U.S. Department of Homeland Security

United States Coast Guard

IT "C" School

Unit 5 – Emergency Services Access (ESA)

Capabilities of ESA –ESA Applications – ESA Features – ESA Functionality – Major Components of ESA – On-Site Notification (OSN) – ESA System Configurations – ESA Call Routing – OSN Feature Operations

STUDENT GUIDE

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Notice to Students

Purpose: This course will provide training on Nortel CS1000E installation, programming, troubleshooting and maintenance. The graduate of this course will possess the skills necessary to install and maintain a CallPilot Voice Processing System.

IMPORTANT NOTE: This text has been compiled for TRAINING ONLY. It should NOT be used in place of official directives or publications. The text information is current according to the references listed. You should, however, remember information available for your rating.

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LESSON 1

EMERGENCY SERVICES ACCESS (ESA) OVERVIEW

Overview

Overview

In this lesson you will be introduced to Emergency Services Access (ESA). This is a PREVIEW lesson which will be used to support you in the following lessons. This lesson is designed to provide you with the key knowledge elements of the Emergency Services Access (ESA). There will be an activity at the end of this lesson to test comprehension of the key knowledge elements that you’ll need to perform for upcoming tasks.

Performance Objectives

Upon successful completion of this lesson, you will be able to:

5.1 **PROGRAM** Emergency Services Access using Command Line Interface (CLI) and Element Manager (EM) with 100 % accuracy as evidenced by a positive function check.

- **5.1.1** **REVIEW** manufacturer’s documentation
- **5.1.2** **REVIEW** federal 911 legislation (FCC Ruling Oct 94)
- **5.1.3** **DETERMINE** customer configuration
- **5.1.4** **PERFORM** function check
- **5.1.5** **COMPLETE** unit documentation

Performance Evaluation

There are no performance evaluations for this lesson.

References

Northern Telecom Publications (NTPs) is the documentation for the CS1000E system. These publications provide reference tools and information that is related to the various features and options of the system.

Document	Document #
Communication Server 1000E Maintenance	NN43041-700
Communication Server 1000 Software Input Output Administration	NN43001-611
Communication Server 1000 Software Input Output Reference - System Messages	NN43001-712
Communication Server 1000 Software Input Output Reference - Maintenance	NN43001-711

Overview, continued

Tools and Equipment	The tools and equipment used for this lesson are: • Operational Nortel CS1000E
Job Aids	There are no job aids for this lesson.
Handouts	There are no handouts for this lesson.
Key Terms	There are no key terms for this lesson.
Pre-Lesson Work	There is no pre-lesson work for this lesson.

Lesson Content: ESA Overview

What is ESA?

Emergency Services Access (ESA) is a feature designed to provide quick, effective access to emergency services from a phone connected to a CS1000E call server. ESA sets up and routes emergency calls to the applicable emergency service provider (Fire Department, Police, Paramedics, and Poison Control etc.) closest to the location of the actual emergency. ESA also provides exact location of the originating caller to help emergency service agencies track and locate the scene of the emergency. ESA can provide immediate notice to designated PBX users (normally security personnel) when a phone in their customer group has placed an emergency call.

Historical Background

The Federal Communications Commission (FCC) issued a Ruling governing the use of Enhanced 911 Services (E911) by PBX customers in October of 1994. The intent of this ruling was to provide PBX users making 911 calls the same quality of access and dependability that residential subscribers are given.

This important legislation included the following provisions:

1. Public Safety Answering Points (PSAP) would be established to receive incoming emergency calls.
2. After receiving an emergency call, the PSAP then directs the call to the most appropriate emergency response agency nearest the scene of the emergency.
3. The PSAP can call back the originating caller if the caller is disconnected.
4. An unfamiliar user can easily initiate a 911 call from any telephone on the PBX without confusion.
5. Security Personnel located at the PBX premises are notified when an emergency call is in progress in order to assist the emergency response agency when it arrives.
6. Fully Restricted (CLS=FRE) phones can make an outgoing 911 call.
7. No access codes are required when dialing 911.
8. Designated 911 trunks are reserved for emergency calls, ensuring they are available in an emergency. A minimum of two 911 trunks are required, with an overflow to a regular COT trunk route.

Lesson Content: ESA Overview, continued

Historical Background, contd.

