. Contact your ESI sales representative at 800 374-0422 to obtain more licenses **or** use Function 31 to "free up" licenses by deleting the MAC addresses of any unused IP extensions.

> **Important:** If remote (off-site) operation of an IP phone is required, the phone should be connected to the system's network at the time of extension definition programming; if the phone wasn't connected, the remote IP addressing parameters **won't** have been programmed into the phone. To correct this situation, do **either** of the following:
> — Connect the phone to the network and repeat Function 31 extension programming for this extension, pressing # at the appropriate times to confirm previously entered values. (Performing this step again causes the system to send the remote IP addressing information to the phone.)
> — Use *Esi-Address*[2] to enter the critical addressing parameters (**not** for use with *VIP Softphone*).
>
> The remote (off-site) network can't have another ESI Communications Server connected to it.

Below is an example of the portion of a completed programming worksheet for remote IP phones.

1. Ext	2. Type	3. MAC	4. IP address	5. Subnet mask	6. Gateway IP	7. UDP port	8. Rem.-acc. IP addr.	9. Name	10. CID	11. Tenant	12. CO	13. CF day	14. CF night	15. Pg. zone
118	Rem. IP	00304D135661	192.168.1.3	255.255.255.252	192.168.1.1	59118	221.46.197.104	Roger	9725550504	1	9	MB 118	MB 118	
119	Rem. PC	00304D135F2F	192.168.210.5	255.255.255.252	192.168.210.1	59119	221.46.197.104	Sally	9725550985	1	9,8	MB 119	MB 119	

1. **Extension number** — Enter an extension number.
2. **Type** — Use the scroll keys to select *REMOTE IP* or *REMOTE PC*; then press #.

   > **Note:** To remove a phone and its MAC address, when prompted for type press **HOLD**.

3. **MAC address** — Enter the MAC[3] address of the remote IP phone. The MAC address of the phone appears on the second line of the display when the phone is powered up. The MAC address is a 12-character alphanumeric address, of which the first six digits will always match *(00 30 4D)*. Enter the complete 12-character alphanumeric address. If programming using an ESI desktop IP phone, use the first six programmable feature keys to enter the letters *A, B, C, D, E* or *F*, respectively.

   > **Notes:** On an ESI IP Cordless Handset, the MAC address appears on the base station.
   >
   > For *VIP Softphone* (standalone or *Outlook*-integrated), use the computer's MAC address, located on the network interface card (NIC).

(Continued)

[1] Dynamic Host Configuration Protocol.
[2] Which is available via *ESI System Programmer*.
[3] Media Access Control.

4. **IP address** — Enter the IP address that the phone will be using at its remote site.

   > Note: This information will have to be obtained in advance of programming the phone.

   Enter this address in dotted-quad notation (for example, 192.168.1.3) using the # key as the period between octets. The remote IP phone must be on the same subnet as the LAN interface of the gateway device (cable modem, router, etc). For instance, if the LAN interface's IP address is 192.168.210.1, and its subnet mask is 255.255.255.0, the first three octets of the phone's address must be 192.168.210, and its last octet between 2 and 254.

5. **Subnet mask** — Enter the valid subnet mask of the gateway device to which the remote IP phone will be connected.
   Range: *128.0.0.0* through *255.255.255.252*. **Default:** *255.255.0.0*.

6. **Gateway address** — Enter the IP address of the remote IP phone's default gateway — that is, the LAN interface of the gateway device at the remote site. The phone must be on the same subnet as the LAN interface of the remote gateway.

7. **UDP port** — Enter the remote IP phone's UDP port. The UDP port for the remote IP phone doesn't have to be the same as for the IP PBX (as programmed in Function 81). The UDP port for the phone must be one that the remote WAN gateway can program as "open" and must not be already assigned to another device at the remote site. The remote gateway will then have to be programmed to recognize that traffic destined for that UDP port should be allowed to pass through its security system.

   If the remote gateway can't open the UDP port, or if that port is already open but designated for another device, the Installer can choose any other UDP number, 10000–65000, inclusive.

8. **Remote-access IP address** — Enter the IP address that will be used for remote access to the ESI Communications Server. The display will default to the IP address entered in Function 82 (see page M.2). If a remote IP phone will use this address to connect to the system, press # to confirm; if a remote IP phone will use an alternate IP address to connect to the system, enter that address and press # to confirm. *"SAVE PARAMETERS?"* will appear on the display. If you have correctly entered the IP addressing parameters (items 1–7), press # to program the parameters for any remote IP phone; to abort programming, press ∗ to restore the system parameters to their previously set values.

9. **Extension name** — Used for the display, reports, and as a programming aid. The name's length can be no longer than 10 characters (See "Entering alphanumeric characters," page D.2).
   Default: The extension number.

10. **Caller ID** — Used for outgoing calls to identify the extension and for callback to the specific extension or another nearby extension. Each entry must be valid and 10 digits in length.
    Default: Blank.

11. **Tenant** — Assign the extension to a tenant. This is used to direct-dial operator (**0**) calls to the tenant's operator destination; it's also used to play the tenant's MOH source when calls are placed on hold.

    > **Note:** To view and assign tenant, tenant service must be enabled in Function 169.

    Default: 1.

12. **CO line group** — Assigns the extension's ability to access one **or more** CO line groups (9, 8, and 71–76).
    Default: 9.

(Continued)

13. and 14. Call forward busy/no answer — The extension can be set to call forward busy/no answer to another extension (or department), a mailbox or a branch ID for day mode and differently for night mode.
Default: The extension's mailbox.

15. Extension page zone assignment.

> **Note:** You also can use *Esi-Address*[1] to program address parameters into a remotely installed ESI desktop IP phone or an ESI Remote IP Cordless Handset (but not *VIP Softphone*).

Programming a SIP phone (local operation only)

The implementation of **SIP**[2] in an ESI Communications Server emulates a **SIP gateway** — *i.e.*, the system is considered the "gateway" to other services (stations, CO lines, and voice mail) for the **SIP endpoint** (SIP phone). It also means calls to and from a SIP phone always are connected through an IVC[3] in the ESI Communications Server.

> **Important:** An ESI Communications Server **will NOT** auto-configure SIP endpoints.
>
> An ESI Communications Server supports only **local** (and **not** remote, off-site) SIP endpoint connections.

Below is an example of the portion of a completed programming worksheet for a SIP phone.

1. Ext.	2. Type	3. MAC	4. IP address	5. Subnet mask	6. SIP UDP port	7. Name	8. Caller ID	9. Tenant	10. CO	11. CF day	12. CF night
118	SIP stn.	00304D135661	192.168.1.3	255.255.255.252	5060	Austin	9725550504	1	9	MB 118	MB 118

1. **Extension number** — Enter an extension number.
2. **Type** — Use the scroll keys to select *SIP STATION* and press #.

   > **Note:** To remove a phone and its MAC address, when prompted for type press **HOLD**.

3. **MAC address** — Enter the MAC[4] address of the SIP phone. The MAC address is a 12-character alphanumeric address. Enter the complete 12-character alphanumeric address. If programming using an ESI desktop IP phone, use the first six programmable feature keys to enter the letters *A, B, C, D, E* or *F*, respectively.

   > **Notes:** Consult the SIP phone's documentation for how to determine and set its MAC address.

4. **IP address** — Enter the IP address that the SIP phone will be using.

   > Note: This information will have to be obtained in advance of programming the phone.

   Enter this address in dotted-quad notation (for example, 192.168.1.3) — if programming using an ESI desktop IP phone, use the # key as the period between octets. The SIP phone must be on the same subnet as the LAN interface of the gateway device (cable modem, router, etc). For instance, if the LAN interface's IP address is 192.168.210.1, and its subnet mask is 255.255.255.0, the first three octets of the phone's address must be 192.168.210, and its last octet between 2 and 254.

(Continued)

[1] Which is available via *ESI System Programmer*.
[2] Session Initiation Protocol.
[3] Only the IVC 24R (CS-IVC 24R) supports SIP phones.
[4] Media Access Control.

5. **Subnet mask** — Enter the valid subnet mask of the gateway device to which the SIP phone will be connected.
   Range: *128.0.0.0* through *255.255.255.252*. **Default:** *255.255.0.0*.

6. **SIP UDP port** — Enter the UDP port number for SIP communications. **ESI strongly recommends using the default.**
   Range: *1001–65535*. **Default:** *5060*.

   > **Note:** The RTP port will be 1,000 less than the SIP UDP port and the RTCP port will be the next port up from the RTP port. For example, if the SIP port is *5060*, the RTP port will be *4060* and the RTCP port will be *4061*.

7. **Extension name** — Used for the display, reports, and as a programming aid. The name's length can be no longer than 10 characters (See "Entering alphanumeric characters," page D.2).
   Default: The extension number.

8. **Caller ID** — Used for outgoing calls to identify the extension and for callback to the specific extension or another nearby extension. Each entry must be valid and 10 digits in length.
   Default: Blank.

9. **Tenant** — Assign the extension to a tenant. This is used to direct-dial operator (**0**) calls to the tenant's operator destination; it's also used to play the tenant's MOH source when calls are placed on hold.

   > **Note:** To view and assign tenant, tenant service must be enabled in Function 169.

   Default: 1.

10. **CO line group** — Assigns the extension's ability to access one **or more** CO line groups (9, 8, and 71–76).
    Default: 9.

11. **and 12. Call forward busy/no answer** — The extension can be set to call forward busy/no answer to another extension (or department), a mailbox or a branch ID for day mode and differently for night mode.
    Default: The extension's mailbox.

Troubleshooting IP phone setup mode programming

> **Note:** The displays shown appear on an ESI desktop IP phone.

What's displayed on the IP phone	What it means • Possible remedies
ALREADY ASSIGNED RE-ENTER TO REPLACE	The extension number you entered is already assigned. Enter a different extension number or press **RELEASE** to exit setup mode.
COM LINK LOST... RECONNECTING	The phone is attempting to reconnect to the system (IVC). If this message doesn't clear within 10–15 seconds, check programming, cable connections, and network equipment.
ESI IP FP2 V1.9 MAC:00304D000000 ↑EP CRC:7458	The phone is powered-up but can't reach the system. Check programming, cable connections, and network equipment; confirm that all IVCs are connected and on-line.
ENTER PASSWORD PASSWORD WAS INVALID	You entered an invalid Installer password. Enter the correct Installer password.
ENTER EXTENSION EXTENSION WAS INVALID	You entered an extension number that either isn't on an IVC or isn't within the extension number range selected in Function 169. Enter a correct extension number.
ENTER EXTENSION NO LICENSE WAS AVAILABLE	There are no available licenses for this extension. You can obtain additional IP station licenses (local or remote) by contacting your ESI sales representative at 800 374-0422 **or** use Function 31 to delete the MAC addresses of any unused IP extensions.

Overhead paging interface

You can connect a dry-contact overhead paging device to the system through the overhead paging port on the main board. This port's access is fixed as 599 for programming purposes. The user can access it by programming *599* as a programmable key and/or including *599* in one or more page zones.

> **Note:** DTMF can be transmitted to the overhead paging port after access, allowing for zone overhead paging, if the paging unit supports zone paging.

1.						2.
Ext.	Type	Name	CO	CF day	Cf night	Pg zn
0		Operator		X100	X100	
100	FP	Jane	9	MB100	X105	1,2
599						0

Each programming step for overhead paging is defined as follows:

1. **Extension number** — Enter **5 9 9** during extension programming.
2. **Extension page zone assignment** — List the page zones *(1–6; 8–9)* that are to include the overhead paging port. (All-page.) Like extensions, the overhead paging port is in the all-page zone and cannot be removed.

> **Example:** Here is a portion of a completed Programming Worksheet for extensions.
> The paging port, feature code 599, has been added to page zone 1. The user then can access only the overhead pager by pressing a key programmed for **5 9 9** or can page through both the overhead pager and all phones listed in page zone 1 by pressing **PAGE** (#) and **1** on his/her phone.

1.				2.
Ext.	Type	Name	CO	Pg zn
100	DIGITAL	JANE	9	1,2
599				1

Dry contact control

The manner in which the dry contact pair is connected sets the pair as either **normally open** (sending a page to the port will close the contacts) or **normally closed** (sending a page to the port will open the contacts). For more details, see the *ESI Communications Servers Hardware Installation Manual* (ESI #0450-1049).

> Note: The port doesn't support talk-back paging (which requires a CO port), nor does it support CO ring through the port.

Function 32: Extension feature authorization

Function 321: Standard feature authorization

The Installer or Administrator can allow or deny many extension features on an extension-by-extension basis. A User, however, can only program and use allowed features (by using a combination of voice and display prompts) from his/her phone. Below is an example of a completed Function 321 programming worksheet.

1. Ext.	2. Name	3. Call wait	4. DND	5. AA block	6. Rec.	7. Svc. obs.	8. Local allow	9. Toll allow	10. Sys. spd. dial	11. Auto-Page	12. Ext. fwdg.	13. Fwdg. to toll nos.	14. Trk-to-trk xfer	15. Assoc. ext.	16. Mob. Msg.
XXX	Default	Y	Y	N	Y	N	Y	Y	Y	Y	Y	N	Y		N
100	Jane	Y	Y	N	Y	N	Y	Y	Y	Y	N	N	N		Y
101	Roger	Y	Y	N	Y	N	Y	Y	Y	N	N	N	N	X206†	N
102	Sally	Y	Y	N	N	N	Y	Y	Y	Y	N	N	N		Y
103	Sam	Y	Y	N	N	N	Y	Y	Y	Y	N	N	N		Y
110*	Bill	Y					Y	Y	Y	N	N	N	N		

Here are the programming steps.

1. **Extension number** — Enter the extension number to program.
2. **Extension name** — Name the extension (if not previously named in Function 31 [see page G.2]).

For each of the following features, press a scroll key (▼ or ▲) to select *YES* or *NO*.

3. **Call waiting** — Allows the user to turn call waiting on or off for his station.[1]
4. **Do not disturb** — Allows the user to activate DND from his station.
5. **Auto attendant block** — Blocks calls from being transferred to the station from the auto attendant; follows the extension's call forward day/night as programmed in Function 31 (see page G.2).
6. **Live recording feature** — If enabled, will allow the user to record conversations.
7. **Service observing** — Allows the user to monitor the conversations of those stations listed in the **service observing list** for his/her station. If this is enabled, you must enter a list of allowed extensions.

> **Note:** A Department number can be entered as an extension in the Service Observing list and will then automatically include all members of the Department even if the members of the Department are later changed.

8. **Local allow** — "YES" allows the user to place seven-digit toll calls. If you select "NO," the user can make only calls to numbers listed in the **local allow table** in Function 226 (see page F.42).
9. **Toll allow** — "YES" allows the user to place toll calls. If you select "NO," the user can make only either non-toll calls[2] or calls to numbers listed in the allow exception table.
10. **System speed-dial** — "YES" allows the user to access and place system speed-dial calls.

(Continued)

† An example of a digital Cordless Handset.
* An example of an analog phone.
1 Analog stations programmed as FAX or MODEM can't have call waiting.
2 See the fixed allow table (Function 222, pages F.33–F.35).

11. **AutoPage** — Lets the user turn AutoPage *(defined below)* on or off at his/her station.

> **Note:** This feature is used in conjunction with the directory names recorded in Function 62. If a name isn't recorded in Function 62, the station default name *("Extension [xxx]")* is paged.

If the station user has his/her mailbox set to answer with personal greeting 3 and a caller presses **3** to page that user, this feature automatically pages the station user in the page zones entered in Function 31. If no page zone is entered, all ESI digital phones and locally installed ESI IP desktop phones on the system are paged.[1]
Default: Enabled.

> **Note:** When AutoPage is enabled, the system will use the last installed idle digital port to perform the page. Therefore, if a phone is on the last installed port (*e.g.,* X111 on a system with only a 612 card), the phone's user may experience a brief delay in telephone operation if he/she picks up the handset (or presses **SPEAKER**) **during** the AutoPage.

12. **External forwarding** — Allows the station user to use the call forwarding/off-premises and off-premises "reach-me" features. See the *User's Guide* for more information about these features.
Default: Enabled.

> **Note:** After the system dials the external forwarding number, it will play a prompt saying, *"You are receiving a forwarded call. Press any key to accept."* This prompt will play continuously for 30 seconds. If the forwarded call is answered and the called person dials a digit, the forwarded call will be connected to that person. If no digit is dialed, the caller is automatically forwarded to voice mail. While the two lines (trunks) are connected, the system constantly monitors the line for open loop conditions (hang-up). If an open loop is detected on either line, the call is disconnected. The system also monitors for voice activity on the connected lines; if voice is no longer detected, the call is disconnected. Finally, if both lines are connected for more than 60 minutes,[2] the call will be disconnected.

13. **Forwarding to toll numbers** — This feature is used in conjunction with external forwarding (see previous item). When enabled, this feature lets the user program a long-distance number for external forwarding.
Default: Disabled.

14. **Trunk-to-trunk transfer** — When enabled, this lets the station user initiate a **trunk-to-trunk transfer.** The user, while connected to a CO line, can press **TRANSFER**, dial an off-site number and then complete the trunk-to-trunk transfer by simply hanging up. Both outside parties are then connected. A station user also can set up a conference call and then drop out of the conference, leaving the other members conferenced. **This feature MUST be enabled in order for external call forwarding, twinning to an external number, and/or off-premises "reach-me" to succeed.**
Default: Enabled.

> **Important:** USE OF FEATURES, SUCH AS TRUNK-TO-TRUNK TRANSFER, THAT REQUIRE TRUNK-TO-TRUNK CONNECTIONS WILL INCREASE THE RISK OF TOLL FRAUD. IN NO EVENT SHALL ESI (ESTECH SYSTEMS, INC.) BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES WHATSOEVER INCLUDING, BUT NOT LIMITED TO, FRAUDULENT TOLL CHARGES, LOSS OF BUSINESS PROFITS, BUSINESS INTERRUPTIONS OR ANY OTHER COSTS OR DAMAGES RELATED THERETO ARISING FROM THE USE OF THESE FEATURES.

(Continued)

[1] ESI Cordless Handsets don't receive pages.
[2] Default timer setting. To adjust this, contact ESI Technical Support.

15. **Associated extension** — Enter the desired ESI Cordless Handset extension or *VIP Softphone* extension. This creates a **relationship** that allows use of the **Quick Switch key**. For information about the Quick Switch key, consult the *User's Guide* (ESI # 0450-1047). This field is not available for an extension using a legacy 12-Key Feature Phone or ESI Cordless Handset.
16. **Mobile Messaging** — If this is enabled, each time a new voice mail message arrives for the user, the system sends the user an e-mail (with or without an attached .WAV file of the voice message). **Default:** No.

Example: Here is a portion of a completed programming worksheet for extension feature authorization. Note that:

- Extension 100 cannot record calls but **can** make toll calls (except those listed in the deny table) and can access the system speed-dial numbers.
- By comparison, extension 102 cannot make general toll calls but also can call any system speed-dial number — **including to make a toll call** — even those listed in the allow table.
- Extension 102 is associated with an ESI Digital Cordless Handset at extension 113; and extension 115 is associated with a *VIP Softphone* installation at extension 119.
- (Extension 112 doesn't have DND, AA block, recording, or service observing capability because it's an analog port.)

1. Ext.	2. Name	3. Call wait	4. DND	5. AA blk.	6. Rec.	7. Svc. obsv.	8. Local allow	9. Toll allow	10. Sys. spd. dial	11. Auto-Page	12. Ext. fwdg.	13. Fwdg. to toll nos.	14. Trk.-to-trk. xfer	15. Assoc. ext.	16. Mob. Msg.
100	Jane	Y	Y	N	N	N	Y	Y	Y	N	N	N	N		N
102	Sally	Y	Y	N	Y	N	Y	N	Y	Y	N	N	N	X113	Y
112*	Bill	Y					Y	Y	Y	N	N	N	N		
113	(Sally's Cordless)	Y	Y	N	Y	N	Y	N	Y	Y	N	N	N	X102	Y
115	Tom	Y	Y	N	Y	N	Y	Y	Y	Y	N	N	N	X119	Y
119	(Tom's *VIP Softphone*)	Y	Y	N	Y	N	Y	N	Y	Y	N	N	N	X115	Y

Paired ESI phone/analog phone operation

For someone wishing to have an ESI desktop phone (digital or IP) in his office and an existing analog cordless phone for roaming the building, program as follows:

1. Create a call-forward key on the ESI desktop phone to forward to the analog cordless phone.
2. Assign the analog cordless phone's call forward busy/no answer to the ESI desktop phone's mailbox.

The user will then have all of his messages in one location (but can retrieve them from either phone).

* An example of an analog phone.

Function 322: Advanced extension feature authorization

This function allows authorization of some other ESI features, particularly those involving licensing.

Below is an example of a completed Function 322 programming worksheet.

1. Ext.	2. Name	3. *VIP*	4. Type	5. Auto-record	6. Record threshold	7. *VIP ACD Supervisor* department(s)	8. *Video Viewer* Advanced	9. *Media Mgr.*	10. *Media Mgr.* Admin.	11. Video files	12. Call record	13. SMDR	14. Fob events
XXX	Default	N					N	N	N	N	N		
100	Jane	Y	Attendant	N			Y	Y	N	Y	Y		
101	Roger	Y	Pro	Y	30		Y	Y	Y	Y	Y	Y	Y
102	Sally	Y	VIP				N	N		N	N		
103	John	Y	Agent	Y	30		Y	Y	N	Y	Y		
104	Dave	Y	Supervisor	Y	30	290, 291	Y	Y	N	Y	Y		
105	Bob	N					N	N		N	N		
106	Kathy	N					Y	Y	N	Y	Y		
110*	Bill	N											

Here are the programming steps.

1. **Ext.** — Enter the extension number to program.
2. **Name** — Enter the name of the extension.

> **Note:** For more information on the *VIP* family of software applications mentioned in steps 3–6, refer to the *VIP Setup and User's Guide* (ESI # 0450-0513) and the *VIP ACD Supervisor Setup and User's Guide* (ESI # 0450-0986).

3. ***VIP*** — Scroll to enable *(YES)* or disable *(NO)* the extension to use *VIP* or a *VIP Professional*-compatible application.[1]

> **Notes:** Before enabling *VIP Softphone* in Function 322, you must first complete Function 31 programming for the PC phone (see Function 31 information, beginning on page G.2).
>
> If you select *NO* in this step, the remaining steps are non-applicable and won't appear.

4. **Type** — Scroll to select which type of *VIP* application the extension can use.
   Choices: *VIP* (regular *VIP*)*, PRO* (*VIP Professional*), *ATTEND (VIP PC Attendant Console)*, *SPVR (VIP ACD Supervisor)*, *AGNT (VIP ACD Agent)*, and *SOFT (VIP Softphone).*

> **Notes:** If you select *VIP Softphone* and the extension hasn't previously been programmed in Function 31 as a Local or Remote PC Phone, an error message will play.
>
> If you select *VIP* in this step, the remaining steps are non-applicable and won't appear.

5. **Auto-record** — Scroll to enable *(YES)* or disable *(NO)* the extension for auto-record. This feature requires appropriate licensing[2] and is available only for users of *VIP Professional*-compatible applications.[1]

> **Note:** If you select *NO* in this step, the next step is non-applicable and won't appear.

6. **Record threshold** — Enter the number of auto-recordings that an authorized extension can make before all recording functionality is disabled. For information on auto-recording, consult the *VIP Setup and User's Guide* (ESI # 0450-0513).
   Range: 5–50 (ESI-1000 or ESI-600), 5–40 (ESI-200), or 5–30 (ESI-100).
   Default: 40 (ESI-1000 or ESI-600), 30 (ESI-200), or 20 (ESI-100).

(Continued)

* An example of an analog phone.
[1] *VIP Professional, VIP PC Attendant Console*, *VIP ACD Supervisor*, *VIP ACD Agent*, or *VIP Softphone*.
[2] For limits on *VIP* licensing, see "System capacities," page B.1.

7. ***VIP ACD Supervisor* departments** (this step appears only if you selected *SPVR* in step 3) — Enter the ACD department numbers for which this extension is a supervisor.
   Maximum: 4.

8. ***ESI Video Viewer* Advanced** — This field applies to viewing of live video. For details, see the *ESI Video Adapter Installation and Programming Manual* (ESI # 0450-1241).

9. ***ESI Media Manager*** — Scroll to enable *(YES)* or disable *(NO)* the extension's ability to use *ESI Media Manager*.

   > **Note:** If you select *NO* in this step, the options in steps 10–14 cannot be programmed (because they won't appear).