9. The PSAP has access to an Automatic Location Identification (ALI) Database. The ALI associates phone numbers with physical names and locations, and is typically updated and maintained by the local phone company.
10. PBX administrators are responsible for ensuring that the ALI database includes updated information pertaining to their users. This information should be provided when the PBX is first installed, and it is recommended that it be updated periodically whenever moves, add, or changes are made. The following information should be provided:
    - Street address of the building, and location information
    - Floor number
    - Location on the floor, room number, pillar number, etc.
    - Name of the principal user of the phone

Residential Emergency Services

Residential Emergency Services using E911 must provide the following response when an emergency call is received:

- The Calling Party’s phone number (ANI) is transmitted along with the dialed digits to the terminating office (PSAP).
- The ANI is unique, and the PSAP immediately accesses the ALI for a Database Lookup.
- Specific information about the calling party is now readily available. If the call is disconnected, an emergency response can still be dispatched.
- The ANI also allows the call to be routed to the PSAP located closest to the scene of the emergency.
- The PSAP then directs the call to the closest, most appropriate emergency response agency.

Lesson Content: ESA Overview, continued

PBX Emergency Services

PBX Emergency Services are more complex then Residential Emergency Services for several reasons:

- Many PBXs only send (transmit) the main Listed Directory Number (LDN) for the unit. If the call is prematurely disconnected or if the caller is speaking incoherently the Emergency Service Agency would be directed to the main entrance of the unit.
- Even if a caller’s unique 7- or 10-digit DID was sent to the PSAP, typically there is no entry for exact location of the caller found in the ALI Database, only the main unit address. Although legislation recommends that the ALI Database be updated regularly, in reality it rarely occurs.
- Non-DID directory numbers assigned to remote locations (outside of the location of the PBX) are also a problem, since they are typically routed to an Attendant DN or to the Main DN (LDN) of the unit. Since the Main DN is typically located in the unit’s main office, Emergency Response Agencies could be sent to the wrong location during an emergency.

A Private 911 Emergency Service, such as Nortel’s ESA Feature, can provide the solution to these problems. A Private 911 Emergency Service sends out a unique number (ANI) with every call. This number can then be used to identify the calling party through an ALI Database Lookup. This ANI includes a 3-digit NXX code followed by the calling party’s 4-digit extension number. In addition, the ALI Database **must** be updated whenever PBX service changes are made. A Non-DID caller’s phone number can be modified (through translations) to appear as a DID number simply assigned to a different customer location.

Lesson Content: Capabilities of ESA

ESA Features

The ESA Feature was developed primarily to respond to Federal legislation governing the use of Emergency 911 Services by users calling from within a PBX.

The ESA feature provides the following capabilities:

- A special ESA Directory Number Access Code (such as 911) can be defined for accessing emergency services.
- An ESA DN (911) can be dialed without having to dial an ESN (BARS or NARS) access code.
- Ability to recognize that the dialed ESA DN is an emergency call and route the call accordingly.
- Provide dedicated ESA trunks for immediate routing of emergency calls.
- Provide flexible ANI number translations for Non-DID numbers.
- Sends (transmits) ANI digits along with dialed digits to the PSAP to determine the location of the calling party.
- Supports a networking environment where ESA calls, originating on one node, can be routed across the network to another node and then onto the Public Switched Network (PSTN) to terminate at the nearest PSAP.
- On-site security personnel and other stations can be notified, as designated through software, when an ESA call is in progress.

Lesson Content: ESA Applications

ESA Needs

The ESA feature, although designed primarily to support Federal legislation, can be used in a variety of ways to support and manage emergency call services, based on the needs of the unit. These needs will depend on several key factors:

- Federal and State Legislation currently in effect
- Availability of access to the ALI database
- Administration requirements
- The necessary response level required for the type, size, and location of the unit

Examples of ESA Applications

Some possible examples of how ESA can be applied to support unit needs are as follows:

- The customer wants all telephones within their customer group (and requiring access to a PSAP) to be uniquely identified for accessing Emergency Services. This application requires a large number of DID numbers to be defined, and each must have an entry assigned in the ALI database. It also requires that the owner of the ALI database allow the PBX administrators to access the ALI to make changes as required.
- The customer only requires local notification of security personnel to warn them of outgoing emergency calls from their location. With this configuration, only the main DN or Listed Directory Number (LDN) needs to be sent to the PSAP along with the dialed digits. The ALI need not be updated when numbers are changed within the unit. This application would be allowed only in areas not regulated by Federal or State legislation and access to the ALI Database is not permitted.
- A third approach would be to assign a single DID number to a specific area on the unit premises (a specific building, floor, wing, or group of offices). An example would be ‘B3F2NW’ representing ‘Building #3, Floor #2, North Wing. This information (B3F2NW) would then be defined in the **DES** prompt for all telephones in that particular area through LD 10 or LD 11. All telephones within the specified area would then be mapped to the corresponding DID number, thus emergency calls originating from any of these phones would include the ANI of the DID number, along with respective location information provided by the DES parameter. Local Notification capability would still provide specific information about the calling party.
- The customer wants to answer all emergency calls using an OSN (On-Site Notification Set). This application requires that all emergency calls be routed to an internal telephone (OSN). Provisioning of an OSN Set will be discussed in a future lesson.

Lesson Content: ESA Features Overview

Introduction

Prior to the introduction of the ESA feature, only limited emergency service for 911 calls was available. Automatic Number Identification (ANI) was used to output caller information; however, the use of ANI was limited to Meridian 1 systems that exclusively used DID (Direct Inward Dialed) numbers. In addition to this limitation, users making emergency calls were required to first dial an ESN Access Code (AC1 or AC2) in a BARS or NARS switch. Furthermore, this emergency access capability was limited to non-network calls and did not function within a networking environment.

Implementation Overview

With the introduction and implementation of Emergency Service Access (ESA) in early 1995, a Meridian 1 switch (such as the CS1000E) can now provide private 911 emergency services to all of its users in both a non-networking and a networking environment. These services are available using DID and/or non-DID numbers without the need to dial an access code. Additionally, originating caller information, including location, may now be delivered to the Public Safety Access Point (PSAP) along with the digits of the outgoing call.

Lesson Content: Software Packages Supporting ESA

Support Software

There are seven software packages that support the ESA Feature. They are briefly described below:

Package Number	Description
1.	Feature Package 329 consists of Basic ESA Call Recognition, Basic ESA Call Routing, and Basic ESA On-Site Notification.
2.	Feature Package 330 is the ESA Supplementary Software Package, and consists of supplements to Basic ESA Call Routing and Basic ESA On-Site Notification software.
3.	Feature Package 331 is the ESA Calling Number Mapping Feature Package, and is used to translate non-DID originated numbers.
4.	Feature Package 12 supports Automatic Number Identification (ANI).
5.	Feature Package 20 is the Office Data Administration System (ODAS) software, and is used to provide the Calling Party’s ‘DES’ (Administrative Designator) information, which is identified both on the Call Record and displayed on the OSN set.
6.	Feature Package 95 supports the Calling Party Name Display (CPND) feature, which provides the originating caller’s name on the Call Record and determines the Calling Party’s name to be displayed on the OSN set.
7.	Feature Package 145 is the Integrated Services Digital Network (ISDN) software, and is required when ESA calls are transported over outgoing ISDN trunks.

Lesson Content: ESA Functionality

ESA Scenarios

The following scenarios are example of how the ESA feature functions:

Scenario	Description
1.	A CS1000E user places an emergency call by dialing the designated ESA DN (typically 911) from their workstation.
2.	The CS1000E switch, through digit analysis, recognizes this as an emergency call and prepares the appropriate translations.
3.	Calling Line Identification (CLID) and Automatic Number Identification (ANI) are determined.
4.	A dedicated ESA trunk is selected for call processing.
5.	An on-site ESA alert is activated by the CS1000E and sent to a designated On-Site Notification (OSN) set or terminal.
6.	The OSN set emits an audible Buzz, and the ESA lamp flashes.
7.	The OSN attendant presses the OSN key, and the caller information is then displayed on the set and also printed on a designated display terminal.
8.	The ESA call is routed out of the switch using the dedicated ESA trunk destined to terminate at the closest PSAP. (**NOTE:** Optionally, this call could be routed back to the CS1000E to be handled internally.)
9.	The PSAP receives the call along with the CLID and ANI.
10.	The originating number is unique based on the CLID/ANI, and the PSAP automatically performs a database lookup using the Automatic Line Identification (ALI) database.

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Lesson Content: ESA Functionality, continued

ESA Scenarios, contd.

Scenario	Description
11.	The ALI identifies the name, address, and exact location of the calling party. (If the calling party cannot speak or if the call is accidentally disconnected, emergency service agencies can still be dispatched.)
12.	The PSAP routes the call to the applicable emergency service agency (Paramedics, Police, Ambulance, Fire, Poison Control etc.) closest to the caller’s location.
13.	The contacted Emergency Service Agency (ESA) then responds.