10. ***ESI Media Manager* Administrator** — Scroll to enable *(YES)* or disable *(NO)* the extension's ability to serve as the *ESI Media Manager* Administrator.

    > **Note:** Only one extension per system can be set as the *ESI Media Manager* Administrator; this is the user who can view fob or SMDR records. This extension also will be notified in case the Applications Services Card drive is nearly out of recording space.

11. **Video files** — Scroll to enable *(YES)* or disable *(NO)* the extension's ability to view video recordings by using *ESI Media Manager*.

    > **Note:** Extensions where this option is enabled can retrieve and view video recordings from those cameras that the user has been authorized (in Function 376) to view.

12. **Call recording** — Scroll to enable *(YES)* or disable *(NO)* the extension's ability to listen to audio recordings by using *ESI Media Manager*.

    > **Note:** Extensions where this option is enabled can retrieve and listen to recordings made by not only themselves but also those extensions listed in the service observe list in Function 321 (page G.25).

13. **Station message detail recording (SMDR)** — Scroll to enable *(YES)* or disable *(NO)* the *ESI Media Manager* Administrator's ability to view SMDR records for all extensions.

    > **Note:** This option is available only for an extension that has been defined in step 10, *above*, as the *ESI Media Manager* Administrator.

14. **Fob events** — Scroll to enable *(YES)* or disable *(NO)* the *ESI Media Manager* Administrator's ability to view ESI Presence Management fob events for all extensions.

    > **Note:** This option is available only for an extension that has been defined in step 10, *above*, as the *ESI Media Manager* Administrator.

Function 33: Department programming

Departments can be used to direct inbound calls for more extensive call coverage. Each ESI Communications Server has a maximum number of departments, and members per department (for details, see "System capacities," page B.1). You also can assign an extension to more than one department.

Function 331: Department definition and routing

Department hunting methods

You can designate a department to be rung in one of the following methods:

- **In Order** — Calls will ring each phone in the order listed. If all are busy or none answer, the call will call-forward as programmed here.
- **All** — Calls will ring all listed phones at the same time. If no extension answers, the call will call-forward as programmed here. If call waiting for the department is enabled and all extensions are busy when a new call arrives, active extensions will receive a call waiting tone and Caller ID display. If extensions become available prior to the call-forward, these phones also will ring. If no extension answers the new call, the call will call-forward as programmed here. If additional new calls arrive before the first new call is answered, these additional calls will call-forward as programmed here.
- **Attend** — This special ring-all department is used exclusively for *VIP PC Attendant Console*. The users of this software must be assigned to an Attend department in order for *VIP PC Attendant Console*'s functions to be fully operable. If tenants are used, you can assign which tenants' calls go to which *VIP PC Attendant Console* user (that person will "see" **only** those calls). Here's an example:

Ext.	Name	Tenant	Type	CF day	CF night	Ext.
290	Attendant A	1	Attend	X0	MB100	100, 101
291	Attendant B	2	Attend	X0	MB102	102
292	Attendant C	3	Attend	X0	MB103	103
293	Attendant D	4	Attend	X0	MB104	104, 105

Notes: Line keys can't be used to answer calls that are ringing Attend departments set in the live-ring list (in Functions 211, 2121, and 2131).

All *Outlook*-integrated editions of *VIP* products require a PC running *Outlook 2000*, *2002*, *2003*, or *2007.*

- **UCD** — Calls will be rotated evenly throughout the listed extensions. If none answer or all are busy, the call will call-forward as programmed here. Counters are cleared at midnight.
- **Pick-up-only —** Additionally, you can designate a department as a **pick-up group.** Calls cannot be directed to a pick-up-only department. Instead, one must use a programmable feature key on phones that are to use this feature. An extension can be in only one pick-up group.

Example: A call is transferred to extension 102; it has been placed into Department 291, which is set as pick-up-only. If extension 102 rings, the user can pick up the call by pressing ✻ and a programmable feature key programmed for Department 291.

Procedure for all department types except ACD

Here's an example of a completed programming worksheet:

1. Dept. no.	2. Name	3. Type	4. Call waiting	5. Tenant	6. CF day	7. CF night	8. List:
290	Sales	In order		1	MB300	MB300	104, 112, 115
291	Service	UCD		1	X0	MB301	101, 102
292	Support	All	Y	1	X0	MB302	105, 106, 107

Here are the programming steps for all **non**-ACD department types.

1. **Department number** — The range depends on which numbering plan selection is in use (see "Selectable numbering plan," page D.2).
2. **Name** — Used for the display, reports, and as a programming aid. Length can be up to 10 characters (See "Entering alphanumeric characters," page D.2).
   Default: The department number.
3. **Type** — Selected from one of the possible (non-ACD) types — *all, Attend, in order, UCD,* or *pick-up*. Can be changed later without affecting its other programmed values.
   Default: In order.
4. **Call waiting** (applies **only** to "All" department type) — *Y* enables call waiting (call waiting tone and Caller ID display) on busy extensions in the department. *N* disables call waiting for the department.
   Default: *Y* (enabled).

   > **Note:** *Y* (Yes) overrides call waiting extension programming.

5. **Tenant** — Assign the department to a tenant. This is used to direct-dial operator (**0**) calls to the tenant's operator destination; it's also used to play the tenant's MOH source when the CO call is placed on hold.

   > **Note:** To view and assign tenant, tenant service must be enabled in Function 169.

   Default: 1.

6. **and 7. Call forward busy/no answer** — The department can be set to call forward busy/no answer to an extension, another department, a mailbox or a branch ID for day mode and differently for night mode. The department can have its own mailbox for pickup by members knowing the password or forwarded to any mailbox type including guest, cascade, etc.
   Calls routed to an extension via a department will follow the **department's** call forwarding. While calls transferred to the extension will follow the **extension's** call forwarding as programmed in Function 31 (see page G.2). Please note that **the order that the extension numbers are entered will dictate the order called when the department selected is "in order."**

   > **Important:** **Don't** call-forward a department to itself. This can cause line lock-up problems.

   Default: First extension in the system.

(Continued)

8. **Department list** — Enter the extension numbers that are assigned to this department. To delete an extension number from a list, press **HOLD**. As mentioned above, **the order that the extension numbers are entered will dictate the order called when the department selected is "in order."**

Example: Here is a portion of a completed Programming Worksheet for Department programming. Department 290 was created to have calls directed to it to first ring 104, then, if busy/no answer, 111, and then 112.
If all are busy or do not answer, the call will forward to the operator if in day mode — or, if in night mode, to guest mailbox 300 for retrieval in the morning. Department 291 rotates calls between the two extensions listed; if both are busy/no answer, calls go to the service manager (X105) — or, if in night mode, to Guest Mailbox 301, which has been set to page the tech on-call.

1. Ext.	2. Name	3. Type	4. Call wtg.	5. Tenant	6. CF day	7. CF night	8. List:
290	SALES	IN ORDER		1	X0	MB300	104, 111, 112
291	SERVICE	UCD		1	X105	MB301	101, 102

ACD

ACD department programming

ACD departments can be programmed to route calls based on several optional parameters. Each ACD station can be logged onto as many as two ACD departments at the same time. Also, each ACD station can be a member of up to 20 ACD departments (i.e., up to 20 log-on keys may be assigned to each ACD station.)

Each ACD agent must have a ESI digital phone[1], ESI desktop IP phone, ESI Digital Cordless Handset (II or "I"), or *VIP Softphone*. Agent log-on keys will be automatically assigned to the lower left programmable feature keys for the stations listed in ACD departments (with wrap keys automatically assigned above them; see "Feature keys," page G.44).

> **Note:** Line keys can't be used to answer calls ringing Attend departments set in the live-ring list (in Functions 211, 2121, and 2131).

ACD overflow

Incoming calls that are holding *(queued)* for an available agent can be automatically forwarded to a new destination if ACD overflow is assigned. ACD overflow can be initiated by exceeding a maximum number of queued calls or by an individual exit timer set for each ACD department. If ACD overflow parameters aren't assigned, the default action will be to overflow calls based on the system default ACD exit timer only. ACD overflow parameters are:

- **Queue exit threshold** — If the number of calls in queue matches a predetermined queue exit threshold, all subsequent calls to that ACD department will immediately follow that department's call-forward destination.
- **ACD exit timer** — When a call has been held in queue for a predetermined duration specified for that ACD department, the call will follow the department call-forward destination. If the department's ACD exit timer isn't assigned, the system-wide default (for the current operation) will be used.

ACD agent priority

ACD agents who are simultaneously logged into two departments can have calls to one department take precedence over the other department's calls. When the ACD station is assigned to each ACD department, the "baseline" priority is set for calls that are directed to that station from that department.

ACD call escalation (priority override)

An incoming call that has been in an ACD department queue the longest can be forced to ring at the next available agent, regardless of the priority setting of that agent's station department log-in.
A timer that's set in ACD department programming (see page G.34) triggers this **ACD escalation**.

> **Note:** Usually a caller will be forwarded to a department by the auto attendant. However, a user, too, can transfer a caller to the department number. The transferred call will be processed according to the above description, as if transferred by the auto attendant. If no agents are logged-on to an ACD department, incoming calls will immediately follow the department's call-forwarding setting.

[1] Except the legacy 12-Key Digital Feature Phone.

Procedure (ACD)

Here's an example of a completed programming worksheet for an ACD department:

1. Dept. no.	2. Name	3. Type	4. Tenant	5. CF day	6. CF night	7. ACD call esc. timer	8. Queue exit threshold	9. ACD exit timer	10. ACD queue annct.	11. ACD queue 2nd annct.	12. List	13. Agent priority
290	Sales	ACD	1	MB300	MB300	0	0	0	538	539	104, 112, 115	1
291	Service	ACD	1	X0	MB301	0	0	0	548	549	101, 102	1
292	Support	ACD	1	X0	MB302	0	0	0	558	559	105, 106, 107	2

Here are the programming steps for ACD departments.

1. **Department number** — The range depends on which numbering plan selection is in use (see "Selectable numbering plan," page D.2).
2. **Name** — Used for the display, reports, and as a programming aid. Length can be up to 10 characters (See "Entering alphanumeric characters," page D.2).
   Default: The department number.
3. **Type** — Select *ACD*, for an ACD department.
   Default: In order.
4. **Tenant** — Assign the department to a tenant. This is used to direct-dial operator (**0**) calls to the tenant's operator destination; it's also used to play the tenant's MOH source when the CO call is placed on hold.

   > **Note:** To view and assign a tenant, tenant service must be enabled in Function 169.

   Default: 1.

5. **and 6. Call forward busy/no answer** — The department can be set to call forward busy/no answer to an extension, another department, a mailbox or a branch ID for day mode and differently for night mode. The department can have its own mailbox for pickup by members knowing the password or forwarded to any mailbox type including guest, cascade, etc.
   Calls routed to an extension via a department will follow the **department's** call forwarding. While calls transferred to the extension will follow the **extension's** call forwarding as programmed in Function 31 (see page G.2).

   > **Important: Don't** call-forward a department to itself. This can cause line lock-up problems.

   Default: X100.

7. **ACD call escalation timer** — If an ACD call is in queue longer than the setting of the **ACD call escalation timer** and has been in queue the longest, it will be sent to the next available agent, regardless of the ACD agent priority setting of that agent's station. Setting this value to zero disables the timer.
   Range: 5–900 (seconds). **Default:** 0 (disabled).
8. **Queue exit threshold** — If the number of calls in queue to an ACD department matches the ACD queue exit threshold, a new call to that department will immediately follow the department's call-forwarding destination. Setting this value to zero disables this setting.
   Range: 5–20 (calls in queue). **Default:** 0 (no threshold).

(Continued)

9. **ACD exit timer** — This is a department-specific timer for routing ACD calls that have been in queue too long. When a call has been held in queue for the duration specified by the ACD exit timer, the call will follow the department's call-forwarding destination. Setting this value to zero causes the department to use the default ACD exit timer setting (Function 154[1]).
   Range: 5–900 (seconds). **Default:** 0 (use system setting in Function 154).
10. **ACD announcement** — This is the number of the recorded announcement played to a caller when all extensions in an ACD department are busy. Use the scroll keys or enter the announcement number.[2]
11. **ACD second announcement** — This is played periodically to callers on hold in an ACD department when all extensions are busy. Use the scroll keys or enter the announcement number.[2]
12. **Department list** — Enter the extension numbers that are assigned to this department. To delete an extension number from a list, press **HOLD**. Each station entered will automatically be assigned an agent log-on key, starting with the lower-left programmable feature key.
13. **Agent priority** — ACD extensions entered in the previous steps are selected using the scroll keys. The **agent priority** for each extension is entered using the keypad. Pressing # accepts the priority. (Pressing # without changing the priority will exit the function.)
    ACD agent priority can also be assigned at the ACD extension when programming an ACD log-on key (see **Notes**, *below*).
    Stations that are logged into more than one ACD department can have incoming ACD calls prioritized by department. ACD priority designates which department's queued calls will be answered first when an ACD station is logged onto two departments. When both departments have calls in queue, the calls queued to the department with the highest priority will be answered first, regardless of how long they've been in queue. If the departments' ACD priority settings are equal, then the call held in queue the longest will be answered first. Use the scroll keys to select the station and use the keypad to enter the priority. To confirm, press #.
    Range: 1–4 (with *1* being highest priority). **Default:** 1.

> **Example:** Extension 102 is a member of ACD departments 291 and 292. The log-on key for department 291 is priority 1; the log-on key for department 292 is priority 2. Extension 102 logs onto both departments, and takes a call. A new call rings into department 292 and is queued. Several seconds later, a new call rings into department 291 and is queued. Extension 102 releases the current call. The new call queued to department 291 rings on extension 102, even though the call queued to department 292 was in queue longer.

> **Notes:** If a user has deleted an ACD log-on key, the station will be automatically logged out of the ACD department; however, it will remain assigned to the department.
>
> If an ACD log-on key is being assigned at the station, the user may enter a new priority for the department to which the log-on key is associated. Pressing # without entering a new priority will set the priority to what is assigned here.
>
> A station can't have a log-on key programmed for a department of which it is not a member.

Limitations

- ACD extensions can't set call forwarding (**5 6 5** or **5 6 7**) if logged-onto an ACD department.
- The longest time available remains the criterion for delivery of the next ACD call to an agent station.

> **Example:** Agent station 123 is logged into departments 290 and 291, and a call is presented to department 290. Station 123 answers the call, assists the caller, and hangs up. A call is presented to department 291; the call will be sent to an agent station that was idle longer than station 123 was.

- An ACD agent cannot log into an ACD group while on a call that appears on a loop key.

---

[1] Function 154: ACD exit timer — The amount of time (in seconds) that a call will remain in ACD department queues before following the department re-route.

[2] For information about recording announcements, see "Function 61: Re-record system and branch prompts," page J.1.

Function 332: VIP ACD *parameters*

This function establishes settings to be used for *VIP ACD*. It covers programming for the **database owner**, the **real-time display clearing**, and the **service level**.

> **Note:** See also the *VIP ACD Supervisor Setup and User's Guide* (ESI # 0450-0986).

Function 3321: Assign database owner

Enter the extension that will be the *VIP ACD* database owner (the *VIP ACD Supervisor* extension that collects and stores ACD events in the ACD event database). Only one extension is needed, regardless of the number of ACD departments in the system.

> **Important:** This extension **must** keep its *VIP ACD Supervisor* application running **at all times**, in order to collect event records that will be stored in the ACD event database.

Function 3322: Manual real-time display clearing

Enter the number of the department whose real-time statistics are to be cleared.

Clearing the real-time statistics resets the counters in the *VIP ACD Supervisor* **Department Details** (real-time statistics) display to zero, so new statistics can be calculated until the display is manually or automatically cleared again.

Function 3323: Automatic real-time display clearing

At a programmed time, this function clears the real-time statistics, which automatically resets the counters in the *VIP ACD Supervisor* **Department Details** (real-time statistics) display to zero. Only one clearing time can be set per department.

1. Enter the department number.
2. Select *ENABLED* or *DISABLED*.
   Default: *DISABLED*.
3. Enter the time (in 24-hour format) when the department's real-time statistics are to be cleared.
   Range: 00:00–23:59. **Default:** 00:00.

Function 3324: Service level

This function sets the **threshold time**, in minutes and seconds, by which **service level** is determined for the *VIP ACD Supervisor* **Department Details** display. The service level is calculated by dividing the number of calls answered within the threshold by the last 30 calls presented to the queue. (The number of calls used to make this calculation — 30 — is rolling and can't be adjusted.)

> **Example:** The threshold time is set to 02:00 (two minutes, zero seconds; that's the default). Thus, each call must be answered within two minutes from the time it goes to the department. If 30 calls are presented and the department agents answer 20 of them within each call's two-minute threshold time, the service level is 67% (20 ÷ 30 = 0.6667). This percentage will appear in the supervisor's **Department Details** display.

Range: 00:00–60:00 (zero to 60 minutes). **Default:** 02:00.

Function 34: Dial plan assignment

Function 341: Flexible number assignment

> **Important:** ESI recommends programming Function 341 **before** Function 342.

This function lets the Installer reassign numbers outside of the numbering template. Extensions, mailboxes, system speed-dial numbers, and departments can have their numbers exchanged with each other, in any combination (*e.g.*, you can exchange extension 1000 with guest mailbox 3000, or swap the number of department 1450 with that of guest mailbox 3000). You also can reassign numbers for extensions that aren't installed.

> **Important:** Mailbox greetings, feature keys, and Personal Dex entries won't be changed (*i.e.*, the **programming** won't move with a number's extension/mailbox).
>
> To complete this operation, the system must be idle.

1. Enter Installer programming, and then enter Function 34.
2. Enter the number you wish to reassign, and press #.

```
FLEX NUMB ASSIGN
1ST EXT: 1044
```

3. Enter the **second** number. (the first number now appears in the top line), and press #.

```
X1044 J SMITH
NUM: 3001
```

4. Both extensions now appear in the display. Confirm the reassignment by pressing #.

```
X1044 J SMITH
X3001 M JONES
```

Dial plan range reassignment

> **Note:** This part of Function 34 is available **only** through *ESI System Programmer*.

After a dial plan has been selected in Function 169 (page E.10), the Installer can reassign one or more ranges of numbers of extensions and guest mailboxes by using Function 34 in *ESI System Programmer*. This function can be used either at system installation or thereafter. Before applying any changes, you must make sure the system is **completely idle**. This function can be used to change the numbers of **all** extensions or guest mailboxes, or a subset of them. However, both ranges — the numbers to be changed and the new numbers — must be contiguous.

> **Example:** The Installer selects three-digit dial plan 200, which includes extensions in the default range *200–367*. The customer wants extensions 240–310 to have new numbers: 160–199 and 400–430. Since the requested new numbers are two different ranges, the Installer must use this function twice . . .
> **1.** Numbers to change: 240–279. • New numbers: 160–199.
> **2.** Numbers to change: 280–310. • New numbers: 400–430.

(Continued)

Only the extension/mailbox number will be changed with this function. The following parameters also will be changed if the extensions or mailboxes being changed are assigned in these functions:

- Ring assignments and private line (Function 21)
- Extension call-forward busy/no answer (Function 31)
- Extension features (Function 32)
- Department features (Function 33)
- Programmable feature keys on other station (Function 35 and user programming function 2)
- Auto attendant GoTo extension/mailbox branches (Function 41)
- Guest mailbox features (Function 53)
- Group mailbox members (Function 54)
- Recorded directory names (Function 62)
- Esi-Link published list (Function 834)

Warning: This function can take up to 30 minutes to complete, depending on the number of stations reassigned.

Function 342: Network numbering

Important: ESI recommends programming Function 341 (see page G.37) **before** Function 342.

Overview

Esi-Link **network numbering** provides "transparent" or uniform dialing across Esi-Link, where, regardless of which location a user is dialing from, he or she can dial just the extension number (three- or four-digit), and the call will be routed appropriately through the Esi-Link network. In essence, it's not necessary to dial the location number (*i.e.*, 7xx) for the remote cabinet.[1]

The network numbering feature provides:

- The ability to dial either a unique three-digit number (when all sites are using three-digit numbering) or four-digit number (when all sites are using four-digit numbering) to reach an extension, mailbox, or department at a remote location — as opposed to dialing the remote cabinet prefix (*7xx*) plus the number for the extension or department.
- The flexibility of assigning any range of three- or four-digit dialed numbers to resources at other Esi-Link locations. These ranges are currently confined to *100–499* (three-digit plan) and *1000–6999* (four-digit plan). This means a station user on a compatible Esi-Link network using a four-digit network dialing plan can reach over **2,900** remote location extensions, mailboxes, and departments over the Esi-Link network, by dialing only four digits each time.

  Note: If needed, a user may still dial the cabinet location prefix combined with the extension or mailbox number to reach remote locations on networks that exceed the maximum number of 2,900.

- The flexibility of having four-digit dialed numbers that are **local-only** resources — meaning that they can be reached by only stations, CO lines, branch IDs, *etc.*, **at that location**. Example of such resources include door phones, lobby phones, special purpose mailboxes, and ring assignments.

Important: An extension, mailbox, or department number must be **unique** in the Esi-Link network before it can be assigned a network (*i.e.*, abbreviated) number.

For instance, location 701 may have a door phone with extension 3456 and location 702 will also have a door phone extension 3456. Neither one of these extensions can be dialed from a remote site by dialing only 4 digits. However, they **can** still be reached by dialing via the traditional Esi-Link method (dialing the location number prefix first).

[1] ESI Communication Servers running compatible software only. Station users on legacy systems, including ESI Communications Servers running system software not compatible with network numbering, still must dial the cabinet location number to call a remote location.

Programming Esi-Link network dialing

Description

Network numbering assignments are made using programming Function 342. Although Function 342 can be accessed via Installer mode programming on an ESI desktop phone, ESI **strongly** recommends using *ESI System Programmer* for this task when performing range and multiple assignments.

Network numbers need to be assigned only once at one location in an Esi-Link network; the assignments are automatically applied to all ESI Communications Servers[1] in the Esi-Link network.

Each extension, mailbox, or department number that is to be assigned a network number must be unique throughout the Esi-Link network; therefore, it is almost always required that Function 341, flexible number assignment, be used to re-assign numbers at each location. **Be sure you COMPLETE Function 341 BEFORE programming Function 342.**

Rules

1. **The local numbering plan always takes precedence over the network numbering plan.**

   Example: If extension 1200 is assigned at location 701, and the network number 1200 points to department 1200 at location 702, then callers dialing **1 2 0 0** at location 701 will always ring extension 1200; they cannot reach department 1200 at location 702 (unless they dial the full seven-digit Esi-Link number)

2. **A number must be UNASSIGNED in Function 341 at all locations on the Esi-Link network EXCEPT the location with the extension, mailbox, or department that is to be assigned the network number.**

Preparation

To support four-digit network dialing, all locations must be programmed with four-digit numbering plans. ESI does not recommend using three-digit dial plans, because the total number of available numbers for network dialing would be fewer than 100 (*e.g.*, a fully populated ESI-200 with a three-digit dial plan will offer only 44 unassigned numbers that can be allocated for network numbering).

The simplest way to implement network numbering is to first perform the appropriate flexible number reassignments in Function 341 at each location in the network.

To complete this, you must perform the following tasks:

1. Perform flexible numbering assignments.
2. Assign network numbers to the necessary Esi-Link locations.
3. Print out the network number report to use as reference, using Function 76 (see page K.10).
4. Test some assigned network numbers.

(Continued)

[1] For network numbering to function properly, ESI Communications Servers must be running compatible software.

Programming

1. Perform flexible numbering assignments

Here, you'll be using Function 341[1] to reassign the numbers in each system.

1. Use *ESI System Programmer* to connect to the first system in the Esi-Link network.
2. Select **F341**, **Flexible Number Assignment**. Exchange all extension numbers that are to be assigned to the **remote** locations with **unassigned** numbers.

   Here's how:

   Range reassignments

   a. In the **New Type** field, select **Unassigned**.

   b. In the **Old Type** field, select **Extension**, **Department**, or a mailbox type.

   c. Check the **Range** checkbox.

   d. Select the range of old numbers and an equal quantity of new unassigned numbers, and click **Exchange** to confirm.

   Individual number assignments

   a. In the **New Type** field, select **Unassigned**.

   b. In the **Old Type** field, select **Extension**, **Department**, or a mailbox type.

   c. Select the old number and the new number to be assigned, and click **Exchange** to confirm.

   d. Continue steps **b** through **d** until the number reassignments are completed.
3. Use *ESI System Programmer* to connect to the next system and repeat step 2.

(Continued)

[1] Function 34 in earlier system software versions.

2. Program network numbers

1. Launch *ESI System Programmer*, and connect to one of the ESI Communication Servers on the Esi-Link network.
2. Access Function 342.
3. Populate the network number list by either:
   a. Clicking the checkbox for populating the number table with a range of numbers, and then entering the starting and ending numbers.

      or

   b. Leaving the checkbox unchecked, to select the dialing plan(s) to use to populate extensions from selected dialing plans.
4. To complete populating the network number list, click **Add Filter Numbers**.
5. To select a range of numbers, choose the numbers to be assigned to the first location by clicking the first network number and, while holding down the **Shift** key, dragging the mouse.
6. Next, **right**-click a location field (or "cell"). An Esi-Link location list will appear. Select the location to which the selected numbers are to be assigned, and click the check mark icon.
7. Repeat steps 5–6 to assign network numbers to other locations in the Esi-Link network. (For numbers that you won't be using, leave the location number blank.)
8. When finished with this operation, click **Save** and send programming changes to the system.

3. Print a network numbering report

After sending the programming changes, you should generate a report of the network number assignments. It will be used both to verify network number programming and for reference.

Here's how to generate the network numbering report:

1. In *ESI System Programmer*, select **F76** and click **Run**.
2. When the report is displayed, print a copy for each location in the network.
3. Keep the printouts for use as checklists when performing flexible number reassignments in Function 341 at each location.

4. Test some assigned network numbers

When you've finished the previous steps, test by dialing some network numbers assigned to extensions at remote locations. They should ring. If they don't, follow the steps in "Troubleshooting network numbering" (page G.42).

Troubleshooting network numbering

Follow the troubleshooting steps below until the issue is resolved. If there is still a problem, contact ESI Technical Support at **800 491-3609**.

Problem	Troubleshooting steps
When I dial an extension or department number, it doesn't ring the phone at the remote location.	**1.** Try dialing the remote location number and the extension number. If the extension still can't be reached, then follow standard Esi-Link troubleshooting steps. Otherwise, continue to step 2. **2.** In Function 341 at the **home location**, verify that the extension number is **unassigned**. **3.** In Function 342, verify that the number is assigned to the location number of the remote location. **4.** At the remote location, verify that the phone rings when the extension is dialed from a phone connected to the same system.
When I dial a remote mailbox, I don't connect to it, or I connect to a mailbox or extension in the home location.	**1.** Try dialing the remote location number and the mailbox number. If the extension still can't be reached, then follow standard Esi-Link troubleshooting steps. Otherwise, continue to step 2. **2.** In Function 341 at the **home location**, verify that the mailbox number is **unassigned**. **3.** In Function 342, verify that the number is assigned to the location number of the remote location. **4.** At the remote location, verify that the mailbox greeting is heard when the mailbox is dialed from a phone connected to the same system.
When I dial an extension, mailbox, or department number, it rings a phone (or connects to a voice mailbox) at the home location instead of the one at the remote location.	**1.** Check whether the extension number of the phone (or mailbox number) at the home location is the same as the extension number at the remote location. **2.** You must assign a new number to the extension or mailbox number at the home location using Function 341.

Function 35: Extension button mapping

By default, the programmable feature keys' initial state is "not programmed" (except in the case of the first system extension, on which the upper-left key is a day/night key[1]). Use this function to change the programmable feature keys **system-wide.** Users can later change the programmable feature key positions for **their** stations as part of station programming.

> **Important:** Future, system-wide changes made later here by the Installer will overwrite **any** station user programming.

When prompted, press the desired programmable feature key location, then enter the appropriate digits on the dialpad and confirm by again pressing the same programmable feature key.

To determine how a programmable feature key is currently programmed: press and hold the key; note how it is programmed; and press the key again.

The keys can be programmed as follows:

CO line key

With **three-digit** dial plans: If the dialed digits are *1–99*, the key will serve as a CO line key.
With **four-digit** dial plans: If the dialed digits are *1–240*[2], the key will serve as a CO line key.

> **Note:** Stations can access CO lines assigned to line groups, by dialing **9** (or **8** or **71–76**).

Station key

If the digits entered constitute an extension number (or department, guest mailbox, etc.), the key will become a station key providing the appropriate lamp information (see also "Selectable numbering plan," page D.2).

Department numbers programmed here will appear on all phones; however, agent log-on keys will appear only at the phones of assigned agents in the corresponding ACD department.

Guest/info mailboxes and group mailboxes can be assigned here to appear on all phones.[3] However, messages being left in these will not cause lamp appearances. (For more on the different kinds of mailboxes, see "Voice mail programming," beginning on page I.1.)

Speed-dial key

If one enters **9** (or **8** or **71–76**) plus a phone number, the key will become a speed-dial key for outside calls. Alternatively, the user may enter the system speed-dial bin.

> **Important:** Speed-dial keys cannot be programmed for emergency services, such as **9 1 1**.

Location Key

To facilitate dialing into a remote Esi-Link location, you may assign (700–799) a programmable feature key as a **Location Key.** When you press a Location Key, you'll hear dial tone; you can then dial any extension, department, mailbox, or outside line group access code[4] in the remote location.

A remote location's extensions, mailboxes, and departments may also be programmed by entering the location number (700–799) followed by the number of the extension, mailbox, or department. However, the system must detect the remote location's numbering plan before the keys can be assigned. This detection occurs automatically when the systems are physically connected via Esi-Link.

---

1 Stations programmed as ACD agents will have an log-on key automatically assigned to the bottom-left programmable feature key (see the "Department list" step on page G.35).
2 On the ESI-1000. For other ESI Communications Servers, see "System capacities," page B.1.
3 However, it isn't possible to assign either Q & A mailboxes or cascade notification mailboxes to station keys.
4 Depending on the assignment of Function 164.

ESI phone overlays

Each ESI desktop phone comes with one overlay for the programmable feature keys. To order additional overlays, visit the DESI™ Web site, **www.desi.com**. While there, you may also want to download the free *Windows*-based software, *DESI Lite*, which allows you to print on the overlays. For assistance with DESI products, contact DESI (the DESI Web site contains contact information).

> **Tip:** Remember that *ESI System Programmer* software, available from **www.esi-estech.com/Resellers**, also lets you print on the overlays as well as perform many other programming tasks.

Feature keys

Feature keys, as listed here, cannot be programmed system-wide but must be programmed for each individual station. Refer to "Feature key chart" (page G.46) for specific availability by ESI phone model.

- **Manual day/night mode (Code 560)** — Allows manual setting of the system's mode — day, night, day2, night2, holiday or auto (in auto mode, the system follows the day/night mode tables you have programmed).[1]

  > **Note:** You or the Administrator can also change the mode and/or re-record the holiday greeting remotely to handle unexpected closings, such as for inclement weather.

- **Service observing (Code 561)** — Allows authorized users to monitor others' calls silently (*e.g.*, in order to aid in quality assurance of call activity).

  > **Note:** You or the Administrator must authorize service observing for a station, and you must program the list of allowed extensions in Function 32 (page G.25).

- **ACD agent log-on/off key (Code 5DDD)** — Logs an agent on or off the ACD. The DDD represents the department number (for example, a key programmed with the code **5 2 9 0** would log an agent on/off Department 290). Automatically assigned to the lower-left programmable feature key when the station is listed as an ACD department member (see the "Department list" step on page G.35), it can be moved to any other available programmable key.
- **ACD agent wrap key (Code 562)** — Toggles "wrap mode"; *i.e.*, keeps a logged-in ACD agent from receiving the next assigned call. For use in performing "wrap-up" activities, such as completing paperwork, following the agent's most recent call.
- **ACD administrator key (Code 563)** — Allows a user to view the call activity of an ACD group. Set a programmable feature key with **5 6 3** and the ACD department number (for example, **5 6 3 2 9 0**), and then press the key. It will glow green and the bottom line of an ACD group's display will appear until you press the key again. The number of ACD administrator keys that can be programmed per department varies by ESI Communications Server model:

Model	ACD administrator keys per department
ESI-1000	8
ESI-600	8
ESI-200	4
ESI-100	2
ESI-50	2

- **Headset key (Code 564)** — Provides for easy connecting to/disconnecting from calls when the user is operating in headset mode. The user presses the key to receive dial tone or to answer a ringing call; he/she then presses the key again (or **RELEASE**) to disconnect from the call.
- **Call forward key (Code 565 or 565XXX)** — Toggles call forwarding on and off. If the user always forwards to the same extension, you (or the user) can program a key with both **5 6 5** and the extension number.
- **Redial key[2] (Code 566)** — Redials the most recently dialed number, as would pressing the **REDIAL** fixed-feature key.

---

[1] If tenant service (Function 169) is enabled, using this key will set the mode of **only** the tenant to which the station is assigned.
[2] Programmable on only the legacy 12-Key Feature Phone.

- **Call forward/no-answer key (Code 567)** — Sets or cancels call forwarding/no-answer. This overrides the call forward busy/no-answer assignment in Function 31.
- **Message monitor key (Code 568)** — Toggles message monitor mode. (Functionally is same as pressing **PROG/HELP 3 6** and following the prompts.)
- **Background announce key (Code 569)** — During call waiting, pressing (and holding down) this key lets the user make a brief, private **background announcement** to the station's earpiece (if the user has enabled the background announce feature).
- **Conference (Code 570)**[2] — Serves the same function as the **CONF** fixed-feature key.
- **Personal greeting keys (Codes 571–573)** — These provide for easy activation of one or more of the user's personal greetings. Each key's LED will be green for the associated personal greeting that is active. These keys can be used in place of, or in conjunction with, manual activation of the greetings in programming mode.
- **Caller ID (Code 574)** — Allows the user to view the 25 calls presented most recently to his station. Caller ID records are stored **only** for those phones which have a Caller ID key assigned.
- **Virtual Answer Keys (Codes 575 and 576)**[1] — Pressing a Virtual Answer Key when the extension receives a call-waiting alert causes the system to play a greeting to a caller and then route the caller to a desired destination. (For more details on this feature, see the *User's Guide*.)
- **QuickPage (Code 577)** — Normally used by an operator, this key lets the user quickly put on hold, and page, a station user. While on a CO line call, the user can press a QuickPage key and then enter a station number (or press a programmable feature key programmed for an extension), and the system will automatically page the person[2], then forward the call to the person's voice mailbox if he/she doesn't answer.
- **Mute/DND (Code 578)**[3] — Serves the same function as the **MUTE/DND** fixed-feature key.
- **Voice mail (Code 579)**[3] — Serves the same function on a legacy 12-Key Feature Phone as pressing **VOICE MAIL** on other ESI phone models.
- **Override ring key (Code 580)** — Allows a user to place an outside call (CO, extension, Esi-Link or Remote Phone) while another call is ringing in on the same station.
- **Door control (Code 581)** — For ESI Presence Management only. For more information, see the *ESI Presence Management Installation Manual* (ESI # 0450-0792).
- **Record (Code 582)** — For ESI Cordless Handsets only. Pressing this key performs the same as does the fixed **RECORD** key on ESI desktop phones.
- **Quick Switch (Code 583)** — When programmed, pressing this key lets the user transfer active calls between an ESI desktop phone and either an ESI Cordless Handset or *VIP Softphone*. It also allows the user to set specific ring options when simultaneously using an ESI desktop phone and either an ESI Cordless Handset or *VIP Softphone*.
- **Account codes (Code 584)** — When programmed, pressing this key lets the user send account codes during a call.
- **LCL (Code 585)** — Used **only** on Remote IP Cordless Handset. When programmed, this key accesses a local analog CO line.
- **Loop key (Code 587)**[4] — Allows for the appearance of any CO line or Esi-Link call that may be ringing a station, without the need for a programmable feature key to be programmed as a CO line key. Up to six loop keys may be programmed per station.
- **Overhead page (Code 599)** — Allows the user to access the overhead paging system.

> **Note:** To **delete** a programmable feature key, press **HOLD** instead of programming a value.

---

[1] Not available on an ESI Cordless Handset.
[2] The system will access the paging zone for the extension and play the user's name as recorded in the directory (if no name is recorded, it will page by extension number) followed by the phrase "you have a call on hold" and the line on which the caller is held — e.g., *"John Doe, you have a call on line 21."*
[3] Programmable on only the legacy 12-Key Feature Phone.
[4] Available with system software release of June 15, 2009.

Feature key chart

> **Note:** These codes are not applicable to SIP phones.

Code[1]	Feature key	ESI desktop phones (except legacy 12-Key Feature Phone)	ESI Cordless Handsets (II or "I")	Legacy 12-Key Phone
560	Manual day/night mode key	Yes	Yes	No
561	Service observing key	Yes	Yes	No
5DDD	ACD agent log on/off key	Yes	Yes	No
562	ACD agent wrap key	Yes	Yes	No
563DDD	ACD Administrator key	Yes	Yes	No
564	Headset key	Yes	No	No
565	Call forward key	Yes	Yes	Yes
565XXX	Forward to a destination	Yes	Yes	Yes
566	Redial	No	No	Yes
567	Call forward/no-answer key	Yes	No	No
568	Message monitor key	Yes	Yes	No
569	Background announce key	Yes	Yes	No
570*	Conference	No	No	Yes
571	Personal Greeting 1	Yes	Yes	Yes
572	Personal Greeting 2	Yes	Yes	Yes
573	Personal Greeting 3	Yes	Yes	Yes
574	Caller ID key	Yes	No	No
575 and **576**	Virtual answer keys	Yes	No	No
577	QuickPage	Yes	Yes	No
578	Mute/DND	No	(DND only)	Yes
579	Voice mail	No	No	Yes
580	Override ring key	Yes	Yes	No
581	Door control	Yes	Yes	No
582	Record	No	Yes	No
583	Quick Switch	Yes	No	No
584	Account codes	Yes	Yes	Yes
585	**LCL** (local analog CO line) key	No	Yes[2]	No
587	Loop key	Yes	Yes	Yes
599	Overhead page	Yes	Yes	Yes

- **Virtual Mailbox Key** — If the entered digits are an extension number for a guest, department mailbox, cascade mailbox, etc., the key will provide for direct transfer to that mailbox, as described above. However if you program **VOICE MAIL** and an extension or mailbox number, it will become a **Virtual Mailbox Key**, which will indicate message status for the mailbox (the LED will blink red if new messages exist) and provide direct pick-up of the messages.
  To create a Virtual Mailbox Key of a user extension's mailbox, press **VOICE MAIL** ∗ and then enter the applicable extension or mailbox number.
- **Private line key** — If a private line has been established in CO line programming (see "Private line," page F.6), that CO line key must appear on that station's phone to allow outbound access to the line.
- **Cellular Access Key** — If in Function 31, the ESI Cellular Management[3] shared line parameter has been set to *YES*, you can assign an ESI Cellular Management Access Device's extension to a programmable feature key on any station, allowing access to the cell phone "line."
- **Cellular Speed-Dial Key**[4] — This allows a user to program a programmable feature key to dial a phone number using the cellular phone line.

---

1 **DDD** = ACD department number. **XXX** = Forwarded-to extension.
2 Only on Remote IP Cordless Handset.
3 Optional feature. See the *ESI Bluetooth Voice Integration Product Overview* (ESI document # 0450-1173).
4 Available as of release of system software version xx.4.27 (April 20, 2009).

Function 37: ESI device programming

Choices are:

- **1** — Access control schedule programming.
- **2** — RFID tag assignment.
- **3** — View RFID tag number.
- **4** — ESI Presence Management parameters.
- **5** — RFID Reader parameters.

> **Note:** For more information about ESI Presence Management, consult its *Installation Manual*.

Function 371: Access schedule programming

Access schedules are used to allow or deny door access with electronic keys ("RFID tags" on the system display) at certain times of the day. Up to seven access schedules can be programmed. Each schedule has an allow access time and a deny access time for each day of the week. By default, all access schedules allow access 24 hours a day, seven days a week.

> **Note:** Access schedules don't take effect until the **current** time has passed the **next schedule** time. For example: if you program a schedule time to deny access Wednesdays at 5:30 PM but it's **already** 5:45 PM on Wednesday when this programming occurs, the change won't take effect until the **following** Wednesday.

1. Using the scroll keys, select the access schedule to be programmed. Press # to confirm.
Range: 1–7.

> **Note:** Schedule 0 (default of full-time access) isn't selectable.

```
ACCESS SCHEDULES
1-ACC SCHED1 >
```

2. Enter the name of the schedule (up to 10 characters in length).
Press # to confirm.
Default: ACC SCHED[x], where *[x]* represents the access schedule selected in step 1.

```
ACC SCHED1
NAME:
```

3. Use the scroll keys to select the day of the week to program for the selected access schedule.
Press # to confirm.

```
ACC SCHED1
DAY: MONDAY >
```

If you haven't yet assigned an allow time (see next step) for this schedule, the display will show something like:

```
ACC SCHED1 MON
NO ALLOW TIME
```

(Continued)

4. Enter the **allow time** — the time when an electronic key user can begin controlling door locks — in **12**-hour format. (To **delete** an entry, press **HOLD**.)
Press # to confirm when done.

```
ACC SCHED1 MON
ALLOW: 900
```

5. Select *AM* or *PM* by pressing a scroll key. Press # to confirm.

```
ACC SCHED1 MON
ALLOW: 900 AM
```

If you haven't yet assigned a deny time (next step) for this schedule, the display will show something like:

```
ACC SCHED1 MON
NO DENY TIME
```

6. Now, enter the **deny time** — the time when an electronic key user begins to be denied door lock control — in **12**-hour format. (To **delete** an entry, press **HOLD**.)
Press # to confirm when done.

```
ACC SCHED1 MON
DENY: 700 >
```

7. Select *AM* or *PM* by pressing a scroll key. Press # to confirm.

```
ACC SCHED1 MON
DENY: 700 PM
```

8. Press # again to exit the function, **or** select another day of the week by using the scroll keys and then go back to step 4.

Function 372: RFID tag number programming

As described earlier in this document, each electronic key has an embedded unique **RFID tag number**. This function is used to associate each RFID tag number to an extension or mailbox for Personal Call Routing and presence indication (except mailboxes).

1. Enter an RFID tag number, **or** use the scroll keys to select from the list of tag numbers.

> **Note:** If using any RFID features — *i.e.*, if using ESI Presence Management for anything more than its doorphone capabilities — you should save time by first scanning the electronic keys at any RFID Reader connected to the system. The system will store the electronic keys' tag numbers automatically, and you can use the scroll keys to select the tag numbers to be assigned.

To **delete** a tag number, press **HOLD**. Press # to confirm.

```
TAG ID: 2
9012345678 >
```

The tag ID is the list index of the RFID tag number.

> **Note:** If a tag number is entered manually but the tag limit has been exceeded, *LICENSE EXCEEDED* will appear on the display. Therefore, you must delete one or more unassigned tag numbers.
> To view the system's total number of RFID licenses, use Function 81 (see page M.1).

2. Enter the extension or mailbox number to which you wish to assign the tag number. (To **delete** an entry, press **HOLD**.)
Press # to confirm.

```
RFID TAG PROG
EXT OR MB:
```

3. Enter the extension numbers of up to the system limit[1] of ESI Presence Management RFID Readers for which this tag is allowed to control door access. To give the tag access to **all** doors, press **FLASH**. (To **delete** an entry, press **HOLD**.) Press # after **each entry** and then press # again to confirm (in other words: after the last entry, you'll press # twice).

> **Note:** If all ESI Presence Management RFID Readers are allowed, "ALL" will appear on the second line.

```
DOOR ACCESS:
123 124 138 >
```

4. Use the scroll keys to select an **access schedule**. Access schedules are used to allow or deny door access with an electronic key at certain times of the day. Each day of the week can have a **start time** to allow access and a **stop time** to deny access.
To allow **constant** ("full") door access, select *0 - FULL.* Otherwise, select a schedule to restrict access. The schedule name will appear.
Range: 1–7. **Default**: 0 (full)

> **Note:** You assign access schedules in Function 371 (see page G.47). If not using access schedules, select *0 – FULL*.

```
ACCESS SCHEDULE:
0 - FULL >
```

[1] For details on the maximum number of RFID Readers that can be entered for your system, see "ESI Presence Management features" in "System capacities" (page B.1).

Function 373: View RFID tag number

This is used to display tag numbers that are associated to extensions or mailboxes. You can only view tag numbers with this function. You cannot change any tag numbers or assignments.

Enter the station or mailbox number to display, and then press #. If there's an RFID tag number assigned to that extension or mailbox, it will appear.

```
RFID TAG DISPLAY
EXT:
```

> **Tip:** You can use *ESI System Programmer* to print out a list of assigned tag numbers.

Function 374: ESI Presence Management parameters

Playing prompts

This determines whether the system plays a prompt — and, if so, which one — when the ESI Presence Management RFID Reader reads an electronic key. Select *YES* to enable playing of the prompt or *NO* to disable playing of the prompt.
Default: *YES* (a prompt will play).

```
EPM RFID READER
PROMPTS: YES >
```

When this function is set to *NO*, no prompts will play through the ESI Presence Management RFID Reader. When "EPM RFID Reader prompts" is set to *YES*, prompts will play as shown below. (These prompts can't be customized.)

When the RFID Reader displays:	It plays this prompt:
WELCOME	"*Welcome*"
GOODBYE	"*Goodbye*"
ACCESS DENIED	"*Invalid entry*"
LICENSE EXCEEDED	"*Error*"
ERROR *READER FULL*	"*Error*"

Enable/disable sending time and attendance records

> **Notes:** The NSP must be programmed and connected to a local area network for time and attendance record collection.
>
> Only ESI Presence Management RFID Readers programmed as type **ENTRANCE/EXIT** (Function 31) generate time and attendance records.

This parameter is used when the **optional** *WaspTime* software application[1] is used in conjunction with the ESI Presence Management RFID Reader.
Use the scroll keys to enable or disable time and attendance records, and press # to confirm.
Default: Disabled.

(Continued)

[1] Not sold by ESI; available for direct purchase from the manufacturer, Wasp Barcode Technologies (*www.waspbarcode.com*).

Store fob events

> **Note:** This function requires that an Applications Services Card (ASC) be installed in the system.

```
STORE FOB EVENTS
    DISABLED   >
```

Use the scroll keys to enable or disable the storage of ESI Presence Management fob events to the ASC.
Default: Disabled.

Function 375: RFID Reader parameters

This function is used to adjust the doorphone speaker volume of each ESI Presence Management RFID Reader.

1. Enter the extension number of the RFID Reader.

```
EPM READER SET
EXT:
```

2. Select the volume level by using the scroll keys.

```
X211 FRONT DOOR
VOLUME: 6   >
```

Range: 1–8, with *8* as the highest. **Default:** 6.

Function 376: ESI Video Adapter programming

Important: ESI Video Adapter programming can be done **only** by using the local Web page which is accessible under Function 376 in *ESI System Programmer* 1.2.13.0 (or higher). This local Web page has no connection to the ESI Communications Server. Therefore, some information that is entered in the local Web page — specifically, IP addressing — must also be re-entered in Function 376.

ESI strongly recommends using DHCP when **initially** connecting the ESI Video Adapters to your network. Once connected, you'll need to assign a **static** IP address to each Video Adapter. The programming steps in this document are based on using DHCP. However, if DHCP isn't an option for you, refer to "Finding ESI Video Adapters when not using DHCP" in the *ESI Video Adapter Installation and Programming Manual* (ESI # 0450-1241) for instructions on locating the adapters on your LAN.

Warning: Only those programming fields discussed in this manual are supported by ESI. Therefore, ESI **will not** provide technical support for video programming settings **not** discussed in this manual. (Standard ESI Technical Support Center procedure when receiving a call regarding any undocumented Video Adapter programming fields will be to reset the Video Adapter to its default settings.)

ESI Video Adapter programming involves connecting to the Video Adapter via the local area network (LAN) and setting certain parameters in the Video Adapter. During these programming steps, you are connecting **directly** to the Video Adapter via the LAN and **not** through the ESI cabinet's NSP.

1. If it is not already on the PC you'll be using for this programming, install *ESI System Programmer* 1.2.13.0 (or higher).
2. Plug in the Video Adapter's power supply and connect the Video Adapter to the LAN, using a standard Ethernet cable.
3. Launch *ESI System Programmer* and access Function 376 for the site where the Video Adapter will be used. When you are initially connecting to the Video Adapter, Function 376 will appear blank.

   Note: You don't need to be **connected** to the site at this time.