Review Activity: ESA Overview

Directions

Using the information you have learned in this module of instruction, answer the following questions.

Questions

1. What Meridian 1 feature provides immediate notice to designated PBX users when another user within their customer group has placed an emergency call and then sets up a dedicated trunk route to terminate at the nearest PSAP?

   _____

   _____

2. List 3 provisions of the Federal legislation enacted in 1994 that governed the use of 911 services within a PBX environment.

   _____

   _____

   _____

3. What must be updated every time service changes occur in order for ESA to work?

   _____

   _____

4. In ESA, when an emergency call is made, what information accompanies the dialed digits when routing the call to the PSAP?

   _____

   _____

5. What device audibly alerts designated users (of a CS1000E) when an emergency call from within their customer group has been placed?

   _____

   _____

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Review Activity: ESA Overview, Continued

Questions, contd.

6. What prompt in LD 10 and LD 11 provides call originator-location information that can be used during an emergency?

   _____

   _____

7. What software feature package supports ANI?

   _____

   _____

8. What software feature package supports the ‘DES’ parameter?

   _____

   _____

9. (True or False) Prior to ESA, emergency calls were limited to non-network calls.

10. What are two factors that should be considered when determining which application of ESA is best for a given customer?

    _____

    _____

Summary

Lesson Summary

Upon completion of this lesson presentation and practice exercise, you will be able to:

5.1 **PROGRAM** Emergency Services Access using Command Line Interface (CLI) and Element Manager (EM) with 100 % accuracy as evidenced by a positive function check.

- **5.1.1** **REVIEW** manufacturer’s documentation
- **5.1.2** **REVIEW** federal 911 legislation (FCC Ruling Oct 94)
- **5.1.3** **DETERMINE** customer configuration
- **5.1.4** **PERFORM** function check
- **5.1.5** **COMPLETE** unit documentation

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LESSON 2

ESA COMPONENTS

Overview

Overview

In this lesson you will be introduced to ESA components. This lesson is designed to provide you with the key performance elements to assist you in configuring ESA. This lesson begins with a discussion on the four major components of ESA. They are:

- Call Recognition
- Calling Terminal Identification
- On-Site Notification
- Call Routing

The lesson continues with how to configure each of these components. There will be a performance activity at the end of this lesson to test comprehension of the key performance elements that you’ll need to perform for upcoming tasks.

Performance Objectives

Upon successful completion of this lesson, you will be able to

5.1 **PROGRAM** Emergency Services Access using Command Line Interface (CLI) and Element Manager (EM) with 100 % accuracy as evidenced by a positive function check.

- **5.1.1** **REVIEW** manufacturer’s documentation
- **5.1.2** **REVIEW** federal 911 legislation (FCC Ruling Oct 94)
- **5.1.3** **DETERMINE** customer configuration
- **5.1.4** **PERFORM** function check
- **5.1.5** **COMPLETE** unit documentation

Performance Evaluations

The performance evaluations for these tasks are scheduled immediately following this lesson. These performance evaluations will be in delivered via a work order. These work orders will test the performance objective you have just completed in this lesson. These work orders will build in complexity based on previous tasks from previous lessons. These performance evaluations will be in a separate workbook from your student guide. Your instructor will hand out these workbooks out in class. Please do not complete these work orders prior to the instructor assigning them to you. You will work in your booth with your partner as a class. Your instructor will sign off these performance evaluations as you complete each tasks.

Overview, continued

References

Northern Telecom Publications (NTPs) is the documentation for the CS1000E system. These publications provide reference tools and information that is related to the various features and options of the system.

Document	Document #
Communication Server 1000E Maintenance	NN43041-700
Communication Server 1000 Software Input Output Administration	NN43001-611
Communication Server 1000 Software Input Output Reference - System Messages	NN43001-712
Communication Server 1000 Software Input Output Reference - Maintenance	NN43001-711
Element Manager System Reference – Administration	NN43001-632

Tools and Equipment

There are not tools or equipment for this lesson.

Job Aids

The job aids for this lesson are:

- How to implement ESA

Handouts

Your instructor will provide you with the following handouts:

- Work order WO 18C
- Work order WO 19C
- Work order WO 20C
- Work order WO 21C

Key Terms

There are no key terms for this lesson.

Pre-Lesson Work

There is no pre-lesson work for the lessons in this unit.

Lesson Content: Major Components of ESA

Introduction

ESA is made up of four major components:

- ESA Call Recognition
- ESA Calling Terminal Identification
- ESA On-Site Notification
- ESA Call Routing

These four components work together to provide the ESA functionality that was described in the previous lesson. An explanation of these four components will be discussed next.

ESA Call Recognition

ESA Call Recognition process provides the CS1000E system administrator with the ability to configure an Emergency Services Directory Number (ESDN) in LD 24 on a per customer basis (i.e.: each customer could have their own unique ESDN). When a CS1000E user dials the ESDN (typically ‘911’), the switch automatically recognizes the call as an Emergency Services Access call and immediately begins special translations to route and terminate the call.

An ESDN has the following characteristics:

- Can be up to a maximum of four digits long.
- Can be the same number that is used locally for accessing emergency services.
- Must not conflict with other codes within the same customer dialing plan.
- Is totally independent of the customer’s ESN database; therefore ESA calls can be routed to the closest PSAP as soon as the ESDN is dialed.
- BARS/NARS access code (AC1 or AC2) not required prior to dialing the ESDN during an ESA emergency call.
- When dialed, temporarily overrides all access restrictions imposed on the line or trunk being used to process the emergency call.

Lesson Content: Major Components of ESA, continued

ESA Calling Terminal Identification

The ESA Calling Terminal Identification function allows the CS1000E to compose (or generate) an ESA calling number on all outgoing ESA calls that is then used to identify the originator of an emergency call. This ESA feature is a modification of the ISDN (Integrated Systems Digital Network) CLID (Calling Line Identification) feature that was initially introduced in Release 22.

A maximum of 4,000 CLID entries can be configured for a single customer assigned to a CS1000E switch. CLID entries are defined in LD 15 in the NET (Networking) Data Block using the ‘CLID’ entry prompt. Lists of the possible ESA responses to the CLID entry prompt are as follows:

- ESA_HLCL (ESA Home Local Code)
  For ESA calls, this is the basic ANI generated by the switch and can be used as a 3-digit home local office code (NXX) for ESA DID calls, or as a 7-digit LDN for non-DID calls.
- ESA_INHN (ESA Insert Home National Code Flag)
  For ESA calls, when a 10-digit ANI is required, this parameter must be set to YES. Doing so causes the Home National Code (HNPA or Home Area Code) to be prefixed (added) in front of the 7-digit ANI. If only a 7-digit ANI is required, then this parameter should be set to NO.
- ESA_APDN (ESA Append DN Flag)
  On ESA calls, if the originating DN needs to be appended (added to the end) to the ESA Home Local Code then this parameter must be set to YES. Otherwise, this parameter should be set to NO.

NOTE: This parameter defaults to YES, and can only be changed to NO if the CS1000E is equipped with the Calling Number Mapping software package (ESA_CLMP) #331

See the following three tables for additional information about ESA calling number identification.

Lesson Content: Major Components of ESA, continued

ESA Calling Number Composition

CLID entry configuration				ESA Calling Number composition (Typical use)
HNTN	ESA_HLCL	ESA_INHN	ESA_APDN	
Does not matter	Defined	NO	YES	ESA_HLCL+originating DN (7-digit ANI for a DID number)
Defined	Defined	YES	YES	HNTN+ESA_HLCL+originatingDN (10-digit ANI for a DID number)
Undefined	Defined	YES	YES	ESA_HLCL+originating DN (7-digit ANI for a DID number)
Does not matter	Undefined	NO	YES	originating DN (7-digit ANI for a DID number, if a 7-digit DID dialing plan is used.)
Defined	Undefined	YES	YES	HNTN+originating DN (10-digit ANI for a DID number, if a 7-digit DID dialing plan is used.)
Undefined	Undefined	YES	YES	Originating DN
Does not matter	Defined	NO	NO	ESA_HLCL (7-digit ANI for a non-DID number)
Defined	Defined	YES	NO	HNTN+ESA_HLCL (10-digit ANI for a non-DID number)
Undefined	Defined	YES	NO	ESA_HLCL
Does not matter	Undefined	NO	NO	Nothing
Defined	Undefined	YES	NO	HNTN
Undefined	Undefined	YES	NO	Nothing

NOTE: HNTN= National Code for Home National Number (NPA)

Lesson Content: Major Components of ESA, continued

Valid ESA Calling Number Lengths

ESA Calling Number Length	ESA Calling Number Status	
	FNP Package Equipped	FNP Package Not Equipped
0	Invalid	Invalid
1-6	Valid	Invalid
7	Valid	Valid
8-9	Valid	Invalid
10	Valid	Valid
11-16	Valid	Invalid
More than 16	Invalid	Invalid

NOTE: Software Feature Package #160 supports the FNP feature.