(Continued)

4. In *ESI System Programmer*, go to Function 376 and click the **Discover Network Cameras** button. *ESI System Programmer* will search for compatible cameras, and those found will be listed in Function 376 (**Fig. 2**).

> **Note:** During initial setup, you'll likely be programming one Video Adapter at a time and, therefore, will see only one Adapter listed on the screen. Seeing some or all of the Adapters requires that they all be powered-up and connected to the network.

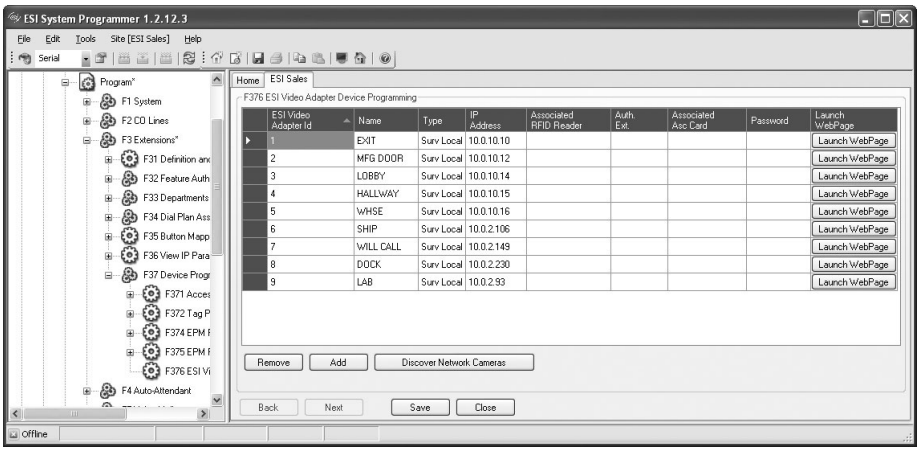


Figure 2

5. An IP address is automatically assigned to each Video Adapter, using DHCP. However, you will need to assign a **static** IP address to any Video Adapter which is to be used for ongoing viewing.

> **Important:** Video Adapters use **only** port prefix 59.

(**a.**) For the camera you're working on, click **Launch WebPage** (see **Fig. 2**, *above*).

(**b.**) You will be asked to enter a user name and password (**Fig. 3**). What you do will depend on whether a password has been assigned to the Video Adapter (see "Security" in the *ESI Video Adapter Installation and Programming Manual*, ESI # 0450-1241):

- If a password **hasn't** yet been assigned, enter "**root**" in the **User name** field and leave the **Password** field empty.
- If a password **has** been assigned, enter "**root**" for the **User name** field and enter the assigned password in the **Password** and **Confirm password** fields.

> **Note:** You may have to enter the user name and password multiple times before the local Web page loads. If a "1" appears in the **User name** field, delete it and type "root" as noted above.

Figure 3

(**c.**) Once you're in the local Web page for the Video Adapter, click **Configuration** in the left-hand panel; then click **Network**.

(**d.**) In the **IP Address** field (under **LAN/User Fixed IP Address**), enter the Adapter's static IP address.

(**e.**) In the **HTTP** section, update the HTTP port to *59XXX*, where *XXX* is the last octet of the Video Adapter's IP address (*e.g.*, if the IP address is *10.0.10.**17***, the HTTP port will be *59**017***).

(**f.**) At the bottom of the page, click **Save**. This will update the Video Adapter (**Fig. 4**):

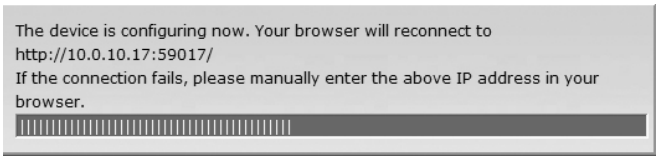


Figure 4

> **Note**: If you want to set up certain Video Adapter parameters, such as hot spots, refer to "Programming Video Adapter parameters" in the *ESI Video Adapter Installation and Programming Manual* (ESI # 0450-1241). When you're finished, return here and proceed to step 6, *below*, to continue with Installation programming in Function 376.

6. For each Video Adapter you wish to program, repeat steps 1–5.

7. When you've finished making changes in the Video Adapter's local Web page, go back to Function 376 in *ESI System Programmer*. You'll need to re-enter the IP address and HTTP port information here. To avoid losing programming, be sure to click **Save** periodically.

   (**a.**) Right-click the **IP Address** field for the desired Video Adapter. A small window will appear (**Fig. 5**), allowing you to enter the IP address and HTTP port. These two fields **must** match what you entered in the Video Adapter's local Web page. (The MAC address was already entered during the Video Adapter discovery process.)

   (**b.**) Click the checkmark in the corner of this pop-up window, and then click **Save**.

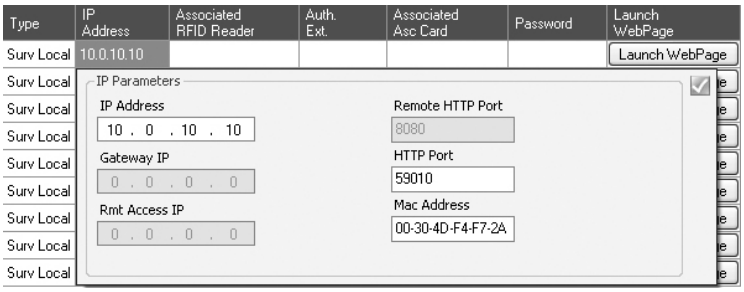


Figure 5

8. Because a Video Adapter doesn't take up a port on the ESI system, it doesn't need an extension number and, therefore, each Video Adapter is assigned an **ID number**. *ESI System Programmer* starts with ID number 1, by default; however, if you wish, you can change this number by typing in the **ESI Video Adapter ID** field shown in **Fig. 4**.
   Range: 1–999.

9. For each Video Adapter, enter a 10-character **Name**.

10. Currently, ESI supports Video Adapters only on a local network. When ESI supports Video Adapters on remote networks, you can set a Video Adapter for remote networking by right-clicking its **Type** field and choosing *Remote*.
    Otherwise, continue to step 11.

11. The **IP Address** field displays the IP address, MAC address, and other IP parameters assigned in ESI Video Adapter programming as discussed in step 7.

> **Note:** Changing the Video Adapter's IP address in *ESI System Programmer* (or via the phone) and sending changes will update **only** the ESI system and **not** the Video Adapter. Therefore, you **also** must change the Adapter's IP Address using the Video Adapter's local Web page as previously explained.

(Continued)

12. If an ESI Presence Management RFID Reader is to be associated with the Video Adapter, enter the RFID Reader's extension in the **Associated RFID Reader** field. (Otherwise, leave the field blank.)
Maximum: One RFID Reader extension per Adapter.

13. In the **Auth. Ext.** field, enter the user extensions and departments that are allowed to view the output of this Video Adapter. (See "System capacities," page B.1, for the maximum extensions per Video Adapter supported by each compatible ESI system.)
If this Adapter was associated (in step 12) with an ESI Presence Management RFID Reader, this field will automatically populate with extensions or departments that are in the RFID Reader's ring-down list. However, if you wish, you can delete these extensions or departments.

> **Important:** For a user to install and launch the Basic *Video Viewer*, his/her extension must be assigned to a Video Adapter that is associated with one ESI Presence Management RFID Reader, and the user cannot be set in Installer Function 322 as an Advanced user. A Basic user can see only one camera view. Therefore, if you assign a Basic user's extension to more than one Adapter (that is associated with an RFID Reader), the Basic *Video Viewer* will launch showing video from only one of the cameras — the one with the lowest Video Adapter ID number.

14. If you created a new password in Function 376, you must update the **Password** field in the Video Adapter's local Web page and save it (**Fig. 6**) so that information is sent to the adapter. (A password is not mandatory, but is recommended.)

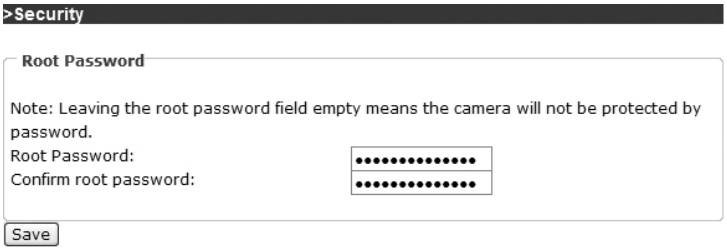


Figure 6

15. Finally, assign Advanced Video Viewer licenses in Installer Function 322 (page G.28). Then save your changes and, when you're ready, connect to the ESI Communications Server to send your programming changes.

Phone programming

The most important thing to remember about phone programming as it relates to ESI Video Management is that each ESI Video Adapter must first be discovered and assigned a static IP address using *ESI System Programmer*: Once this is completed and Function 376 programming is sent to the ESI Communications Server, you can edit Video Adapter programming using either *ESI System Programmer* or the phone. Here is what you can edit via the phone:

1. Create an ESI Video Adapter ID number.

   ```
   VIDEO ADP ID:
   
   ```

   Range: *1–999*.

2. Edit the Adapter type (remote/local), using the scroll key.

   ```
   VIDEO ADP TYPE:
   SURV LOCAL     >
   ```

   Options: *LOCAL* and *REMOTE*.

3. Edit the Adapter name.

   ```
   VIDEO ADPXXX
   NAME:
   ```

   The name may be up to 10 characters in length.
   Default: *VID_ADPXXX*, where *XXX* is the Adapter's ID number.

4. If no Video Adapter programming has been done up to this point, the Video Adapter's IP address, MAC address, and HTTP port numbers will show as all-zeroes. You can enter the Video Adapter's IP address, MAC address, and HTTP port information in phone programming — **but** this will update **only** the ESI phone system, and **not** the Adapter itself. To update the Adapter itself, you **must** access the *ESI Video Adapter Programmer* under Function 376 in *ESI System Programmer*. It's in this programming tool that information is sent to the Video Adapter itself.

   Use the first six programmable feature keys to enter letters for the MAC address.

   ```
   VID ADPXXX MAC:
   
   ```

   ```
   VAXXX IP ADD:
   
   ```

   ```
   HTTP PORT:
   
   ```

   Note: The ESI Video Adapter uses only port prefix 59.

(Continued)

5. Edit the associated ESI Presence Management RFID Reader (one RFID Reader is allowed per Adapter).

6. Edit the associated extensions and departments.

7. Edit the password.

> **Important:** In order that the password change will take effect, you must update the password in the Video Adapter's local Web page (see the earlier explanation of this programming process, beginning on page G.52).

Those individuals with the Communications Server's Administrator password can only:

- Edit the Adapter name.
- Edit the associated extensions and departments.

Deleting a Video Adapter

To delete an ESI Video Adapter ID number (which **will stop communication** from the Video Adapter to *ESI Video Viewer*):

1. Access system function 376.
2. Enter the adapter ID and number.
3. Press **HOLD**.
   This deletes the Video Adapter and takes you back to the start of Video Adapter programming. (There is no prompt that plays to confirm the deletion.)

Function 4: Auto attendant programming

You can program the auto attendant, in line programming (Function 2; see page F.1), to answer calls immediately, on a delayed-answer basis or not at all (*i.e.,* for live answer at all times). If required, you also can program different main greetings and routing schemes for different combinations of lines. Day/night mode will change the main greeting announcement and affect rerouting of calls during call processing.

Function 41: Auto attendant branch programming

An ESI Communications Server's auto attendant follows a **branch concept**: the caller is routed through a series of branches, ultimately to the extension he wishes to reach. The caller moves from branch to branch by selecting a number or name presented in a branch prompt.

Each system supports four types of branches — *menu, GoTo, directory*, and *remote* — and up to 100 branches, total. Use them to create virtually limitless routing possibilities. Each branch has one greeting — with the exception of branches ID 1 through ID 8, each of which has four greetings (day1, day2, night1, and night2; see also "Function 43: Automatic day/night mode table," pp. H.7–H.8).

Note: If tenant service is enabled in Function 169 (see page E.10), branch ID 1 will associated with tenant 1, and so on through branch ID 8 and tenant 8. Day/night routing for each tenant will be controlled either automatically by the day/night table for each tenant or manually with a day/night key on a station assigned to that tenant. Dialing **0** from a call to each of these ID branches will route the call to that tenant's respective "dial-**0**" destination.

Tenant	Branch ID				
	ESI-1000	ESI-600	ESI-200	ESI-100	ESI-50
1	ID 1	ID 1	ID 1	ID 1	ID 1
2	ID 2	ID 2	ID 2	ID 2	ID 2
3	ID 3	ID 3	ID 3		
4	ID 4	ID 4	ID 4		
5	ID 5	ID 5			
6	ID 6	ID 6			
7	ID 7	ID 7			
8	ID 8	ID 8			

Menu branch

A **menu branch** includes a prompt that instructs the caller to make a selection from the choices presented such as *"For Sales, press **1**; for Service, press **2**; or, for Administration, press **3**."* Whenever you create a menu branch, you must also create a corresponding number of sub-branches to match the number of choices given the caller in the prompt.

When a caller makes a single-digit selection in the menu branch, he/she will then advance to one of its sub-branches — which could be another menu branch (if there are more choices to make), or a GoTo branch (routes the caller to a destination; see "GoTo branch," page H.2) or directory branch (for choosing from a list of names; see page H.3).

Note: A caller who makes no selection during the prompt in a menu branch will be transferred according to the no-response programming for that branch (see page H.6).

GoTo branch

A **GoTo branch** transfers the caller to an extension, department, mailbox, branch ID, or an outside number:

- **GoTo dial** — The GoTo: dial branch automatically blind-transfers the caller to the extension or department number programmed as its destination. If the number listed is a department, the system will follow the programming as set in Function 33 (see page G.30). If the destination extension or department dialed is busy or does not answer, the call will follow call forwarding for the extension as programmed in Function 31 (see page G.2) or the department as programmed in Function 33 (see page G.30).
- **GoTo mailbox** — Routes a caller to that mailbox's personal greeting. The mailbox can be a user, a guest/information mailbox, a group mailbox, cascade notification mailbox, or Q & A mailbox.
- **GoTo branch** — Can also be used to jump to any other branch in the auto attendant. It is a good idea to provide a jump as a sub-branch of each menu branch, giving the caller the option either to repeat the menu or exit without making a selection.

  Example: *"For widget sales, press **1**. For gadget sales, press **2**. Or, to return to the main menu, press **3**."* In this case, the third sub-branch would be a GoTo branch with ID1 (the main greeting) as its programmed destination.

- **GoTo outdial** — The GoTo branch can be used to transfer to an off-premises location, either in conjunction with Centrex lines or trunk-to-trunk. When you select GoTo, the system will prompt you for one of those two options.
  The branch's dial string can be programmed to include pauses, flash hooks, etc. Use the ▲ scroll key to enter special characters; use the ▼ scroll key to backspace. Press # to confirm the inserted character and continue. Press # # to complete the entry. The codes are:

Code	Produces . . .
#	# DTMF tone
∗	∗ DTMF tone
F	Flash hook
P	Two-second delay
E	The most recently attempted extension number

Example: To create an outdial string for Centrex that...

- Sends a flash hook
- Dials a two-second delay
- Dials *9* (Centrex access code)
- Dials another two-second delay
- Dials *555-903-5642* (a local 10-digit call, in this example)
- Goes on-hook

... enter the following dial string:

Entered via keypress

F # P # 9 P # 5 5 5 9 0 3 5 6 4 2 #

Entered via scroll-key method

[the system will display *F 9 5 5 5 9 0 3 5 6 4 2*]

If you selected Centrex:
The system will dial the string as programmed and then release the call to Centrex to complete the connection.[1]

If you selected trunk-to-trunk:
The system will access another CO line to call the outdial number.

Note: Two CO lines will be utilized, one for the inbound call and one to call the outdial number.

(Continued)

[1] Be sure the flash hook duration (Function 151, page E.3) is set for the correct timing recognized by the local telco provider.

1. Enter the outdial number (including the access code and any special characters[1]). The system will prompt you to indicate whether DTMF detection at the remote end is required before completing the connection. If DTMF detection **is not** required, the system will complete the trunk-to-trunk connection after dialing the final digit of the outdial number (blind transfer), so you may ignore step 2.
   However, if DTMF detection **is** required, proceed to step 2.

   Example: To create an outdial string for trunk-to-trunk transfer that...

   - Dials *9* (line group number)
   - Pauses for dial tone
   - Dials *555 903-5642* (a local 10-digit call, in this example)
   - Goes on-hook

   ... enter the following dial string:

   Entered via keypress

   9 # P # 5 5 5 9 0 3 5 6 4 2 #

   Entered via scroll-key method

   [**Exception:** Don't enter the **P** if using PRI, which doesn't require this after the trunk group access code.]

2. For the outdial number, set the day call-forwarding and then the night call forwarding.

After the final digit of the outdial number, the system will begin to play to the called person the following: *"You are receiving a forwarded call. Press any key to accept."* This will play continuously for 30 seconds.

What happens now depends upon whether the system detects DTMF from the called party:

- If it does, the system completes the trunk-to-trunk connection.
- If it doesn't, the system forwards the call to the programmed call forwarding for this outdial branch (the next step for which you're prompted if DTMF detection is required).

Notes: You'll be prompted to enter a call forwarding destination for an outdial branch only if (a.) the branch uses trunk-to-trunk and (b.) DTMF detection is required. Enter an extension, branch ID or mailbox number for the day/night call forwarding of this GoTo Outdial branch.

While both COs are connected, the system constantly monitors the lines for open loops. If it detects an open loop on either line, it terminates both CO connections. Additionally, the system periodically will monitor for voice on the connected COs. If it detects no voice traffic, it terminates both CO connections. Finally, if both COs are connected for 60 minutes, the system will terminate the connection, regardless of the presence or absence of activity.

Directory branch

A **directory branch** lets the caller connect by selecting a name from one of two types of directories:

- **All-names** — The caller selects the person he wishes to reach from the playback of all recorded names (use this if there are about 10 or fewer names in the directory). The system plays the names in alphabetical order according to the extension names programmed in Function 31 (see page G.2).
- **Alpha** — The auto attendant prompts the caller to enter up to three letters of the individual's first or last name[2] and then plays the matched names in alphabetical order according to the extension names programmed in Function 31 (see page G.2). A second prompt then instructs the caller to press # when he/she hears the name of the individual.

Note: The actual recording of the names and alpha "key" entry (if the directory type is alpha) will come later in Function 62 (see page J.2). **The directory branch(es) will not be enabled until at least one name has been recorded.** To re-record the directory prompt, "Enter the first three letters of the person's first name that you wish to reach," you must enter Function 61 and then record the prompt for the ID number of the directory branch.

[1] Special characters — such as *P* for *pause* or *F* for *flash* — can also be entered in the dial string.
[2] See "Field 5: Name key digits" under Function 165, page E.6

Remote branch (Esi-Linked systems only)

The **remote** branch type[1] can route calls to remote location destinations. For example:

- **Location + branch ID** — Routes caller to a menu branch at a remote location.

  > **Note:** Only branch IDs 8700 through 8798 at the remote location are supported.

- **Location + department** — Routes caller directly to a department at a remote location.
- **Location + extension** — Routes caller directly to an extension at a remote site.
- **Location + mailbox** — Routes caller directly to a voice or information mailbox at a remote site.

When you assign a remote branch to send a call to a branch ID at a remote Esi-Link location, that branch ID (*i.e.*, the destination branch ID) must be within the range of ID 8700 through ID 8798. This is to insure the correct setup of an Esi-Link auto attendant for incoming calls from remote locations.

Each remote branch can have a **forward/no-response** (NR) **destination** programmed to which the branch will send a caller if any of the following should occur:

- All Esi-Link channels are busy;
- The Esi-Link connection to the remote location is either off-line or unavailable;
- The caller is returned to the original location via branch ID 8799.

The forward/no-response destination can be one of the following destinations:

- Local branch ID
- Local station or department number
- Local voice mailbox (user, guest, or information)

In the event all Esi-Link channels are busy or unavailable, the caller will be directed to the forward/no-response destination after hearing the prompt, *"Destination unreachable."* If a forward/no-response destination isn't assigned, the caller will be sent to the Operator at the originating location. Typically, the forward/no-response destination would be a GoTo branch to the menu branch to which the caller was last connected, such as branch ID 1.

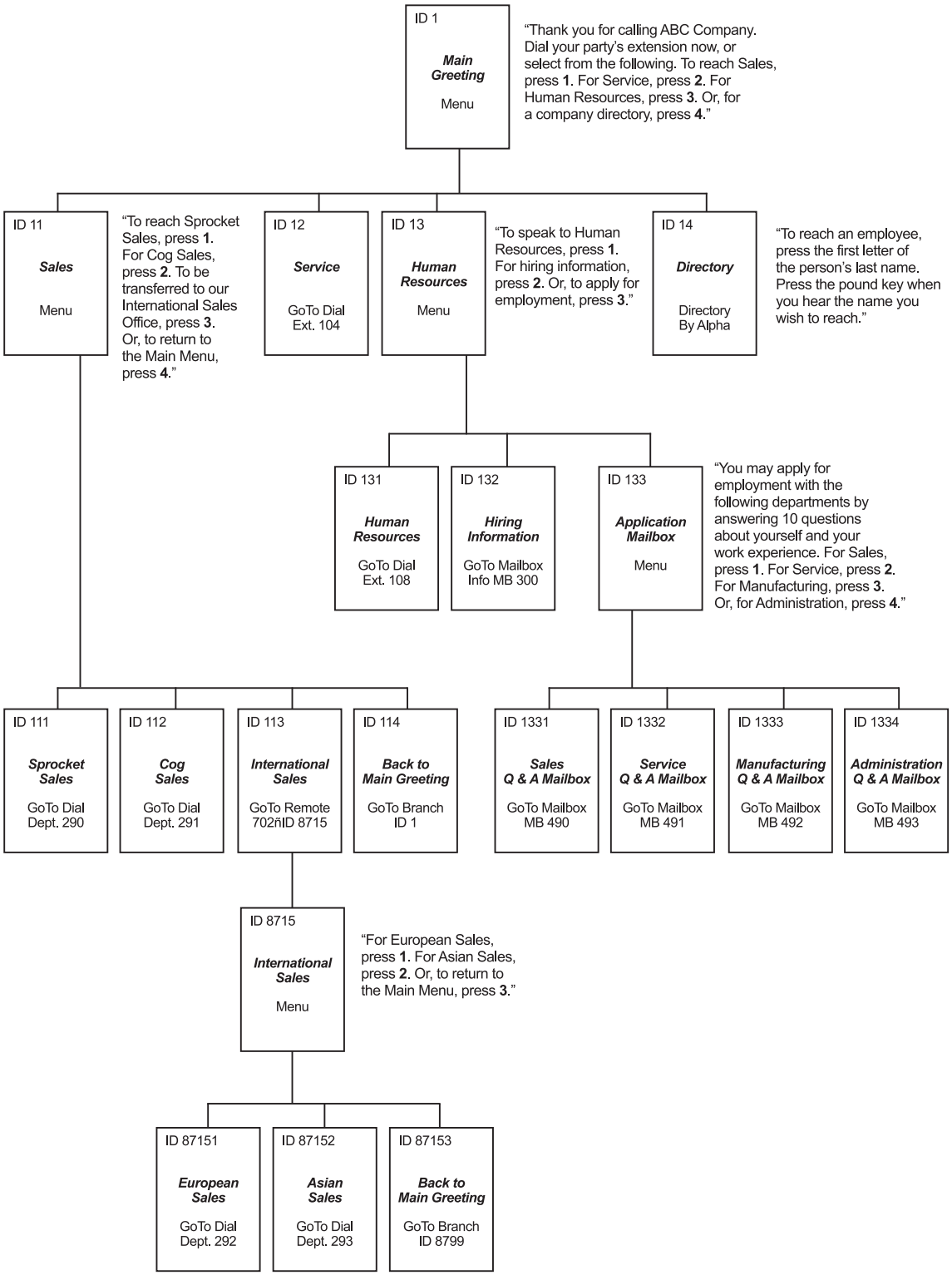
At the remote location, when branch IDs 8700 through 8798 are assigned as GoTo branches, the branch destination will be limited to the return branch (ID 8799; see "Return branch," *below*) and internal destinations at that location (*i.e.*, local ID branches, departments, extensions, mailboxes, and COs only).

Return branch

Branch **ID 8799** is a special, pre-programmed branch that's used to send a caller back over the Esi-Link network to the no-response forward of the originating location ID branch that routed the call. To use this branch, assign (at the remote location) a GoTo branch to ID 8799. When the caller is sent to this GoTo branch, he/she automatically will be sent back to the no-response destination of the originating location branch ID.