ESA Calling Number Composition—Attendant-Initiated Calls

CLID entry configuration				ESA Calling Number composition (Typical use)
HNTN	ESA_HLCL	ESA_INHN	ESA_APDN	
Does not matter.	Defined	NO	YES	ESA_HLCL+LDN0 (7-digit ANI for a DID number)
Defined	Defined	YES	YES	HNTN+ESA_HLCL+LDN0 (10-digit ANI for a DID number)
Undefined	Defined	YES	YES	ESA_HLCL+LDN0 (7-digit ANI for a DID number)
Does not matter.	Undefined	NO	YES	LDN0
Defined	Undefined	YES	YES	HNTN+LDN0
Undefined	Undefined	YES	YES	LDN0
Does not matter.	Defined	NO	NO	ESA_HLCL (7-digit ANI if LDN0 is not to be used)
Defined	Defined	YES	NO	HNTN+ESA_HLCL (10-digit ANI if LDN0 is not to be used)
Undefined	Defined	YES	NO	ESA_HLCL
Does not matter.	Undefined	NO	NO	Nothing
Defined	Undefined	YES	NO	HNTN
Undefined	Undefined	YES	NO	Nothing

Lesson Content: ESA On-Site Notification (OSN)

Introduction

The ESA On-Site Notification (OSN) function alerts pre-designated users (typically security personnel) when an emergency call has been placed from within their unit. Two separate devices can be programmed to provide this on-site alert:

- A maintenance device (computer with printer)
- A Meridian 1 Proprietary Set with display (referred to as the OSN set)

Maintenance Device

These two devices are totally independent of each other and can be configured together, or one without the other. The maintenance device (if assigned) must have ‘MTC’ defined in the USER prompt in LD 17. Also, if the history file (ADAN=HST in LD 17) is configured as a maintenance device, then the OSN call record for each emergency call will be saved in the history file.

OSN

When a user within the assigned customer group places an emergency call, the On-Site Notification feature automatically broadcasts an alert notification to all OSN devices assigned. The OSN set provides the attendant with an audible buzz, the OSN key lamp lights, and the originator’s ANI (or CPND) is displayed. The maintenance device displays the Call Record data, which could then be printed out. The history file (if programmed) stores (saves) the OSN Call Record in the history file.