[1] For more information about Esi-Link, see "Function 83: Esi-Link programming," pages M.9–M.10.

Auto attendant programming example



*(The branch IDs and branch titles shown are for programming purposes only. The caller needs only to press **1**, **2**, etc., to move through the choices.)*

Programming sequence

1. **Branch ID** — A numerical designator which indicates its location and relationship to the other branches. There can be up to six levels of branches — the first level being a single digit, the second level being two digits, and so on. The Main Greeting is ID 1 (or, additionally, 2 through 8 if a different greeting for each different line is desired); each of its sub-branches will have that number, plus an additional digit of its own (corresponding to choices given to the caller, shown here in bold): *1**1**, 1**2**, 1**3***, etc. Menu Branch 123 would have sub-branches *123**1***, *123**2***, etc.
2. **Type** — Use a scroll key to select a menu, GoTo, directory, or (if Esi-Link is in use) remote branch. Press # to continue.
3. **Name** — Enter the name to help identify the branch for later programming changes; this also is the source for reports and display information at users' phones. Press # to continue.
4. **Destination** — Each branch type has different possible destinations as indicated:

Branch type	Destination(s)
Menu	Sub-branches (created later)
GoTo	Extension, mailbox, branch ID, or outside number
Directory	List of names (entered in Function 62)
Remote	*(Esi-Link only)* Extension, mailbox, branch ID, or department

Use a scroll key to select the desired branch type and press #. Then, enter the destination — either an **extension** or **department** *(EXT)*, **mailbox** *(MB)*, or **branch ID** *(ID)* — and its number. Press #.

Additional programming notes

- **Automatic disconnect** — If ID 9999 is programmed as a destination, the call will be automatically disconnected.
- **Call-forward busy/no answer** — Can be programmed (and will be prompted for) only if a trunk-to-trunk outdial number is the destination of a GoTo branch.
- **Call-forward no-response** — Programmed (and will be prompted for) only for a menu, directory, or remote branch.

Deleting a branch

To delete a previously created branch, enter the branch ID, press **HOLD**, and confirm by pressing a scroll key (either ▼ or ▲) and then #.

Function 42: Announce extension number

If a caller selects a name from a Directory Branch, the system can be set to announce the extension number prior to transferring the call. This provides the caller with the extension number for future direct dialing from a Menu Branch such as the Main Greeting. This feature should not be used where individual privacy is desired.
Default: Enabled.

Function 43: Automatic day/night mode table

You program the day/night mode table by selecting the day of the week, then entering the start time, and then selecting the mode — day, night, day2 or night2.[1] At the time you've programmed, the appropriate greeting for that mode will play and the system will follow the appropriate day or night forwarding. Day forwarding is the same for both day mode and day2 mode; night forwarding is the same for both night mode and night2 mode. Enter the times in military time *(0000–2359)*. Each day can have up to six different times.

1. Enter the tenant number.
2. Select the day of the week by pressing a scroll key (either ▼ or ▲).
3. Press # to confirm.
4. Enter the day's start time in 24-hour format.
5. Press # to confirm.
6. Select the mode — *DAY, NIGHT, DAY2* or *NIGHT2* — by pressing a scroll key (either ▼ or ▲).
7. Press # to confirm.
8. Repeat steps 4–7 for the day's next setting **or** press # again to program another day.
9. When finished, press # again to exit.

> **Note:** To delete an entry, press **HOLD**.

Day/night mode worksheet example

In the example below, the company or tenant has:

- Day mode programmed for: 8 AM to 12 noon Monday, Tuesday, Thursday, and Friday; 8 AM to 2 PM Wednesday and Saturday; and 1 PM to 5 PM Monday, Tuesday, Thursday, and Friday.
- Night mode programmed for after 5 PM Monday, Tuesday, Thursday, and Friday.
- Night2 mode for Wednesday and Saturday after 2 PM and all day Sunday.
- Day2 mode for lunchtime Monday, Tuesday, Thursday and Friday.

Tenant 1

	MON		TUE		WED		THU		FRI		SAT		SUN	
	Start time	Mode	Start time	Mode	Start time	Mode	Start time	Mode	Start time	Mode	Start time	Mode	Start time	Mode
1	0800	D	0800	D	0800	D	0800	D	0800	D	0800	D		
2	1200	D2	1200	D2	1400	N2	1200	D2	1200	D2	1400	N2		
3	1300	D	1300	D			1300	D	1300	D				
4	1700	N	1700	N			1700	N	1700	N				
5														
6														

> Note: For the schedule to take effect, the system must be placed in the "auto" mode.

[1] Available only on branches ID1–ID8.

Remote setting of day, night, holiday and auto modes

Normally, the system's day/night mode operation will be manually controlled at an ESI desktop phone and/or set to follow the day/night mode tables (programmed by the Installer) automatically. In addition, the Administrator can remotely change the mode and/or re-record the holiday greeting to handle unexpected closings such as for inclement weather.

Remotely logging into the system with either the Installer password or the Administrator password lets the caller do the following for branch IDs 1–8:

- Re-record the greetings (day, night, day2 and night2).
- Re-record the holiday greeting.
- Change the mode to day/night/holiday/day2/night2 (or auto).

1. At the main greeting, enter ✱✱ **7 8 9** # or ✱✱ **4 5 6** # — or ✱✱ followed by the new password — to enter remote programming mode.
2. You'll hear prompts that will allow you to change the answer mode (day, night, day2, night2, holiday or auto) and/or to re-record the holiday greeting and the main greeting (ID 1). Follow the prompts to perform the desired operation.

> **Note:** To access these options for branch IDs 1–8, you must call in on the phone number of the tenant that uses those branches.

3. Exit by pressing ✱ and hanging up.

Prompts for remote settings: an outline

1 Set answer mode

1 Day mode
2 Night mode
3 Holiday mode
4 Use day/night table[1]
5 Day2 mode
6 Night2 mode

2 Record holiday main greeting

3 Record daytime main greeting

4 Record nighttime main greeting

5 Record day2 main greeting

6 Record night2 main greeting

> **Note:** If the system is answered live and call is then routed to a mailbox, the Administrator can press **8** to return to the main greeting and then follow the steps for making remote settings.

[1] This is used if the Installer has programmed an automatic calendar.

Function 5: Voice mail programming

To simplify initial installation, all programmed extensions will automatically have the generic personal greeting, *"You have reached the mailbox for extension* [xxx]*."* The mailbox user should replace this with a personalized greeting. Each guest/info, group, cascade notification, or Q & A mailbox must have a greeting recorded for the system to consider the mailbox active.

> **Important**: A mailbox will not receive broadcast messages until a greeting has been recorded for it.
> Additionally: If the greeting is deleted, the mailbox will be considered inactive.
> On the legacy 12-Key Feature Phone, it is necessary to assign the code **5 7 9** (voice mail) to a programmable feature key for the mailbox to become active.

If a programmable feature key is programmed as a Virtual Mailbox Key with any mailbox number, the key's LED will blink, to indicate that new messages exist.[1] To retrieve messages from a station, **either (a.)** press the Virtual Mailbox Key **or (b.)** press **VOICE MAIL** ✻ and then enter the mailbox number. To record a greeting, press **PROG/HELP** ✻ and enter the mailbox number; then press # to confirm, and follow the prompts. The default password is the mailbox number. To retrieve messages from the outside, press ✻ and enter the mailbox number **during the main greeting.** To enter mailbox programming from any ESI phone on the system, press **PROG/HELP** ✻ and enter the mailbox number.

Function 51: Maximum message/recording length

Although the system will store only the actual message as left by the caller, the time set here is the maximum time to allow for a message. The range is 1–60 minutes for messages, and 1–120 minutes for recordings and greetings. (The maximum number of new messages and recordings in a mailbox, regardless of length, is 128.)
Default: 3 (minutes) for messages, 10 (minutes) for recordings.

Function 52: Message purge control

To avoid having unneeded messages filling up the system's memory, values entered here will establish how messages are to be automatically erased by the system if its Memory Module's free space gets too low. The system's purge routine will begin only when the system's Memory Module is 95% full and will remove messages, down to 90% full, according to the following programmed values:

Value	Meaning
New	New messages older than the number of days programmed.
Old	Old messages older than the number of days programmed.
Group	Group mailbox messages older than the number of days programmed.
Rec	Recordings that are older than the days indicated.
Del	Message Recycle Bin messages older than the number of days programmed.

The range for each item is 0–365 days. A "0" indicates that a type of message is not to be removed unless deleted by the user.

> **Example:** To set the system to erase old messages more than 3 days old and group messages more than 5 days older and **not** to erase any newly deleted messages or recordings (if the system's Memory Module becomes full), enter **0**, **3**, **5**, **0** and **0** as prompted.

> **Note:** If the Memory Module becomes full but no message or recording can be purged according to the settings, callers will hear a "voice-mail-full" prompt until free space becomes available on the Memory Module.

Default: 0, 0, 0, 0, 0.

[1] Otherwise, the key is a station key that allows for single-key transfer of a call with no message indication.

Function 53: Guest/info mailboxes

> **Important:** Although Function 53 programs guest and info mailboxes, remember that information mailboxes **don't** work with ESI Mobile Messaging.

Any guest mailbox can be programmed as either a guest or info mailbox.[1] Enter the mailbox number and select *Guest* or *Info* by pressing a scroll (▼ or ▲) key.

Guest mailboxes are designed to be used by personnel, such as in outside sales or manufacturing, who don't have an extension assigned to them. A guest mailbox requires no programming other than the assigning of a name. The maximum recording length is controlled by Function 51; the default is 10 minutes.

> **Notes:** A guest mailbox can be handled like a regular extension (i.e., listed in the directory, assigned a station key, *etc*.), and is password-protected by default.
>
> Guest mailboxes do not support AutoPage (but do support off-premises "reach-me").

Info mailboxes can be used to give callers information on a variety of different subjects by "publishing" these mailbox numbers. Info mailboxes are identical to guest mailboxes, except that the caller will not be given a record tone after the personal greeting (the information to be played). Instead, the caller will be forwarded as programmed in this function (default is the caller will be disconnected after the information is played).

Guest/info mailboxes are created or deleted here, but are turned "on" only when a personal greeting (the information to be played) has been recorded. Deleting the personal greetings will turn "off" the mailbox.

To record a greeting, press **PROG/HELP** ✻ and the mailbox number; then press # to confirm, and follow the prompts. The default password is the mailbox number. The maximum length of the recording time is 14 minutes.

Below is an example of a completed Programming Worksheet, showing the sequence of programming:

1. MB	2. Name	3. Type	4. Ext. fwd.	5. Line grp.	6. CF day	7. CF night	8. Mobile Msg.
400	Dana	Guest	Y	9			N
401	Doug	Guest	Y	9, 8			Y
402	Literature	Info			MB 100	MB 100	

Each programming step is defined as follows:

1. **Mailbox number** — Enter a guest mailbox number.
2. **Name** — The mailbox name is used for the display, reports, and as a programming aid. The name length can be no longer than 10 characters (see "Entering alphanumeric characters," page D.2).
   Default: The mailbox number.
3. **Type** — Select a mailbox type: Guest or Info.
   Default: Guest.
4. **External forward** *(guest mailbox only)* — A guest mailbox can be set to allow off-premises "reach-me."
   Default: No.
5. **Line group** *(guest mailbox only)* — Used for off-premises "reach-me."
   Default: 9.
6. **and 7. Call forward** *(info mailbox only)* — An info mailbox can be set to call forward after the personal greeting has played to an extension, department, a mailbox or a branch ID for day mode and differently for night mode.
   Default: ID9999 (automatic disconnect).
8. **Mobile Messaging** *(guest mailbox only)* — A guest mailbox can be set so that, whenever it receives a new voice mail message, the mailbox's user will receive an e-mailed notification (at a location set in user programming).
   Default: No.

[1] Guest and info mailboxes' range depends on dial plan selected (see "Selectable numbering plan," page D.2).

Function 54: Group mailboxes and the broadcast mailbox

Broadcast mailbox

The **broadcast mailbox**[1] is a special group mailbox which can be used to leave messages for all of the system's station users who have recorded a personal greeting. The broadcast mailbox's user list cannot be edited. Guest mailboxes are not included in the broadcast group.

Group mailboxes

Group mailboxes can be used for quickly leaving the same message simultaneously in mailboxes belonging to extensions and guests. Anyone who knows the password can leave messages for all users listed as members of that group and who have recorded a personal greeting. (If no member has a personal greeting recorded, the group mailbox won't save any messages.) The Installer, Administrator or group mailbox "owner(s)" may set or change the list of group mailbox members. To record a greeting, press **PROG/HELP** ∗ and the mailbox number; then press # to confirm, and follow the prompts. The default password is the mailbox number. The maximum recording length is controlled by Function 51; the default is 10 minutes. For system-by-system number of group mailboxes and users per group mailbox, see "System capacities," page B.1.

Important: A group mailbox is turned "on" (able to record and playback messages) **only** when its "owner" has recorded a greeting for it, such as *"This is the group mailbox for East Coast Regional Sales."* Similarly, deleting the group mailbox greeting will turn "off" the group mailbox; any outstanding messages will remain in its members' mailboxes until erased by each member.

Notes: Programming *0* (zero) as the password lets **anyone** leave group messages or program the group mailbox.

If a user saves a group message, it will be saved as a new message.

Broadcast and group mailboxes can have a maximum of 32 messages per mailbox. Only extensions and guest mailboxes can be members of a group.

When a message is deleted from the group mailbox, this deletes all copies from its member mailboxes. Conversely, when the last user to delete his/her copy of the message does so, this deletes the message from the group mailbox.

Here is the programming sequence:

1. **Enter the group mailbox number**.[1]
2. **Enter group member mailboxes' numbers** — Separate each by #; enter # # to end the list.
   Range: Depends on dial plan selected (see "Selectable numbering plan," page D.2).

1. MB	2. Group member mailboxes' numbers
501	102 104 106 107 122 303 314

Function 55: Message notification

On a mailbox-by-mailbox basis for user or guest mailboxes, the system can be programmed to call an off-premises number or another extension to deliver messages and/or dial to an external commercial paging network to activate a user's pager. The system will call and/or page when the first new message is left in a mailbox, and will repeat (at the interval of minutes programmed in this function) until the new message(s) have been deleted, saved, or moved. The user can program the numbers and delay and can also select delivery of only messages marked as urgent. The Installer and Administrator can set, on an individual-station basis:

- The number to be called
- A delay period
- The number of attempts (maximum of 99)
- The interval between attempts
- A "quiet period" to suspend phone delivery — *e.g.,* late at night (the quiet period is an on-and-off time that applies to all days of the week)

[1] Mailbox numbering depends on the selected dial plan; see page D.2.

Function 551: Station delivery options

Programming of the station options, as shown below, can be performed by the Installer or Administrator. In addition, the user can change his phone number and pager number (but not phone or pager delay time). The phone number's maximum length is 24 digits.

	1. Number	2. Delay	3. Attempts	4. Interval	5. Quiet on	6. Quiet off
1. Phone	2145556789	30	6	60	10:30PM	7:15AM
2. Pager	2145551234	0	10	30		

To program, enter the extension number to program and select phone or pager to program. Then, enter:

1. **Phone/pager number** — The number to be dialed (**without** the CO line group).

> **Note:** Use the ▲ scroll key to enter special characters; use the ▼ scroll key to backspace. Press # to confirm the inserted character and continue. Press # # to complete the entry. To change the number, delete and then re-enter it.

2. **Delay** — How many minutes the system is to wait before dialing the phone or pager number. This allows the user to pick up a message if he is in the office.
   Range: 0–500. **Default:** 0.
3. **Attempts** — How many times that the system will call/page.
   Range: 0–99. (0 turns off delivery.) **Default:** 3.
4. **Interval** — How many minutes should elapse between attempts.
   Range: 10–1440. **Default:** 30.
5. **Quiet period on** — When the quiet period should begin.
   Default: (None.)
6. **Quiet period off** — When the quiet period should end.
   Default: (None.)

Function 552: Delivery/paging parameters

The sequence of programming is as follows:

1. **CO line access** — Enter the CO line group (9, 8, or 71–76) to be accessed for delivery.
   Default: 9.
2. **Pager dialing pause** — When paging, the ESI Communications Server will send the mailbox number to be shown in the pager's display. To allow time for the paging service to answer, enter the pause, in seconds, to occur between when the system dials the pager number and when it then dials the mailbox number.
   Range: 0–20. **Default:** 6.

> **Note:** The message notification and delivery process uses one CO line at a time. As a result, if a system has multiple users who have programmed delivery options, there may be a delay in notification.

Function 56: Cascade notification mailboxes

In addition to individual mailbox paging, the ESI Communications Server supports **cascade notification mailboxes**. These can be assigned to anyone who requires escalating levels of notification beyond the single level available in all user mailboxes. In this function, you program the notification numbers and number of times each is to be notified before the next notification number is dialed; additionally, the mailbox owner can program these settings. To record a greeting, press **PROG/HELP** ✻ and the mailbox number; then press # to confirm, and follow the prompts. The default password is the mailbox number. The maximum recording length is controlled by Function 51; the default is 10 minutes. For information on the number of cascade notification mailboxes supported by your system and its numbering plan, see "System capacities," page B.1.

Cascade mailbox options

The user can program up to three external numbers, of up to 24 digits each, to be called or paged whenever the mailbox takes a new or urgent message. The system will dial the first number (for the number of times listed), then dial the second paging number (for the number of times listed), and finally dial the third number, continuing in this sequence to call all three numbers until the message has been retrieved.

1. MB	2. 1st Number	3. Type	4. Attempts	5. 2nd Number	6. Type	7. Attempts	8. 3rd Number	9. Type
533	2145553232	PHONE	2	2145554254	PHONE	3	2145555452	PAGER

To program this, enter:

1. **The mailbox number** — **Range:** Depends on dial plan selected (see "Selectable numbering plan," page D.2). [Then press 1 to enter number programming, and proceed to Step 2.]
2. **First number** — The number to be dialed (**without** the CO line group).
3. **Type** — *PHONE* or *PAGER*. Use scroll keys to select.
4. **Attempts** — How many times the system will call before adding the second number. **Range:** 0–99 (*0* immediately pages all numbers). **Default:** 1.
5. **Second number** — The number to be dialed (**without** the CO line group).
6. **Type** — *PHONE* or *PAGER*. Use scroll keys to select.
7. **Attempts** — How many times the system will call before adding the third number. **Range:** 0–99. **Default:** 1.
8. **Third number** — The number to be dialed (**without** the CO line group).
9. **Type** — *PHONE* or *PAGER*. Use scroll keys to select.

> **Notes:** Use the ▲ scroll key to enter special characters; use the ▼ scroll key to backspace. Press # to confirm the inserted character and continue. Press # # to complete the entry. To change the number, delete and then re-enter it.

Cascade notification parameters

The cascade notification mailboxes will use the same CO line group and pager dialing pause as programmed in Function 552 (see page I.4).

Notification interval

To program the notification interval parameter for a cascade notification mailbox:

1. Enter the mailbox number.[1]
2. Press 2 to set parameters for the mailbox.
3. Enter the number of minutes for the interval between attempts. **Range:** 1–1440. **Default:** 30.

[1] Mailbox numbering depends on the selected numbering plan; see page D.2.

Function 57: Q & A mailboxes

You can create **question and answer (Q & A) mailboxes**.[1] Each Q & A mailbox owner can record up to 10 questions. The questions are recorded in the same manner as recording users' multiple personal greetings (see the *User's Guide*). The individual answer segments recorded by the caller are stored as a single message, with the answer segments separated by short beep tones. Each answer segment's maximum length will be as programmed in Function 51 (see page I.1). Normal message handling capability — delete, save, etc. — applies to the entire message (all segments). For information on the number of Q & A mailboxes supported by your system and its numbering plan, see "System capacities," page B.1.

The caller, when recording each answer, can be instructed to conclude by pressing **1** or to pause for the next question (the system advances when it detects either a 3-second period of silence or the pressing of **1**) — *e.g., "Record your name at the tone and press 1 when finished"… "Record your address at the tone and press 1 when finished."* If the caller fails to respond to two questions in a row, the system disconnects the call.

> **Important:** This programming creates or deletes Q & A mailboxes, but these mailboxes are turned "on" **only** when the mailbox owner has recorded questions. Similarly, deleting all questions turns "off" the mailbox.

To record questions, press **PROG/HELP** ✳ and the mailbox number; then press **#** to confirm, and follow the prompts. The default password is the mailbox number. The maximum recording length is controlled by Function 51; the default is 10 minutes.

Here is an example of a completed programming worksheet (numbers correspond to steps on next page):

1. MB	2. Name	3. CF day	4. CF night
490	Employment	ID 9999	ID 9999
491	Survey	ID 9999	ID 9999

Each programming step is defined as follows:

1. **Mailbox number** — Enter a Q & A mailbox number.[1]
2. **Name** — The mailbox name is used for the display, reports, and as a programming aid. The name length can be no longer than 10 characters (see "Entering alphanumeric characters," page D.2).
   Default: The mailbox number.
3. **& 4. Call forward** — A Q & A mailbox can be set to call forward, after the last question has been answered, to an extension, department, a mailbox or a branch ID for day mode and differently for night mode.
   Default: ID9999 (automatic disconnect).

> **Tip:** If you need a Q & A mailbox with more than 10 questions, set the call-forwarding to another Q & A mailbox.

Function 58: Message move and delete

When enabled, this prompts the mailbox user, when moving a message, to do one of the following:

- Move the message and save a copy in his/her mailbox.
- Move the message and delete it from his/her mailbox.

Default: Disabled.

[1] Mailbox numbering depends on the selected dial plan; see page D.2.

Function 6: Recording

Function 61: Re-record system and branch prompts

An ESI Communications Server plays the **system prompts** to an outside caller at different points in the call routing or mailbox functions. These system prompts have been pre-recorded at the factory but you may re-record them, if preferred — *e.g.,* in a different voice or with different instructions.

The **auto attendant branch prompts** (such as the main greeting or sub-menus) are also recorded here. For each, enter the branch ID number as the prompt number — *e.g.*, the prompt for ID 1 is prompt **1**, the prompt for ID 2 is prompt **2**, *etc.* Once you record the day greeting for a main ID branch such as ID 1 or ID 2, the system will give you the option to record greetings for night, day2, and night2. (If necessary, review "Function 4: Auto attendant," beginning on page H.1.)

For both system prompts and branch prompts, the maximum recording length is five minutes per prompt.

Recording a prompt

1. Practice the prompt by recording and re-recording (start and stop by pressing **1**).
2. When satisfied with its quality, press # to confirm.

> **Note:** Deleting a system prompt by pressing **HOLD** (instead of #) restores to the default recording.

System prompts

- **Busy Prompt: 530** — Plays to the outside caller if an extension is busy.
  Default: *"That extension is busy."*
- **No Answer Prompt: 531** — Plays to the caller if an extension does not answer.
  Default: *"That extension does not answer."*
- **Hold Prompt: 532** — Plays to the caller who makes a menu selection or enters an extension number.
  Default: *"One moment, please."*
- **Q/Z Prompt: 534** — Plays to a caller who has selected an alphabetic directory; instructs the caller to press **1** for the letters *Q* or *Z* since these two letters do not appear on the phone keypad; plays at the end of the first directory prompt (but only if a name in the directory starts with a *Q* or *Z)*.
  Default: *"For the letters Q or Z, use key number 1."*
- **No Names Matched Prompt: 535** — Played to the caller if, in a directory branch, the first letter he/she selected does not have any names associated with it, or if he/she has listened to all of the names played and has not made a selection. After playing the prompt, the system forwards the call to the extension, branch or mailbox as programmed in call forward no response.
  Default: *"No names matched; one moment please."*
- **End of Message Prompt: 537** — Plays after a caller leaving a message presses **1** to stop recording; the prompt then tells the caller his/her options.
  Default: *"To continue this recording, press 1; to return to the main menu, press 8; or, if finished, press ∗ and hang up."*
- **ACD Queue Announcements: 538, 548, 558, 568, 578, 588** — The first prompt played to a caller when all extensions are busy in an ACD department.
  Default: *"All agents are currently assisting other customers. Please hold; your call will be answered in the order received."*
- **ACD Second Announcements: 539, 549, 559, 569, 579, 589** — Periodically played to callers on hold in an ACD department when all extensions are busy. See Function 33 (page G.30) for information about assigning the ACD Second Announcement.
  Default: *"All agents are still busy assisting other customers. Please hold; your call will be answered in the order received."*

(Continued)

- **Holiday Main Greeting Prompt: 540** — Plays to callers when the system has been manually placed in holiday mode.
  Default: *"Thank you for calling. Our office is closed in observance of the holiday. You may dial your party's extension, at any time, or please call back during regular business hours."*

  Note: While in holiday mode, the system follows night mode programming for call routing. The day/night mode setting and holiday greeting can be activated remotely (see "Remote setting of day, night and holiday modes," page H.8).

- ***VIP PC Attendant Console* Queue Prompts: 648, 649, 650, 651, 652, 653, 654, 655** — Played to callers automatically or manually placed in the Attendant Queue in *VIP PC Attendant Console*.
  Default: *"All attendants are currently busy. One moment, please."*

Function 62: Record directory names

This function is accessible only if a directory branch has been created as part of auto attendant programming. Enter the extension number and record the name. If this is a by-alpha branch, the system will automatically set the name key using the name assigned in Functions 31, 33, or 53; if necessary, enter a different name key.

Important: Make photocopies of the blank worksheet for preparing directories and making future changes. As names change, the Administrator can enter this function and change any field via the Administrator password.

1. Ext.	2. Recorded name	3. Key
102	John Jones	**5 6 4**
113	Janet Smith	**5 2 6**

Each programming step is defined as follows:

1. **Extension number** — Enter the extension number for the directory name.
2. **Record name** — Press **1** to begin recording and press **1** again when finished.
3. **Name key** — (Necessary if the directory type is alpha [see "Directory branch," page H.3].)
   Enter the numeric equivalent to the letters appearing on a phone keypad (for Q or Z, use *1*). Up to three numbers may be entered. See Function 165 (page E.6) for more information.

A by-alpha directory branch allows the caller to be connected to a system user by selecting his/her name from a directory. The alpha directory has two prompts: the first instructs the caller to enter the first **three letters** of the individual's first or last name; the second instructs the caller to press **#** when he/she hears the desired individual's name. The system then plays the matched names to the caller, in alphabetical order according to the extension names programmed in Function 31 (see page G.2).

With the name key set to three digits, when a caller selects a directory branch and dials only one or two digits to select a name, the system will wait three seconds for the entry of another digit. If the system receives no other digit within that time, the auto attendant will begin to play, in alphabetical order, the subset of directory names bounded by the digits dialed.

Examples: Caller dials **5** and waits three seconds. The system plays names beginning with *J, K,* and *L*.

Caller dials **3 2** and waits three seconds. The system plays names beginning with *DA* through *FC*.

Caller dials **7 7 2**. The system plays names beginning with *PPA* through *SSC*.

If a user dials **more** than three digits, the system ignores the additional digits (except for the # key, which signals the directory to connect the caller to the extension or department associated with the directory entry that's playing).

Note: To re-record the prompt that says, "Enter the first three letters of the person's last name," you must enter Function 61 and then enter the ID number of the directory branch.

Function 63: Message-on-hold (MOH) programming

MOH can be:

- A live feed from an external music source connected to the MOH connector located on the side of the cabinet (see the *ESI Communications Servers Hardware Installation Manual*, ESI # 0450-1049).
- One of three default, generic MOHs pre-recorded by the factory.
- One of up to nine custom MOHs loaded into the system by using a CD player or similar device connected to the MOH connector.

> **Note:** If ACD is used, we recommend that you use prompt 590, prompt 591, or a custom prompt without periodic "voice-overs," since the ACD hold prompt **also** will be played while a caller is on hold.

Function 631: MOH source

This selects the source for the system (or only tenant 1, if tenant service is enabled) that will be played to callers on hold.

Code	Without tenant service enabled	With tenant service enabled
590	Live external source*	[same]
591	Pre-recorded music	[same]
592	Pre-recorded with "please continue to hold"	[same]
593	Pre-recorded with "dial 0 or extension from hold"	[same]
594	Customer-recorded message on hold	Customer-recorded message on hold
595	Customer-recorded message on hold	Customer-recorded message on hold
596	Customer-recorded message on hold	Tenant 2 customer-recorded message on hold [fixed]
597	Customer-recorded message on hold	Tenant 3 customer-recorded message on hold [fixed]
598	Customer-recorded message on hold	Tenant 4 customer-recorded message on hold [fixed]
599	Customer-recorded message on hold	Tenant 5 customer-recorded message on hold [fixed]
600	Customer-recorded message on hold	Tenant 6 customer-recorded message on hold [fixed]
601	Customer-recorded message on hold	Tenant 7 customer-recorded message on hold [fixed]
602	Customer-recorded message on hold	Tenant 8 customer-recorded message on hold [fixed]

* If desired, dialing off-hold can be disabled using Function 166, field 8 (see page E.8).

Default: 592 (generic message-on-hold).

> **Notes:** While any of the MOH sources can be assigned for tenant 1, MOH source **isn't** selectable for tenants 2–8; if tenant service is enabled, each of these tenants has a **fixed** MOH source as indicated in the table above.
>
> For each tenant, if there is no customer-recorded message, the default, generic MOH source (592) will be played, instead.

Function 632: MOH recording

1. Connect the message/music source to the MOH port on the side of the cabinet.

   Note: The connector is monophonic-only — if you use a stereo source, you must either set it to output mono, if possible, **or** use a stereo-to-mono conversion cable (or adapter).

2. Enter the prompt number to be recorded.
3. Press **1** to begin recording. To aid you in queuing, the source will be played through the phone's speaker.

   Note: The recorded material should not have a "beginning" or "end" — so that playback can loop continuously. The maximum record length is controlled by the amount of space available on the Memory Module.

4. Press **1** when finished. The recording will play back so you can review it.
5. Press # to accept the recording.

Note: Once you have recorded a custom MOH, you delete it by recording one second of silence.

Function 633: MOH volume

If a custom MOH is recorded, the output volume can be adjusted in this function.
Range: 1 (faint)–12 (loudest). **Default:** 6.

Notes: If an external audio source such as a radio is used for MOH, adjust the volume at the source.

To turn **live** MOH volume completely off, turn off volume at the source.

To turn **recorded** MOH volume completely off, select (in Function 631) one of the prompts in the range of 594–598, but make sure it's blank. These prompts are blank by default; if you have recorded some audio on all of them, just select one and record a few seconds of silence.

Function 64: Call recording settings

Choices for this function include:

- **1** — CO line recording settings
- **2** — Extension or department recordings
- **3** — Call recording parameters

Function 641: CO line recording settings

Choices for this function include:

- **1** — Analog line recording settings
- **2** — T1 line recording settings
- **3** — PRI line recording settings
- **4** — SIP trunk recording settings

Function 6411: Analog line recording settings

1. **Choose CO lines to program**

   During this step, you use the programmable feature keys to represent CO lines. Press one or more these keys to select lines to be programmed. Press the scroll keys (▼or ▲) to "page" in increments appropriate for the port card configuration. The display will indicate which CO lines the programmable keys currently represent.

   The system software will identify the port card type installed in each slot. The display will show the following information:

   - The first line will show the port card number, the type of card, the CO lines available for programming, and a *D* or *N* to indicate day or night mode.
   - The second line will show the currently selected CO line and the circuit that is being programmed.

   The LEDs on the appropriate programmable feature keys will glow red to indicate the lines that are available for programming.

   If the port card in the first slot is a 612 card, the display will be:

   ```
   PC1 612 1-6 D
   CO1 CIRCUIT 1 >
   ```

   If the port card in the third slot is a 684 card, the display will be:

   ```
   PC3 684 13-18 N
   CO16 CIRCUIT 4 >
   ```

   In each example, the LEDs on the first six programmable feature keys glow red. Select the CO lines to be programmed alike (you can scroll to select the next port card and continue to select CO lines to be programmed alike), and press # to confirm. The LEDs for the selected lines (keys) will now glow green.

2. **Select to enable call recording**

   The call recording service for this line is authorized as displayed. Press a scroll key to change — or, to confirm the current setting, press #.
   Default: *NO*.

   ```
   CO LINE
   RECORDING: NO >
   ```

Function 6412: T1 line recording settings

1. Choose T1 lines to program

You can select from the first set of 12 CO lines on the first card. Use the scroll keys to view the next 12 CO lines on the same card. To see the first 12 CO lines on the second card (if installed), scroll again; if there is only one DLC or DLC12 installed, scrolling will return you to the first 12 CO lines.

> **Note:** A 48-Key Feature Phone will display the first set of 24 CO lines on the card; scrolling again will allow you to select the 24 CO lines on a second card.

Select the CO lines to be programmed alike and press # to confirm. The LEDs on the keys for the selected lines will glow green; then, after a CO line is programmed, its key's LED will glow amber. Programming of the first CO line should default forward for the remaining CO lines selected. After the selected CO line are programmed, their keys' LEDs will glow amber.

If the port card in the third slot is a DLC12, the display will be:

```
PC3 DLC12 13-36
CO13 CIRCUIT 10>
```

2. Select to enable call recording

The call recording service for this line is authorized as displayed. Press a scroll key to change — or, to confirm the current setting, press #.
Default: *NO*.

```
CO LINE
RECORDING: NO >
```

Function 6413: PRI line recording settings

1. Choose PRI lines to program

You can select from the first set of 12 CO lines on the first card. Use the scroll keys to view the next 11 CO lines on the same card. To see the first 12 CO lines on the second card (if installed), scroll again; if there is only one DLC or DLC12 installed, scrolling will return you to the first 12 CO lines.

> **Note:** A 48-Key Feature Phone will display the first set of 23 CO lines on the card; scrolling again will allow you to select the 23 CO lines on a second card.

Select the CO lines to be programmed alike and press # to confirm. The LEDs on the keys for the selected lines will glow green; then, after a CO line is programmed, its key's LED will glow amber. Programming of the first CO line should default forward for the remaining CO lines selected. After the selected CO line are programmed, their keys' LEDs will glow amber.

You can select from the first set of 23 CO lines on the first card. Scrolling again will allow you to select the 23 CO lines on a second card (if one is installed; if there is only one DLC or DLC12 installed, scrolling will return you to the first 23 CO lines).

> **Note:** A 24-Key Feature Phone will display only the first 12 CO lines on the card. If using such a phone to program, use the scroll keys to view the next 11 CO lines on the same card; to see the first 12 CO lines on the second card (if installed), use the scroll keys again.

Select the CO lines to be programmed alike and press # to confirm. The LEDs on the keys for the selected lines will glow green; then, after a CO line is programmed, its key's LED will glow amber. Programming of the first CO line should default forward for the remaining CO lines selected. After the selected CO line are programmed, their keys' LEDs will glow amber.

If the port card in the third slot is a DLC12, the display will be:

```
PC3 DLC12 13-35
CO13 CIRCUIT 10>
```

2. Select to enable call recording

The call recording service for this line is authorized as displayed. Press a scroll key to change — or, to confirm the current setting, press #.
Default: *NO*.

```
CO LINE
RECORDING: NO >
```

Function 6414: SIP trunk recording settings

1. Choose SIP trunks to program

You can select from the first set of 12 CO lines on the first card. Use the scroll keys to view the next 12 CO lines on the same card. To see the first 12 CO lines on the second SIP24 card (if installed), scroll again; if there is only one SIP24 installed, scrolling will return you to the first 12 CO lines.

> **Note:** A 48-Key Feature Phone will display the first set of 24 CO lines on the card; scrolling again will allow you to select the 24 CO lines on a second card.

Select the CO lines to be programmed alike and press # to confirm. The LEDs on the keys for the selected lines will glow green; then, after a CO line is programmed, its key's LED will glow amber. Programming of the first CO line should default forward for the remaining CO lines selected. After the selected CO line are programmed, their keys' LEDs will glow amber.

If the port card in the third slot is a SIP24 card, the display will be:

```
PC3 SIP 13-36
CO13 CIRCUIT 10>
```

2. Select to enable call recording

The call recording service for this line is authorized as displayed. Press a scroll key to change — or, to confirm the current setting, press #.
Default: *NO*.

```
CO LINE
RECORDING: NO >
```

Function 642: Extension and department recordings

1. Select the extension or department to be recorded

Enter the extension or department number to be programmed:

```
CALL RECORDING
EXT/DEPT: 100
```

2. Select to enable call recording

The call recording service for this line is authorized as displayed. Press a scroll key to change — or, to confirm the current setting, press #.
Default: *NO*.

```
X100 BOB
   RECORD: NO  >
```

3. Select to enable privacy-on-demand

> **Note:** This step will appear only if a valid extension was entered in step 1 and the ESI phone at the extension has a three-line display.

Privacy-on-demand allows the defined user to decide whether a call will be recorded and saved. While on a call, a user with this option enabled may press the *PVY* (privacy) soft key, which will immediately stop the recording of the call and delete any recording that may have been started.

Privacy-on-demand can be assigned only to individual extensions, not departments. Therefore, if you want to enable privacy-on-demand for any extensions in a department, you must enter each extension individually and then enable privacy-on-demand for that extension.

```
X100 BOB
   PRIVACY: NO  >
```

Default: *NO*.

Function 643: Call recording parameters

1. **Set the minimum call timer**

   The **minimum** length for a call recording can be between two and 10 seconds, in increments of one second, and applies equally to all channels. If the call length is less than this minimum setting, the call's recording will be deleted automatically upon termination of the call.
   Default: 10 seconds. **Range**: 2–10 seconds.

   ```
   MIN RECORD TIME
      10 SECONDS
   ```

2. **Set the maximum call timer**

   The **maximum** length for a call recording can be between one minute and 120 minutes, in increments of one minute, and applies equally to all channels. If a call's length reaches the maximum, the call's recording will be terminated immediately and a new recording will begin (the new recording will be indicated in the SMDR record by the word *CONT* following the *digits dial* field).
   Default: 60 minutes. **Range**: 1–120 minutes.

   ```
   MAX RECORD TIME
      60 MINUTES
   ```

Function 7: Reports

Report printing

The system's built-in reports can be output to a printer or a PC via the **Maintenance/SMDR** port.

When printing captured reports from the PC to a laser printer, use a fixed monoproportional font (such as Consolas, Courier New, Andale Mono, or Letter Gothic), 9 points or smaller.

From either the Installer or Administrator programming menu, select the desired report as shown in Functions 71–76 *(starting below)*.

> **Important:** The reports listed for Function **71** are available **only** when you're logged-in with the Installer password.
>
> The report listed for Function **76** are available **only** if the system is on an Esi-Link network.

The reports can be printed with either: (1) the data saved for inclusion in future reports, or (2) the data and totals cleared. (You **can't** clear data in either the system program report or the system speed-dial report.)

Reporting functions

- **Function 71: System reports** (available **only** when you're logged-in with the Installer password)
  - **Function 711: System program report**— Provides a hard copy of the system's current programming. Compare this with the programmer's worksheet to verify the accuracy of the programmed data.
  - **Function 712: PRI diagnostics reports**
    - **Function 7121: Abnormal call report** — Retrieves call detail records for abnormally disconnected calls, including the PRI q.931 disconnect cause code appended to the end of each call record.
    - **Function 7122: PRI status report** — Provides current status of each B-channel and D-channel of all the PRI spans in the system.
    - **Function 7123: Alarm history report** — Provides a log of the last 128 physical alarm layers for each PRI span in the system.
    - **Function 7124: PRI diagnostics report** — Provides a log of errors and parameter settings for each PRI span in the system. (See also Function 7125, *below*.)
    - **Function 7125: Clear PRI diagnostic errors and alarms** — Resets all error counters in the PRI diagnostics report (Function 7124, *above*) and clears the alarm history report and maintenance mailbox.
- **Function 72: ESI Presence Management access door report** — Provides historical data on access door entry.
- **Function 73: ACD department detail report** — (See K.7.)
- **Function 74: Voice mail statistics report** — Provides statistics indicating the message activity in each mailbox since the data was last cleared.
- **Function 75: System speed-dial list** — Lists the current system speed-dial numbers. Distribute a copy to those who are authorized to use them.
- **Function 76: NDDS report** — Provides a list of network number assignments. This report can be used to verify network number programming and as a reference when programming flexible number reassignments in Function 341.

Function 71: System reports

Function 712: PRI diagnostic reports

Function 7121: Abnormal call report

Retrieves call detail reports for abnormally disconnected calls, including the PRI q.931 disconnect cause code appended to the end of each call record.

1. Enter the eight-digit **start** date *(mm/ddyyyy)* for this report and press # to confirm.

```
ABNORMAL CALL
START D:04242008
```

2. Enter the **start** time in twelve-hour format (leading zero not required) and press # to confirm.

```
ABNORMAL CALL
START T:615
```

3. Use the scroll keys to select **AM** or **PM** and press # to confirm.

```
ABNORMAL CALL
START T:615 AM>
```

4. Enter the eight-digit **end** date *(mm/ddyyyy)* for this report and press # to confirm.

```
ABNORMAL CALL
END D:04252008
```

5. Enter the **end** time in twelve-hour format *(hh:mm)* and press # to confirm.

```
ABNORMAL CALL
END T:1100
```

6. Use the scroll keys to select **AM** or **PM** and press # to confirm.

```
ABNORMAL CALL
END T:1100 PM>
```

7. To print the report, press **1**.

```
ABNORMAL CALL
PRESS 1
```

Here's an example of output from the Function 7121 abnormal call history report:

```
====== Abnormal Call Termination Report ======  From: 04/24/2008 6:15 AM  to 04/25/2008 11:00 PM


T Date  Start    Duration Ext  vTrk Dialed number            Acct code  ELink Caller ID       PRI Cause code
- ----- -------- -------- ---- ---- ------------------------ ---------- ----- --------------- ----------------
I 04/24 06:15:06 00:00:20 1401  102 2512900                            0002  7168185450   BU     16
O 04/24 06:15:16 00:02:19 2134  022 29364698                                                     8
I 04/24 06:16:21 00:00:08 1416 *022 2601967                                                     27
I 04/24 06:16:27 00:00:23 1401  102 8002903333                               2037759278         16
I 04/24 06:19:12 00:00:24 1139  003 8002513900                               3345677877   MA    16
T 04/24 06:19:33 00:02:19 1195  002 28903                                    2037759278         16
O 04/24 06:20:45 00:00:49 1195  023 12565352908              0087                                8
O 04/24 06:21:31 00:00:01 1190  023 32419238                                                     1
T 04/24 06:21:38 00:00:13 1130  002 28903                                    3348260909   W     16
T 04/24 06:22:03 00:02:14 T004  003 18903333                                0102               16
```

Function 7122: PRI status report

Provides current status of each B-channel and D-channel of all the PRI spans in the system.

To print this report, press **1** and press **#** to confirm.

```
PRI STATUS
PRESS 1
```

Here's an example of output from the Function 7122 PRI status report:

```
=== PRI channel status ===        4/25/2008 8:24 AM


Card slot:  7
  Ch:1 St:IDLE Status:0         Usable: Yes
  Ch:2 St:IDLE Status:0         Usable: Yes
  Ch:3 St:IDLE Status:0         Usable: Yes
  Ch:4 St:IDLE Status:0         Usable: Yes
  Ch:5 St:IDLE Status:0         Usable: Yes
  Ch:6 St:IDLE Status:0         Usable: Yes
  Ch:7 St:IDLE Status:0         Usable: Yes
  Ch:8 St:IDLE Status:0         Usable: Yes
  Ch:9 St:IDLE Status:0         Usable: Yes
  Ch:10 St:IDLE Status:0        Usable: Yes
  Ch:11 St:IDLE Status:0        Usable: Yes
  Ch:12 St:IDLE Status:0        Usable: Yes
  Ch:13 St:IDLE Status:0        Usable: Yes
  Ch:14 St:IDLE Status:0        Usable: Yes
  Ch:15 St:IDLE Status:0        Usable: Yes
  Ch:16 St:IDLE Status:0        Usable: Yes
  Ch:17 St:IDLE Status:0        Usable: Yes
  Ch:18 St:IDLE Status:0        Usable: Yes
  Ch:19 St:IDLE Status:0        Usable: Yes
  Ch:20 St:IDLE Status:0        Usable: Yes
  Ch:21 St:IDLE Status:0        Usable: Yes
  Ch:22 St:IDLE Status:0        Usable: Yes
  Ch:23 St:CONNECT Status:0     Usable: Yes
  D Ch: Link Established
```

Function 7123: Alarm history report

Provides a log of the last 128 physical alarm layers for each PRI span in the system.

To print an alarm history report, press **1** and press # to confirm.

```
T1/PRI ALRM HIST
PRESS 1
```

Here is a sample of output from a Function 7123 alarm history report:

```
=== Alarm history log ===        1/10/2008 8:00 AM


Date      Time      Port Card Alarm type
=--------- -------- --------- ----------
 10/2/2007 1:14 AM      1     Red
 10/2/2007 1:22 AM      1     Alarm clear
  1/3/2008 2:14 PM     14     Blue
  1/3/2008 2:14 PM     14     Alarm clear
  1/4/2008 3:14 PM      3     Yellow
  1/4/2008 3:15 PM      3     Alarm clear
```

Alarm types

- **Red alarm**
  - — LOS (loss of signal)
    - No incoming signal.
    - Commonly caused by disconnected cable
  - — LOF (loss of framing)
    - No synchronization
      — Wrong framing format (SF *vs.* ESF)
      — Wrong line code (AMI *vs.* B8ZS)
- **Blue alarm**
  - — AIS (alarm indication signal)
    - No incoming signal is detected; CSU or equipment sends all *1*s to the network when his occurs
    - ESI DLCs don't generate blue alarms
- **Yellow alarm**
  - — RAI (remote alarm indication)
    - Sent by the network (remote end); network either isn't receiving a signal or is unable to synchronize
    - However, equipment (local end) **is** receiving a signal (because it's getting the yellow-alarm message)
    - Two main culprits here are LBO and clocking

Function 7124: PRI diagnostics report

Provides a log of errors and parameter settings for each PRI span in the system.

To print a PRI diagnostic report, press **1** and press # to confirm.

```
PRI DIAGNOSTICS
PRESS 1
```

Here is a sample of output from a Function 7124 PRI diagnostics report:

```
============ PRI Diagnostics Report ============  4/8/2008 13:07

++++++++++++++++++++++ PRI Card slot: 4 ++++++++++++++++++++++++
-------------------------- Parameters --------------------------
PLL:4      Protocol: National N12    LBO:0     Tone:0
PLL status: Enabled - Master TS:8    Echo:FF55 - Add
--------- Slip count ---------
Cur:53399  Last:53688  Rate:18

------------------------ Status monitor ------------------------
          Valid intervals:       450 Current interval:     455
  Current interval seconds:       510   Current status:       0

-------------- Current 15 minute interval errors ---------------

                      bursty   severe   contrld.
Errored  unavail.     errored  errored  slip      loss of
seconds  seconds      seconds  seconds  seconds   frame
-------  --------     -------  -------  -------   -------
   0         0            0        0        0        0

                                                        ESP
                                                        errors
-------------- Errors in past 24-hour period ------------ ------
    4          2         0        0        2         0       0


++++++++++++++++++++++ PRI Card slot: 11 +++++++++++++++++++++++
-------------------------- Parameters --------------------------
PLL:4      Protocol: National N12    LBO:0     Tone:0
PLL status: Enabled - Master TS:8    Echo:FF55 - Add
--------- Slip count ---------
Cur:53399  Last:53688  Rate:18

------------------------ Status monitor ------------------------
          Valid intervals:       600 Current interval:     600
  Current interval seconds:       712   Current status:       0

-------------- Current 15 minute interval errors ---------------

                      bursty   severe   contrld.
Errored  unavail.     errored  errored  slip      loss of
seconds  seconds      seconds  seconds  seconds   frame
-------  --------     -------  -------  -------   -------
   0         0            0        0        0        0

                                                        ESP
                                                        errors
-------------- Errors in past 24-hour period ------------ ------
    4          2         0        0        2         0       0
```

Information in PRI diagnostics report

- **Slips** (controlled slips)
  - — Caused by timing problems
  - — Links with multiple telcos are highly susceptible to slips
- **BPV** (bi-polar violations)
  - — Equipment is set to AMI instead of B8ZS (or *vice versa*)
  - — Noise
  - — *With* slips could be caused by *NEXT* (near-end crosstalk)

Function 7125: Clear diagnostic error counts and alarms

Resets to zero all error counters in the Function 7124 PRI diagnostics report, clear the Function 7123 alarm history report, and clear the maintenance mailbox.