OSN Call Record for Print for a Station Set-Initiated ESA Call

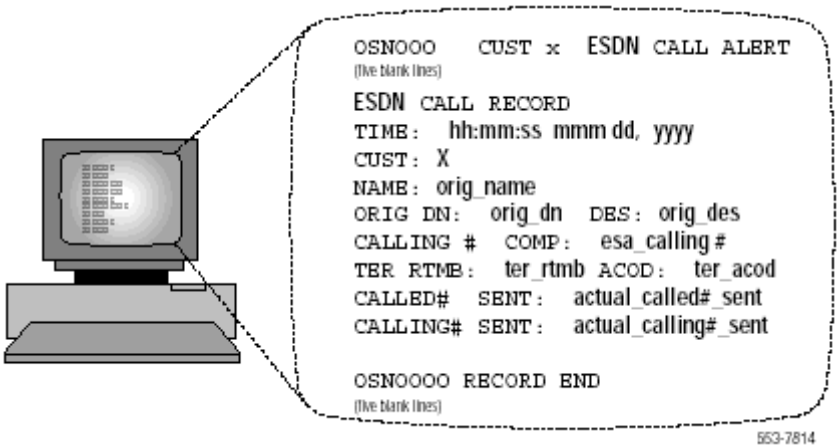


Figure 5.2.1: OSN Call Record for Print for a Station Set-Initiated ESA Call

Lesson Content: ESA On-Site Notification (OSN), continued

Description of Call Record Fields

Field	Description
x	The customer number, as defined using the CUST prompt in Overlay 10, 11, or 27.
ESDN	The customer Emergency Services Access DN, as defined using the ESDN prompt in Overlay 24.
hh:mm:ss	The 24-hour time stamp of when the call was made (hour, minute, and second).
mmm dd yyyy	The date stamp of when the call was made (month, day, and year).
orig_name	The name associated with the originating DN[a], as defined using the NAME prompt in Overlay 95.
orig_dn	The DN associated with the originating set.
esa_calling#	The calling number composed by the ESA Call Termination Identification function, for the originating station set.
orig_des	The telephone designator[b] of the originating station set.
ter_rtmb	The route and member number of the outgoing trunk on which the ESA call terminated, as defined using the RTMB prompt in Overlay 14.
ter_acod	The route access code of the outgoing trunk on which the ESA call terminated.
actual_called#_sent	The called number that was sent.
actual_calling#_sent	The calling number that was sent.

a. The Meridian 1 must be equipped with the Calling Party Name Display (CPND) package 95 in order to print the originating name.
b. The Meridian 1 must be equipped with the Office Data Administration System (ODAS) package 20 in order to print the telephone designator.

OSN Call Record Print for Attendant Console-Initiated ESA Call

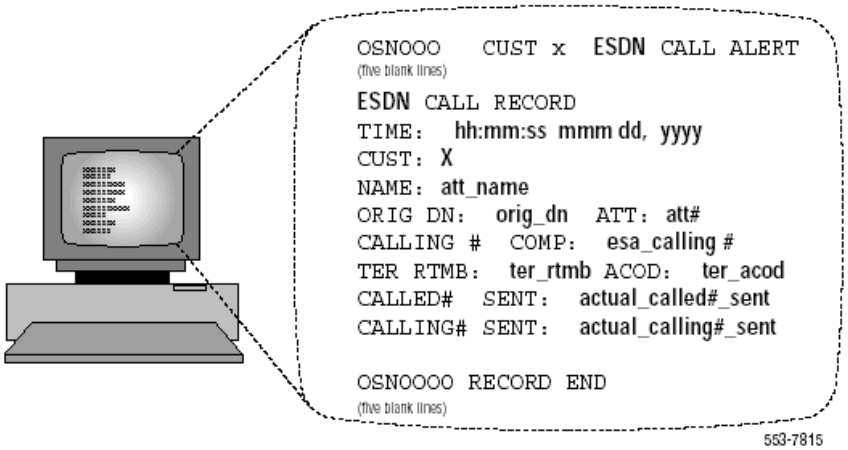


Figure 5.2.2: OSN Call Record for Print for Attendant Console-Initiated ESA Call

Lesson Content: ESA On-Site Notification (OSN), continued

Description of Call Record Fields

Field	Description
x	The customer number, as defined using the CUST prompt in Overlay 12.
ESDN	The customer Emergency Services Access DN, as defined using the ESDN prompt in Overlay 24.
hh:mm:ss	The 24-hour time stamp of when the call was made (hour, minute, and second).
mmm dd yyyy	The date stamp of when the call was made (month, day, and year).
att_name	The name associated with the attendant DN[a], as defined using the NAME prompt in Overlay 95.
orig_dn	The attendant DN, as defined using the ATDN prompt in Overlay 15.
attn#	The attendant number, as defined using the ANUM prompt in Overlay 12.
esa_calling#	The calling number composed by the ESA Call Termination Identification function, for the originating attendant console.
ter_rtmb	The route and member number of the outgoing trunk on which the ESA call terminated, as defined using the RTMB prompt in Overlay 14.
ter_acod	The route access code of the outgoing trunk on which the ESA call terminated.
actual_called#_sent	The called number that was sent.
actual_calling#_sent	The calling number that was sent.

a. The Meridian 1 must be equipped with the Calling Party Name Display (CPND) package 95 in order to print the originating name.