To clear all error counters and T1/PRI alarms, use the cursor keys to select **YES** and press # to confirm**.**

```
CLEAR ALARMS?
NO             >
```

Function 72: ESI Presence Management access door report

The ESI Presence Management access door report is available to the Installer and System Administrator, and is based on historical data for the desired access door RFID Reader.[1]

The report contains records of extensions/mailboxes, names, RFID tag numbers, and the date and time from the 10,000 most recent records for access-only door (**not** entrance/exit) RFID Readers in the system. Once the limit of 10,000 is reached, older records are discarded as newer records are stored. Initializing the system deletes all stored records.

1. Enter the extension number of the desired access door RFID Reader, and press #.

```
EPM READER
EXT: 123
```

2. Enter the **start time** in 12-hour, *HHMM* format, and press #.

```
ENTER START TIME
```

3. Use the scroll keys to select *AM* or *PM* for the start time, and press #.

```
ENTER AM OR PM
```

4. The eight-digit **start date** for this report is composed of two digits for the month, two digits for the day, and four digits for the year. The start date should be today's date or earlier. Enter the start date in *MMDDYYYY* format, and press #.

```
ENTER START DATE
```

5. Enter the **end time** in 12-hour, *HHMM* format, and press #.

```
ENTER END TIME
```

6. Use the scroll keys to select *AM* or *PM* for the end time, and press #.

```
ENTER AM OR PM
```

(Continued)

[1] *For* reference, if necessary, consult the *ESI Presence Management Installation Manual* (ESI #0450-0792).

7. The eight-digit **end date** for this report is composed of two digits for the month, two digits for the day, and four digits for the year. The end date should be no earlier than the start date. Enter the end date in *MMDDYYYY* format, and press **#**.

```
ENTER END DATE
```

8. To print the report, press **1** and then **#**.

```
PRESS 1 TO PRINT
REPORT
```

Here's an example of an access door report for an RFID Reader:

```
Access Door Report                                                  Page  1
EPM Reader     123
Start          01/25/2007  7:00 AM          END 01/25/2007          2:00 PM

 Ext/MB          Name           Tag ID             Date                Time
--------        -----          --------           ------              ------
 0103           TOM          0001234567890       01/25/2007           7:01 AM
 0103           TOM          0001234567890       01/25/2007           7:01 AM
 0102           GREG         0002345678901       01/25/2007           7:02 AM
 0103           TOM          0001234567890       01/25/2007           7:02 AM
 0000                        0003456789012       01/25/2007           7:02 AM
 0108           DAVID T      0004567890123       01/25/2007           9:01 AM
 0109           BILL         0005678901234       01/25/2007           9:05 AM
 0110           DAVID M      0006789012345       01/25/2007          12:45 PM
 0111           DEREK        0007890123456       01/25/2007          12:50 PM
 0112           STEVE W      0008901234567       01/25/2007           1:02 PM
 0108           DAVID T      0004567890123       01/25/2007           1:05 PM
 0108           DAVID T      0004567890123       01/25/2007           1:15 PM

                           Report Complete
```

Notes: Extensions and mailboxes are reported as four digits each, regardless of your numbering plan selection.

Each RFID tag that hasn't been assigned an extension or mailbox is reported as *0000*.

Function 73: ACD department detail report

The ACD department detail report provides extension usage by ACD department. This report includes the following "fixed" information:

- All ACD departments will be included.
- The current report's **start** date and time will be the previous report's **end** date and time.
- The current report's **end** date and time will be the current date and time.

Function 73 offers two choices:

1. **Current report** *("Press **1** to print the current ACD report")* — Outputs the current ACD department report. All information is automatically copied to the previous report (see next choice) and cleared from the current report.
2. **Previous report** *("Press **2** to repeat the previous ACD report")* — Re-sends the last report printed.

Notes: After the current report is requested, it will be stored indefinitely (as the "previous" report) until the next "current" report is selected.

The optional *VIP ACD Supervisor* provides greatly enhanced ACD reporting capabilities. See the *VIP ACD Product Overview* (ESI # 0450-0988).

Sample Function 73 report

```
ACD Report by Department, Current                                        Page  1
Department Detail              Dept: 291, TRAINED (A)
      Start: 12/15/2004  17:07          End: 12/17/2004  16:07
                     Incoming ACD                  PBX Calls
              (B)----------------------- ---(C)----------------------------
                       Duration                    Duration          Duration
Ext Name         Answer   H:MM:SS Recovered Answer  H:MM:SS    Out   H:MM:SS
114 MATT             44   5:48:42         1     14  1:15:44     13   0:41:10
115 RICK              0   0:00:00         0      6  0:14:32      2   0:03:55
102 CRAIG            33   5:15:00         3      9  1:03:35     15   0:27:30
103 TOMMY            19   2:47:39         1      9  0:20:10     15   0:27:15
104 JOHN D            1   0:10:21         0     11  0:25:30     11   0:57:35
106 SCOTT            36   3:59:38         1     24  1:57:02     20   0:36:12
112 CHRIS            51   5:00:19         1     19  2:04:02     17   0:20:54
116 PHIL             31   3:14:50         0     23  1:35:41     34   0:36:33
105 BOBBY            40   4:42:32         5     15  0:43:31     18   1:20:01
119 EDWARD           41   4:25:11         2     24  0:59:53      8   0:26:17
117 MARK D            0   0:00:00         0      2  0:00:28      4   0:06:40
113 DAVID             0   0:00:00         0      7  0:52:38     13   0:42:46
120 JENNY A           4   0:09:07         1      4  0:16:10      0   0:00:00
                    ___  ________       ___    ___ ________    ___  ________
Totals              300  35:33:19        15    167 11:48:56    170   6:46:48
Abandoned Calls: 3
Rerouted  Calls: 2      (D)
Average CO queue time: 0:21 -- Max CO queue time: 0:50
```

Function 73 report description

The ACD department detail report is divided into four major sections: the report header, the incoming ACD call statistics, the PBX call statistics, and the report footer.

Report header

The **report header** (A) includes the report name ("ACD Report by Department, Current" or "ACD Report by Department, Previous"), ACD department name and number, report start date and time, and ending date and time:

- **Start** — Beginning date and time of the reporting period. This will match the ending date and time of the previous report.
- **End** — Ending date and time of the reporting period.

Incoming ACD call statistics

The **incoming ACD call statistics** section (B) shows ACD calls offered to each ACD agent position. These are calls that are transferred to, or ring into, the department number and then are distributed to the agent positions (extensions).

Column name	Description
Ext	ACD extension
Name	Extension name
Answer	Number of ACD incoming calls answered at that extension (includes Esi-Link calls to the ACD department)
Duration	Total time connected to ACD calls
Recovered[1]	Number of ACD calls unanswered at that extension and returned to the ACD queue.

(Continued)

[1] Each time a call is recovered, that ACD extension will be automatically logged-out of the ACD department. For more information, see the *User's Guide*.

PBX call statistics

The **PBX call statistics** section Ⓒ shows non-ACD calls for each extension — *i.e.*, all calls that weren't delivered directly through the ACD department number.

Column name	Description
Answer	Number
Duration	Total time connected to incoming PBX calls
Out	Number of PBX calls originated at that extension
Duration	Total time connected to outgoing PBX calls

Report footer

The **report footer** Ⓓ includes totals of the incoming ACD call statistics and PBX call statistics; it also includes the average and maximum **queue times**, as well as total **abandoned calls** and **rerouted calls**, for each ACD department:

- **Average CO queue time** — The average length of time, in minutes and seconds, that callers were holding ('queued") for an available agent over the reporting period.
- **Max CO queue time** — The maximum length of time, in minutes and seconds, that one or more callers had been queued for an available agent over the reporting period.
- **Abandoned calls** — Total ACD calls that disconnected (hung up) while held in queue or listening to the ACD queue or hold prompt (announcement).
- **Rerouted calls** — Total ACD calls that followed the ACD department call forwarding assigned in Function 33 after expiration of the ACD exit timer (assigned in Function 154).

Notes:

1. A CO call transferred to an ACD department or ACD extension will be counted as a new call each time it's successfully transferred.
2. An ACD call transferred to the same, or another, ACD department will be counted as a new ACD call for that department.
3. An ACD call transferred to an ACD extension will be counted as a PBX incoming call for that extension.
4. A PBX call (outgoing or incoming) transferred to an ACD department will be counted as an ACD call.
5. A call retrieved from system-wide hold will be counted as an incoming PBX call.
6. PBX calls that forward to voice mail or other forwarding destinations are not included in the ACD department report.
7. An incoming ACD call that disconnects (hangs up) while ringing at an ACD extension won't be counted as an abandoned call.

Function 76: NDDS reports

> **Important:** Used **only** in Esi-Link networks.

Provides a list of network number assignments. This report can be used to verify network number programming and as a reference when programming flexible number reassignments in Function 341.

To print an NDDS report, press **1** and then press **#** to confirm.

```
NDD REPORT
PRESS 1
```

Here is sample output from a network numbering report:

```
Configured network numbers:
 NDDS Report          Friday, 25 April 2008, 08:53:07A           Page 1

Network Esi-Link   Network Esi-Link   Network Esi-Link   Network Esi-Link
 Number Location    Number Location    Number Location    Number Location
------- --------   ------- --------   ------- --------   ------- --------
   1002   701         1003   701         1004   701         1005   701
   1030   702         1031   702         1032   702         1033   702
   1034   702         1035   702         1036   702         1037   702
   1038   702         1039   702         1040   700         1041   700
   1042   700         1043   700         1044   700         1045   700
   1046   700         1047   700         1048   700         1049   700
   2000   700         2001   700         2002   700         2003   700
   2004   700         2005   700         2006   700         2007   700
   2008   700
```

Feature description: SMDR

SMDR (station message detail reporting) call records are output in real time via an ESI Communications Server's **Maintenance/SMDR** serial port. Connect a standard serial printer or call accounting system to the serial port. SMDR data will be stored temporarily if a laptop is connected for programming (five minutes after you exit programming mode, the buffered SMDR will resume output to the serial port).

The output from the serial port is: 8 data bits, 1 stop bit, and no parity [the baud rate is selected under Function 18 (see page E.13)].

SMDR may be output in one of three formats, selected in system programming: **standard**, **CSV**, or **extended**. The tabular format is the default.

Standard tabular SMDR format

ESI's tabular SMDR output format, which is compatible with the standard Panasonic® DBS® format except for the last two (ESI-exclusive) items, is as shown below:

Four-digit dial plan

```
          1         2         3         4         5         6         7         8
12345678901234567890123456789012345678901234567890123456789012345678901234567890
T MM/DD HH:MM:SS HH:MM:SS NNNN XXXXXXXXXXXXXXXXXXXXXXXXXXXX AAAAAAAAAA EE RR LLL
```

Three-digit dial plan

```
          1         2         3         4         5         6         7         8
12345678901234567890123456789012345678901234567890123456789012345678901234567890
T MM/DD HH:MM:SS HH:MM:SS NNN XXXXXXXXXXXXXXXXXXXXXXXXXXX  AAAAAAAAAA EE RR LL
```

The columns are:

- **Call type** — Outbound ("O"), inbound ("I") or transferred ("T") at column 1.
- **Date** ("MM/DD") — Begins at column 3.
- **Start time** ("HH:MM:SS") — Begins at column 9.
- **Duration** ("HH:MM:SS") — Begins at column 18.
- **Extension number** ("NNNN" under the four-digit dial plan, "NNN" under the three-digit dial plan) — Begins at column 27.
- **Digits dialed** (right-justified)**/Caller ID** (left-justified) — Begins at column 32 under the four-digit dial plan or column 31 under the three-digit dial plan (28 characters).
- **Account code** ("AAAA") — Begins at column 60. (See also "SMDR format when using account codes," page L.3.)
- **Esi-Link home location number** ("EE")[1] — Begins at column 71.
- **Esi-Link remote location number** ("RR")[1] — Begins at column 74.
- **CO line number** ("LLL" under the four-digit dial plan, "LL" under the three-digit dial plan) — Begins at column 77.

Each record is terminated with a line feed and carriage return character.

[1] Used only when Esi-Link is enabled and programmed. Esi-Link SMDR records are generated at only the home location.

CSV SMDR format

The **comma-separated value (CSV)** format is readable from within *Microsoft Excel*® and other spreadsheet applications.

> **Note:** The CSV format does not support account codes (see page L.3).

A CSV record is output for each completed call, and represented as follows (word-wrapped):

Format:

```
"T","MMDDYYYY","HHMMSS","HHMMSS","NNN","XXXXXXXXXX. . .XXX","CCCCCCCCCC. . .CCC","EE","RR","LL"
```

Example A (with Esi-Link):

```
"I","07042002","000852","000059","101","2144229700","ESTECH SYS INC. ","01","04","54"
```

Example B (no Esi-Link):

```
"O","10312003","221502","020512","190","12125551212","","  "," ","11"
```

The fields are:

- **Call type** (“T”) — Outbound (“O”), inbound (“I”) or transferred (“T”).
- **Start date** (“MMDDYYYY”) — Eight characters, zero-filled.
- **Start time** (“HHMMSS”) — Six characters, zero-filled; 24 hour clock.
- **Duration** (“HHMMSS”) — Six characters, zero-filled.
- **Extension number** (“NNN”) — Four characters, space-filled, right-justified.
- **Digits dialed/Caller ID** (“XXXXXXXX . . . XXX”) — Up to 28 characters, null-filled.
- **Caller ID name** (“CCCCCCCCC . . . CCC”) — Up to 24 characters, null-filled.
- **Esi-Link home location number** (“EE”)[1] — Two characters (two-digit suffix).
- **Esi-Link remote location number** (“RR”)[1] — Two characters, null-filled (two-digit suffix).
- **Line number** (“LL”) — Three characters, null-filled, right-justified.

Each field is delimited with double quote marks and separated with a single comma. Null fields are still included as place holders (see Example B, *above*). Each record is terminated with a line feed and carriage return character.

[1] Used only when Esi-Link is enabled and programmed. Esi-Link SMDR records are generated at only the home location.

SMDR format when using account codes

The account code will be output in the SMDR record in character positions 60 through 69, inclusive (compliant with Panasonic DBS SMDR format). A new line will be generated each time someone enters an account code (indicated below by "A").

```
         1         2         3         4         5         6         7         8
12345678901234567890123456789012345678901234567890123456789012345678901234567890
T MM/DD HH:MM:SS HH:MM:SS NNN XXXXXXXXXXXXXXXXXXXXXXXXXXX  AAAAAAAAAA EE RR LL
```

Examples: One account code entered during an incoming call:

```
12345678901234567890123456789012345678901234567890123456789012345678901234567890
I 11/23 09:22:45 00:10:15 104 2145559700 DOE AND CO.       1234500001 EE RR 07
```

Three different account codes entered during the same incoming call:

```
12345678901234567890123456789012345678901234567890123456789012345678901234567890
I 11/23 09:22:45 00:10:15 104 2145552324 AAA FINANCIAL     1234500001 EE RR 07
I 11/23 09:33:00 00:27:00 104 2145552324 AAA FINANCIAL     1234500010 EE RR 07
I 11/23 10:00:00 00:56:22 104 2145552324 AAA FINANCIAL     1234500050 EE RR 07
```

A user should be able to tell from this SMDR report that the following charges should apply:

- Account 1234500001, for a 10-minute, 15-second call (between 9:22:45 and 9:33:00).
- Account 1234500010, for a 27-minute call (between 9:33:00 and 10:00:00).
- Account 1234500050, for a 56-minute, 22-second call (between 10:00:00 and 10:56:22).

There's no indication in the SMDR record if an incorrect account number was used.

Note: The *E*s and *R*s starting at position 70 will be the only digits used for Esi-Link, which will display the last two digits of the cabinet numbers. For example, an Esi-Link intercom call between Cabinet 701 in Dallas and Cabinet 702 in Chicago would appear as: *01 02*.

Capturing SMDR data over Ethernet

The NSP[1] can be used to output SMDR data over an IP network; and a Telnet connection can be made to the NSP, using port xx003 (default is *59003*), to capture this data. For more information, see *NSP Installation Made Simple* (ESI # 0450-0669).

TAPIT EX *compatibility*

Trisys, Inc., offers a call accounting application, *TAPIT EX*, that supports ESI's extended SMDR format. For more information about *TAPIT EX*, contact Trisys at 973 360-2300 or visit *www.trisys.com*.

[1] Network Services Processor (see also "Function 824: Network Services Processor," page M.7).

Reporting conventions and rules (standard and CSV formats)

- Inbound and outbound call records are generated only for calls between a station and a CO line. ESI systems provide SMDR records only for calls answered by, or originated from, a system extension. Unless otherwise noted, ESI systems **don't** provide SMDR records for the following types of calls:
  - **Incoming** calls . . .
    - To the auto attendant that don't leave the auto attendant.[1]
    - Directly to a mailbox.[1]
    - Call-forwarded off-premises (using Intelligent Call Forwarding or ESI Presence Management).
  - **Outgoing** calls . . .
    - Call-forwarded off-premises (using Intelligent Call Forwarding or ESI Presence Management).
    - Sent to the auto attendant and forwarded out using go-to outdial branches.
    - Generated using message delivery notification.
- The duration of each call record represents the period of time that that station controlled its portion of a call. A record is generated each time a station does any of the following:
  - Disconnects.
  - Places a call on hold.
  - Transfers a call.
- A single CO call could be included in multiple records if it is transferred from station to station.
- Periods when calls are placed on hold or attempts at supervised transfers are unsuccessful are included in the station's record.
- Periods when calls are on hold, in the auto attendant, leaving/retrieving voice mail or in an ACD queue are not included in call records.
- A new record begins when a station answers an incoming call, a transferred call, or a hold recall.
- Records will be generated independently for all stations in a conference. If more than one CO line is involved in a conference, each call record generated by that conference will be associated with only the last line disconnected.
- Dialed digits don't include the line group or location number.
- Outbound calls begin a call record 10 seconds after the call has cleared toll restriction.

PC interface

Use an RS-232C cable to connect a PC's serial port to the system's **Maintenance/SMDR** port.[2]

> **Note:** SMDR data will be stored temporarily if a laptop is connected for programming (five to 15 minutes after you exit programming mode, the buffered SMDR data will resume output to the serial port).

[1] Extended format only.
[2] If necessary, consult the *ESI Communications Servers Hardware Installation Manual* (ESI #0450-1049).

Extended SMDR format

> **Note:** The extended SMDR format is available on only ESI Communications Servers that are running system software xx.3.0 (or higher). For system software downloads, visit *www.esi-estech.com/Resellers/software*.

```
          1         2         3         4         5         6         7         8         9         10
012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234
T MM/DD HH:MM:SS HH:MM:SS NNNN VTTT ddddddddddddddddddddddddd aaaaaaaaaa       ddddddddddd ccccccccccc
```

The columns are:

- **Call type** — Outbound (“O”), inbound (“I”) or transferred (“T”) at column 1.
- **Date** (“MM/DD”) — Begins at column 3.
- **Start time** (“HH:MM:SS”) — Begins at column 8.
  The start date and time of **(a.**) when the call was originated from or **(b.**) presented to the system or **(c.)** retrieved from hold or **(d.)** successfully transferred.
- **Duration** (“HH:MM:SS”) — Begins at column 17.
  The duration of the connection to the call plus, if the call was transferred or placed on hold, the duration the call was on hold until the call was retrieved from hold or the transfer was completed or the call was released (disconnected).
- **Extension number** (“NNNN”) — Begins at column 26.
  Includes the number of the resource that answered or originated the trunk call. Trunk numbers are prefixed with **T** (trunk-to-trunk calls only). If an incoming call isn’t answered and subsequently disconnects, this field will be blank.
- **CO trunk number** (“VTTT”) — Begins at column 31.
  When a voice mailbox answers a trunk call and the caller disconnects, the call record generated will populate this field with an asterisk (*). Otherwise, the field will be blank.
- **Digits dialed** — Begins at column 36 (24 characters).
  Outgoing and transferred outgoing calls: dialed number. Incoming and incoming transferred calls: DNIS or DID digits (DNIS takes precedence).
- **Account code** (“AAAA”) — Begins at column 61. (See also “SMDR format when using account codes,” page L.3.)
  The account code will appear only in the call record of the station that dialed the account code.
- **Incoming Caller ID number** (“dddd”) — Begins at column 78 (10 characters).
- **Incoming Caller ID name** (“cccc”) — Begins at column 91 (12 characters).

Each record is terminated with a line feed and carriage return character.

> **Note:** For more information concerning this format, see the *SMDR Feature Overview* (ESI # 0450-0463).

Function 8: IP programming

This function lets the Installer perform the programming steps that allow the hardware components — IVCs and ESI IP devices — to communicate with each other.

> **Note:** After making any IP configuration changes, wait at least five minutes before you power down the system.

When you enter Function 8, the first screen will appear as shown; press the appropriate number to view the desired item from the following choices:

- **1** — License management.
- **2** — Local IP PBX programming.
- **3** — Esi-Link programming.
- **4** — SIP card programming.
- **5** — ASC programming.
- **6** — Mobile Messaging selection.

```
IP PROGRAMMING
CMD:_
```

Function 81: Display licenses

Function 81 is used to view the **license information** for *VIP,* IP stations (local and remote), and remote network channels for Esi-Link. This function **cannot** *change* license information (if you need any such changes, contact an ESI representative).

Parameters include:

- **Max** — The total number of licenses (users) that can have the feature enabled.
- **Used** — The total number of licenses in use. For *VIP*, this is the total number of extensions that have unified messaging enabled.

```
LICENSE VIP
MAX:0 USED:0
```

Use the scroll keys to view the different license types:

- *VIP*
- *VIP PC Attendant (VIP PC Attendant Console)*
- *VIP Professional*
- *VIP* auto-record
- *VIP ACD Supervisor*
- *VIP ACD Agent*
- *VIP Softphone*
- Remote channels
- RFID tags (for ESI Presence Management)
- Local IP phones
- Remote IP phones
- SIP phones
- ESI Mobile Messaging
- Advanced *ESI Video Viewer*
- ESI Media Management
- SIP trunks
- ESI Media Management call recording
- ESI Media Management video recording

Function 82: Local IP programming

Function 82 is an Installer-level function used to program the system's IP parameters for its use with Intelligent VoIP Cards (IVCs), IP stations, and the Network Services Processor (NSP).

A note about automatic IP address assignment

When you first assign an IP station in Function 31 (extension assignment) by using EHCP[1], the system will automatically set an IP address to that station based on the IP address assigned in Function 821. You may override that IP address with another (for example, if assigning a remotely connected ESI desktop IP phone or Remote IP Cordless Handset). If this occurs, the "automatic" IP address will be unused, and can be used when assigning another IP station.

If needed, you can use Function 822 to assign networking parameters manually to individual IVCs.

Function 821: System IP parameters

This function is used to assign system-wide (global) IP parameters. It automatically assigns IP addresses to all IP devices on the system when you enter a single starting IP address. Therefore, use Function 821 **only** when **initially** programming the system — because it will **override** any changes made in Function 31 to IP stations as well as changes made in Function 822 to individual IVCs.

Important: Changing parameters in this function will cause each IVC and ESI desktop IP phone to reset the next time it becomes idle.

The **primary** IVC **must** be connected to the **same network** as all of the **other** IVC station cards.

Here's how Function 821 automatically assigns the IP addresses:

- The first 38 IP addresses are assigned to IVCs in order — *i.e.*, the first IVC gets the first IP address, the second IVC gets the second IP address, *etc.* If there are fewer than 38 IVCs installed in the system, the remaining IP addresses in this range are unused.
- The next 62 IP addresses are unused.[2]
- The remaining IP addresses are automatically assigned to IP stations assigned in Function 31. IP addresses will be incremented based on the subnet as defined in RFC 796.[3]

Note: If DHCP is enabled in Function 822 (assign/change IVC parameters), the IP addresses for those IP stations will be unused.

Example:
- A system has 12 IVC24s installed and 288 IP stations (extensions 1000–1287).
- In Function 821, the first IP address entered is *10.0.1.1*; the subnet mask is *255.255.0.0*.

The IP addresses will be automatically assigned as follows:

IP address(es)	Device(s)	Description
10.0.1.1	First IVC	—
10.0.1.2	Second IVC	—
10.0.1.3	Third IVC	—
10.0.1.4 through 10.0.1.12	Fourth through 12th IVCs	—
10.0.1.13 through 10.0.1.17	Not used	Reserved for future IVCs
10.0.1.18 through 10.0.1.99	—	Reserved for future IVCs
10.0.1.100	Extension 1000	—
10.0.1.101 through 10.0.1.254	Extensions 1001 through 1154	—
10.0.2.1 through 10.0.2.133	Extensions 1155 through 1287	—

(Continued)

[1] ESI Host Configuration Protocol.
[2] Future use.
[3] See *ftp://ftp.rfc-editor.org/in-notes/rfc796.txt.*

Important: If the starting IP address and/or subnet limits the number of IP addresses that can be automatically assigned to fewer than the **total number** of IVCs and IP stations, then those stations that exceed that number **won't** be automatically assigned an IP address (for each such device, the IP address will be *0.0.0.0*). For example:

- A system has six IVC24s installed and 136 IP stations (extensions 1000–1135).
- In Function 821, the first IP address entered is *192.168.1.100*; the subnet mask is *255.255.255.0*.

The IP addresses will be automatically assigned as follows:

IP address(es)	Device(s)
192.168.1.100	First IVC
192.168.1.101	Second IVC
192.168.1.102	Third IVC
192.168.1.103 through 192.168.1.105	Fourth, fifth, and sixth IVCs
192.168.1.106 through 192.168.1.119	Reserved for future IVCs
192.168.1.120 through 192.168.1.199	(Future use)
192.168.1.200	Extension 1000
192.168.1.201 through 192.168.1.254	Extensions 1001 through 1054

Extensions 1055 through 1135 wouldn't be assigned IP addresses, because all of the IP addresses in the range would've been used up. To prevent this from happening, either (a.) start with a lower IP address (such as *192.168.1.1*) or (b.) change the subnet to a Class B (*255.255.0.0*) mask.

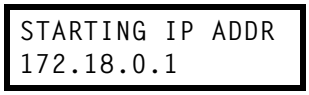
About port forwarding

A **firewall** keeps unwanted Internet traffic away from a LAN's PCs. A router that's using **NAT** (network address translation) creates a simple firewall between the internal LAN and the Internet. The site's Network Administrator can configure the router so that some traffic on specific IP ports can be directed to a single computer or other device on the LAN. This is **port forwarding** — also known as **PAT** (port address translation).

Each IVC has a unique IP port number, which can be viewed or changed in Function 822. If the customer will be using remote IP stations or Esi-Link, the customer's Internet router will have to be configured to forward these specific IP ports to the appropriate IVCs.[1]

Note: For each IP address in the following steps, enter the address in a dotted-decimal format consisting of four numbers separated by dots. Valid numbers are *0* through *255*. Use **#** to enter the dots between numbers.

1. Enter the **starting IP address** for IVCs and IP Phones. Press **#** to confirm.
Range: *0.0.0.0* through *255.255.255.255*. **Default:** *172.18.0.1*.



Note: When this parameter is changed, all IVCs will be reset on the next idle.

2. Enter the IP **subnet mask** of the LAN to which the IVC is connected. Press **#** to confirm.
The subnet mask is used to define the network to which the IVC is connected.
Range: *128.0.0.0* through *255.255.255.252*. **Default:** *255.255.0.0*.

Note: When this parameter is changed, all IVCs will be reset on the next idle.

[1] You may wish to refer to "*Configuring the remote office NAT router*" in the *NSP/VIP Advanced Options Guide* (ESI # 0450-0667).

3. Enter the starting **UDP port prefix**. Press # to confirm.
Choose a UDP port range *1000–65000*, inclusive; but enter only the first one or two digits of the selected range. For example, you'd enter the range *1,000–1999* as **1**; or, for the range *56000–56999*, enter **56**.
The default is *59*. The first installed IVC will be assigned an offset of 100 from the first port number in the selected range (therefore, the default would be *59100*). Remaining IVCs will be assigned sequential IP UDP port numbers from that number.
Range: *1–65*. **Default:** *59*.

```
BASE UDP PORT
??000: 59
```

> **Notes:** Typically, the default UDP port range will be suitable, and won't need to be changed. Be sure to advise the site's Network Administrator of the UDP port range being used.
>
> The UDP port for SIP phones, *5090*, is fixed. It cannot be changed by any programming method.

4. Enter the **default gateway** address. Press # to confirm.
This is needed only for Esi-Link or remote IP phones.
Although it can use a public IP address, the IVC normally will use private addressing and sit behind some sort of address-translation device, such as a NAT2-enabled router. The gateway is whichever device provides a public IP address to the network on which the system resides. This device's address is often called the *default gateway address*.
Range: Any valid IP address. **Default:** *0.0.0.0*.

> **Example:** A company's Dallas office uses DSL as its broadband connection, and the DSL line is terminated at a DSL router that sits on the LAN. That router will have two interfaces: the WAN (or Internet) side, which must have a public IP address; and the LAN side, which normally has a private IP address. The private IP address on the LAN interface is the address used in this programming step.

> **Note:** The addresses of IVCs used for remotely installed IP stations or Esi-Link **must** be on the same subnet as the gateway address (for details, see Function 822, page M.5).

```
DEFAULT GATEWAY:
0.0.0.0
```

5. Enter the default **public IP** address for remote access to the ESI system. Press # to confirm.
This is needed only for Esi-Link or remote IP phones.

```
PUBLIC IP:
0.0.0.0
```

6. Use the scroll keys to select whether the system has an **external DHCP** server for the local IP Phones.

> **Important:** If this parameter is enabled, the external DHCP server must have enough IP addresses to assign them to **all** IP phones **and** any other IP devices (such as PCs) on the network. If there aren't enough addresses, some PCs might be unable to connect to the network. For this reason, ESI **strongly** recommends that you use a **separate** DHCP server or address range for IP phones.

Choices: *YES* or *NO*. **Default:** *NO*.

```
EXTERNAL DHCP
NO           >
```

> **Note:** If this setting is *NO*, IP addresses for phones will start at **+100** from the starting IP address assigned in Function 821 (see the table on page M.3).

Function 822: Assign/change IVC parameters

You need to use this function only if any parameters must be changed for an **individual** IVC, or if VLAN (Layer 2 Quality of Service, or QoS) will be implemented.

Function 822 first prompts you to select the individual IVC to program. Many of the parameters in this function are populated with programming assignments from Function 821, but Function 822 allows changing any of these parameters as needed.

> **Note:** For each IP address in the following steps, enter the address in a dotted-decimal format consisting of four numbers separated by dots. Valid numbers are 0 through 255. Use # to enter the dots between numbers.

1. Using the scroll keys, **select an active IVC** to program. Press # to continue.
   In the display example here, the IVC is in port card slot 11 *(PC11)*, which utilizes station ports *241–264*.

   ```
   SELECT IVC
   PC11 IVC 241-264
   ```

2. You'll now see the IVC's **MAC address**.
   If this is an Esi-Link IVC, write down this address; it's needed for programming Esi-Link access to this IP PBX from other locations.
   When ready, press # to continue — or ✻ to return to the previous step.
   Default: (assigned in Function 821 for the first IVC and incremented for subsequent IVCs).

   > **Note:** All ESI MAC addresses begin with *00304D* followed by six alphanumeric characters.

   ```
   IVC MAC
   00304DF00000
   ```

3. Enter (or view) the IVC's **IP address**. Press # to continue — or ✻ to return to the previous step.
   Range: *0.0.0.0* through *255.255.255.255*. **Default:** (assigned in Function 821 for the first IVC and incremented for subsequent IVCs).[1]

   ```
   PC11 IVC IP ADDR
   172.18.0.1
   ```

4. Enter (or view) the **IVC's subnet mask**. Press # to continue — or ✻ to return to the previous step.
   Range: *128.0.0.0* through *255.255.255.252*. **Default:** (assigned in Function 821).

   ```
   PC11 IVC IP MASK
   255.255.0.0
   ```

5. Enter (or view) the **base UDP port**. Press # to continue — or ✻ to return to the previous step.
   Range: *1–65035*. **Default:** *59100*.

   ```
   PC11 IVC UDP
     59100
   ```

6. Enter the **IVC's gateway address**. This is required for Esi-Link operation or remotely installed ESI desktop IP phones. Typically, the gateway address will be the one assigned in Function 821 and doesn't need to be changed. Press # to continue — or ✻ for the previous step.
   Range: *0.0.0.0* through *255.255.255.255*. **Default:** (assigned in Function 821).

   ```
   PC11 IVC GATEWAY
   0.0.0.0
   ```

[1] Class B private.

7. Enter the **public IP address** — the IP address for remote access to the ESI system. This is required for Esi-Link operation or remotely installed ESI desktop IP phones.
Press # to continue — or ✱ for the previous step.
Range: *0.0.0.0* through *255.255.255.255*. **Default:** (assigned in Function 821).

```
PC11 IVC PUB IP
0.0.0.0
```

8. Choose to enable or disable VLAN[1] operation.

> **Important:** **DON'T** enable VLAN operation until the site's Network Administrator has confirmed that the site network has VLANs implemented. If it doesn't, and this parameter has been enabled, **IP phones and Esi-Link won't work**. VLAN implementations are also known as Layer 2 802.1Q Class of Service (CoS).

Press # to continue — or ✱ for the previous step.
Choices: *ENABLE* or *DISABLE*. **Default:** *DISABLE*.

```
PC11 IVC VLAN
DISABLED
```

> **Note:** If this setting is *DISABLE*, the next step is **skipped** and the 802.1Q Ethernet header extension is removed.

9. (This step is available only if the VLAN CoS is enabled in the previous step.)
Enter the numerical **VLAN identifier** for this IVC and the IP phones it supports.

> **Important:** The site's Network Administrator should already have assigned this VLAN identifier number to the site's Ethernet switches' network ports to which the IVC and IP Phones are connected. If the Ethernet switches don't have this VLAN identifier number assigned, **IP phones and Esi-Link won't work**.

Press # to continue — or ✱ for the previous step.
Range: *1* through *4094*. **Default:** *1*.

```
PC11 IVC VLAN
NUM: 1
```

10. Choose the number of **Esi-Link channels** to enable. Each channel enabled will consume one UIP (universal IP) license.

Press # to **finish** — or ✱ for the previous step.
Range: *0–24*. **Default**: *0*.

```
ESILINK TRUNKS
ASSIGNED: 0
```

[1] Virtual local area network.

Function 824: Network Services Processor

The optional **Network Services Processor (NSP)** is a component that provides an IP network connection for maintenance and other features, such as *VIP* unified messaging.

About port forwarding

A **firewall** keeps unwanted Internet traffic away from a LAN's PCs. A router that's using **NAT** (network address translation) creates a simple firewall between the internal LAN and the Internet. The site's Network Administrator can configure the router so that some traffic on specific IP ports can be directed to a single computer or other device on the LAN. This is **port forwarding** — also called **PAT** (port address translation).

If you or your customer will be connecting to the NSP remotely using *ESI System Programmer* or *VIP*, the customer's Internet router must be configured to forward ports 59002 through 59008 to the NSP's IP address.[1]

Parameters

You enter each of the following parameters in one operation.

1. **NSP private IP address** — View or enter the IP address for the NSP. Press **#** to confirm.
   Range: 1.0.0.1 through 254.254.254.254.

   ```
   NSP PRIVATE IP
   1.0.0.1
   ```

2. **NSP subnet mask** — Enter the IP subnet mask of the network to which the NSP is connected. Press **#** to confirm.
   Range: 0.0.0.0 through 255.255.255.252.

   ```
   NSP SUBNET MASK
   0.0.0.0
   ```

3. **NSP gateway** — Enter the default gateway address of the NSP if it differs from that for the IP PBX. Default value is the PBX gateway IP address assigned in Function 821. Press **#** to confirm.
   Range: 1.0.0.1 through 254.254.254.254.

   ```
   NSP GATEWAY
   1.0.0.1
   ```

4. **NSP public address** — Enter the public WAN address that routes to the NSP if it differs from that for the IP PBX. Default value is the PBX remote-access IP address assigned in Function 821. Press **#** to confirm.
   Range: 1.0.0.1 through 254.254.254.254.

   ```
   NSP PUBLIC IP
   0.0.0.0
   ```

(Continued)

[1] You may wish to refer to "*Configuring the remote office NAT router*" in the *NSP/VIP Advanced Options Guide* (ESI # 0450-0667).

The following parameters will be displayed only if unified messaging has been installed on the system:

5. **NSP remote messaging e-mail server** — Enter the IP address of the customer's e-mail server. Press # to confirm.
   Range: 1.0.0.1 through 254.254.254.254.

```
VM EMAIL SERVER
0.0.0.0
```

6. **Outgoing SMTP mail server** — Enter the name of the outgoing e-mail SMTP server (for example, *smtp.myisp.com)*. To enter a period ("dot"), press **0**. Press # to confirm.

```
OUT SMTP NAME
NOT PROGRAMMED
```

7. ***VIP* remote messaging e-mail address** — Enter the e-mail address assigned by the e-mail System Administrator. To enter a period ("dot"), press **0**. To enter the @ ("at") symbol, press # #. Press # to confirm.

```
VM EMAIL ADDR
NOT PROGRAMMED
```

8. ***VIP* remote messaging e-mail address password** — Enter the password for the unified messaging e-mail address, as assigned by the e-mail System Administrator. Press # to confirm.

```
EMAIL PASSWORD
NOT PROGRAMMED
```

9. **Primary e-mail domain name server** — Enter the IP address of the domain name server (DNS) used by the NSP remote messaging e-mail server (see step 5). Press # to confirm.
   Range: 1.0.0.1 through 254.254.254.254.

```
PRI EMAIL DNS IP
0.0.0.0
```

Function 83: Esi-Link programming

Function 83 is used to program the information required for Esi-Link operation between multiple ESI systems at different locations. **It is critical that programming is consistent and correct at all locations to be connected with Esi-Link.** Location numbers, names, abbreviations, and addressing parameters should be planned out in detail prior to performing Function 83 programming.

```
ESI-LINK MENU
```

Function 831: Local location number

Before programming Esi-Link parameters for other locations in Function 832, you must program the location number of the local ESI system. Each system in an Esi-Link network must have a unique location number. Valid location numbers are in the range of 700–799.[1] This location number will be used for dialing between sites. Press # to confirm.

```
LOCAL LOC NUMBER
7_
```

> **Note:** When Esi-Link is used, all cabinets' time (minutes only) will be synchronized by cabinet 700, unless "synchronize with Caller ID" is enabled in Function 142 (see page E.2).

Function 832: Adding an Esi-Link location

This function is used to add, modify or view the programming for an Esi-Link location.

1. Add the location for the site to be added or modified. The valid range is 700–799.[1] This number must be unique for each site. Press # to confirm.

```
ESI-LINK LOC
NUMBER? _
```

2. Enter the location name, which can be up to 10 characters in length. Press # to confirm.

```
701 LOC NAME
_
```

3. Enter the three-character location abbreviation. Press # to confirm.

```
701 LOC ABBRV
_
```

4. Enter the MAC address of the location's ESI system. (This can be displayed in Function 821 programming on the IP PBX at that location.) This MAC address is different than the one displayed in Function 821 on the local system. Use the first six programmable feature keys to enter the letters *A*, *B*, *C*, *D*, *E*, or *F*, respectively, in the MAC address. Press # to confirm.

```
701 HOU  MAC
00304DFFF123
```

> **Note:** All ESI MAC addresses begin with 00304D followed by six alphanumeric characters.

[1] Esi-Link location numbers 710–769 may not be available, due to the setting of Function 164 (Esi-Link location number/line group access selection; see page E.6).

5. Enter the remote-access IP address for the location's ESI system. This is the public IP address or private WAN address used for remote access to the location's system. Enter the address in dotted-quad notation, using the # key as the dot between the octets. Press # again when finished.

```
701 HOU RMT IP
_
```

6. Enter the UDP port number assigned to the location's ESI system. Press # to confirm.

```
701 HOU PBX UDP
```

7. Use the scroll keys to select the local IVC Esi-Link card that will service this location.

> **Notes:** Only IVC Esi-Link cards will be listed.
>
> If using more than one IVC Esi-Link card, you should evenly distribute remote location assignments between the two IVC Esi-Link cards.

8. Press # to confirm (and complete the Function 832 entries).

```
SELECT IVC
PC23 ELC24
```

Function 833: Deleting an Esi-Link location

This function is used to delete previously entered information about Esi-Link sites. Enter the location number to be deleted and press # to confirm.

```
ESI-LINK LOC
NUMBER? _
```

When prompted to confirm deletion, press **1**. (To **cancel** deletion, press any other key.)

```
1 TO DEL LOC
701 HOUSTON
```

Function 834: Programming Esi-Link publish

Each ESI Communications Server[1] can *publish* (or transmit) up to 30 lamp appearance updates to the other Esi-Link locations. A combination of local extensions, departments, and/or virtual mailboxes can be programmed to be published. When programmed on a programmable feature key at another Esi-Link location, lamp appearance for numbers on the Esi-Link publish list will automatically update.

Use the up and down arrow keys to scroll through the list. An entry can be programmed by entering an extension number or department group number. A mailbox can be entered by pressing **VOICE MAIL** followed by the mailbox number. Press # to confirm the entry.

To remove an entry from the list, use the up and down arrow keys to scroll to that entry and press **HOLD** to delete, or enter a new number or mailbox.

[1] Except for the ESI-50L, which must be upgraded to an ESI-50 to support IP-related functions such as Esi-Link.

Function 835: Compression algorithm

The codec selected will be used for **all** Esi-Link calls. This means that **all Esi-Link locations in the network must use the same codec**. Note that ESI Communications Servers running system software version xx.3.xx (and higher) can support either G.726 or G.729 codecs.[1] Older ESI systems can support **only** the **G.729** codec for Esi-Link.

> **Important:** ESI strongly recommends that this setting be changed only when **all** Esi-Link IVCs are completely idle. If the codec is changed, **all** Esi-Link calls (new or already in progress) **will lose audio connections**, requiring Esi-Link callers to hang up and restablish their calls; also, if an IVC 12R12EL is installed, all **remote** IP phones will lose **their** audio connections upon change of the codec.
>
> The ESI-50 supports **only** the G.72**6** codec, and thus **cannot** be used in an Esi-Link network with older, G.72**9**-only ESI systems.

To make this setting, use the scroll key to select the codec for Esi-Link calls and press # to confirm.

```
ESI-LINK SETTING
CODEC: G.729   >
```

Options: G.729 and G.726. **Default**: G.729.

Function 84: SIP card programming

Use this function **only** if any parameters must be changed for an **individual** SIP Card ("SIP" in the displays).

> **Notes:** For each IP address in the following steps, enter the address in a dotted-decimal format consisting of four numbers separated by dots. Valid numbers are *0* through *255*. Use # to enter the dots between numbers.
>
> This function is used for both the CS-SIP24 and CS-SIP8; the example herein depicts a CS-SIP24.

1. Use the scroll keys to **select an active SIP card to program**. Press # to continue.
   In this example, the CS-SIP24 is in port card slot 11 *(PC11)*, which utilizes station ports 241–264.

   ```
   SELECT SIP
   PC11 SIP 241-264
   ```

2. The display now shows the **SIP card password**, which can be 2–8 characters in length. Enter your desired password and press # to continue.

   ```
   SUPPORT PASSWORD
   73829164
   ```

3. Use the scroll keys to **select the type of SIP card** that will be used. Press # to continue.

   ```
   SIP CARD TYPE
   SIGNALING
   ```

4. Enter (or view) the **SIP card's IP address**. Press # to continue.
   Range: *0.0.0.0* through *255.255.255.255*. **Default:** *0.0.0.0*.

   ```
   PC11 SIP IP ADDR
   0.0.0.0
   ```

[1] Except for the ESI-50, which supports only G.726 and thus cannot be used in an Esi-Link network with older, G.729-only ESI systems.

5. Enter (or view) the **SIP card's subnet mask**. Press # to continue.
   Range: *0.0.0.0* through *255.255.255.252*. **Default:** *0.0.0.0*.

```
PC11 SIP IP MASK
0.0.0.0
```

6. Enter (or view) the **SIP card's gateway address**. Press # to continue.
   Range: *0.0.0.0* through *255.255.255.255*. **Default:** *0.0.0.0*.

```
PC11 SIP GATEWAY
0.0.0.0
```

7. Use the scroll keys to enable or disable **NAT traversal**. Press # to continue.

```
PC11 SIP NAT
DISABLED
```

> **Note:** When the ESI Communications Server is behind a firewall, select *ENABLED* for the NAT traversal option (step 7). Program the SIP card's IP address (step 4) and the RTP media IP address (step 9) using private IP addresses that are valid on the LAN side of the firewall. Program the SIP public IP address (step 8) using the public IP address of the WAN side of the firewall.
>
> When the ESI Communications Server is **not** behind a firewall, select *DISABLED* for the NAT traversal option (step 7). Program the SIP card's IP address (step 4) and the RTP media IP address (step 9) using public IP addresses that are accessible by the ITSP. **With the SIP NAT option (step 7) disabled, the SIP public IP address (step 8) is not needed and this step will not appear.**

8. Enter (or view) the **public IP address** to use when NAT is enabled. Press # to continue.
   Range: *0.0.0.0* through *255.255.255.255*. **Default:** *0.0.0.0*.

```
PC11 SIP PUB IP
0.0.0.0
```

9. Enter the **media IP address** to use for RTP[1] traffic to and from the ITSP. Press # to continue.
   Range: *0.0.0.0* through *255.255.255.255*. **Default:** *0.0.0.0*.

```
PC11 RTP MEDIA IP
0.0.0.0
```

10. Enter the IP address for the **primary DNS[2] server**. Press # to continue.
    Range: *0.0.0.0* through *255.255.255.255*. **Default:** *0.0.0.0*.

```
PC11 PRI DNS IP
0.0.0.0
```

(Continued)

[1] Real-time Transport Protocol. For more information about RTP, see RFC 3550 *(www.ietf.org/rfc/rfc3550.txt)*.
[2] Domain Name System.

11. Enter the IP address for the **secondary DNS server**. Press # to continue.
Range: *0.0.0.0* through *255.255.255.255*. **Default:** *0.0.0.0*.

```
PC11 SEC DNS IP
0.0.0.0
```

12. Either press **1** to save your changes to the SIP Trunking Card or press **2** to exit without restarting the SIP Trunking Card.

```
RESTART SIP ITSP
 1=YES   2=NO
```

> **Note:** Changes made to SIP Trunking Card programming require that the card be restarted in order for the changes to be uploaded to the card. Press **1** to restart the SIP ITSP now or press **2** to exit and return to the main menu.

> **Warning:** Restarting the SIP ITSP will cause any calls in progress to be disconnected.

Function 85: Application Services Card programming

Use this function **only** if any parameters must be changed for an **individual** Application Services Card (ASC).

> **Note:** For each IP address in the following steps, enter the address in a dotted-decimal format consisting of four numbers separated by dots. Valid numbers are *0* through *255*. Use # to enter the dots between numbers.

1. Use the scroll keys to **select an active ASC to program**. Press # to continue.
In this example, the ASC is in port card slot 12 *(PC12)*, which utilizes station ports 265–289.

```
SELECT ASC
PC12 ASC 265-289
```

2. The display now shows the **ASC password**, which can be 2–8 characters in length. Enter your desired password and press # to continue.

```
SUPPORT PASSWORD
64938257
```

3. Enter (or view) the **ASC's IP address**. Press # to continue.
Range: *0.0.0.0* through *255.255.255.255*. **Default:** *0.0.0.0*.

```
PC12 ASC IP ADDR
0.0.0.0
```

4. Enter (or view) the **ASC's subnet mask**. Press # to continue.
Range: *0.0.0.0* through *255.255.255.252*. **Default:** *0.0.0.0*.

```
PC12 ASC IP MASK
0.0.0.0
```

5. Enter (or view) the **ASC's gateway address**. Press # to continue.
Range: *0.0.0.0* through *255.255.255.255*. **Default:** *0.0.0.0*.

```
PC12 ASC GATEWAY
0.0.0.0
```

6. Enter (or view) the **ASC's public IP address**. Press # to continue.
   Range: *0.0.0.0* through *255.255.255.255*. **Default:** *0.0.0.0*.

```
PC12 ASC PUB IP
0.0.0.0
```

7. Either press **1** to save your changes to the ASC or press **2** to exit without restarting the ASC.

```
RESTART ASC CARD
 1=YES   2=NO
```

> **Note:** Changes made to ASC programming require that the card be restarted in order for the changes to be uploaded to the card. Press **1** to restart the ASC now or press **2** to exit and return to the main menu.

Function 86: Mobile Messaging selection

1. Use the scroll keys to **select the SIP card or ASC to use for Mobile Messaging**. Press # to continue.

```
PC11 SIP 241-264
```

2. Use the scroll keys to **enable or disable** Mobile Messaging for the selected card. Press # to continue.

```
PC11 MOBILE MSG
     DISABLED  >
```

Index