OSN Call Record Print for an Incoming Trunk-Initiated Tandem ESA Call

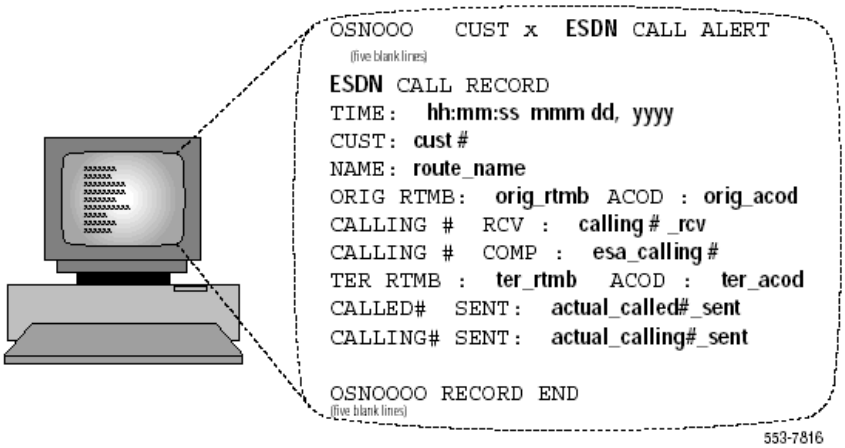


Figure 5.2.3: OSN Call Record for Print for an Incoming Trunk Initiated ESA Call

Lesson Content: ESA On-Site Notification (OSN), continued

Description of Call Record Fields

Description of call record fields

Field	Description
x	The customer number, as defined using the CUST prompt in Overlay 12.
ESDN	The customer Emergency Services Access DN, as defined using the ESDN prompt in Overlay 24.
hh:mm:ss	The 24-hour time stamp of when the call was made (hour, minute, and second).
mmm dd yyyy	The date stamp of when the call was made (month, day, and year).
route_name	The name associated with the incoming trunk route[a], as defined using the NAME prompt in Overlay 95.
orig_rtmb	The route and member number of the incoming trunk, as defined using the RTMB prompt in Overlay 14.
orig_acod	The route access code of the incoming trunk on which the ESA call was initiated, as defined using the ACOD prompt in Overlay 16.
calling#_rcv	The calling number that was received from the incoming trunk.
esa_calling#	The calling number composed by the ESA Call Termination Identification function, for the incoming trunk route.
ter_rtmb	The route and member number of the outgoing trunk on which the ESA call terminated, as defined using the RTMB prompt in Overlay 14.
ter_acod	The route access code of the outgoing trunk on which the ESA call terminated, as defined using the ACOD prompt in Overlay 16.
actual_called#_sent	The called number that was sent.
actual_calling#_sent	The calling number that was sent.

a. The Meridian 1 must be equipped with the Calling Party Name Display (CPND) package 95 in order to print the originating name.

Lesson Content: ESA OSN Set Provisioning

OSN

Any type of Meridian 1 proprietary set may be designated as an On-Site Notification (OSN) set; however, only 1 OSN set may be configured per customer group. Using the KEY prompt in LD 11, **OSN** is assigned and this key then becomes the OSN key. The OSN key can only be used to display ESA caller information. Emergency calls cannot be monitored or answered using this key.

OSDN

A single appearance station DN assigned to a key on the OSN set must then be designated as the customer’s On-Site DN (OSDN) using the ‘OSDN’ prompt in LD 24. The On-Site Notification feature uses the **OSDN** parameter to locate the OSN set during the processing of an emergency call. After the OSN set has been located, the following events take place:

- The caller information is copied into a separate memory block or call register.
- An audible buzz is generated from the OSN set for 10 seconds.
- The OSN key lamp begins flashing.

OSN Limitations

The following OSN set limitations should be noted:

- Only one OSN set can be defined per customer.
- Only one ESA call can be handled at a time.
- ESA information must be cleared off the OSN set manually, before additional ESA calls can be displayed.
- ESA calls cannot be answered or monitored by the OSN set. Emergency calls continue processing through dedicated ESA trunks and terminate at the PSAP.

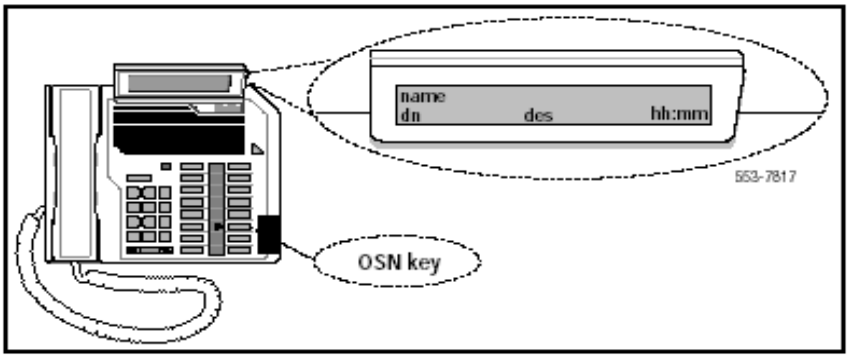
Lesson Content: OSN Set Displays

Three Types of ESA Calls

The following three figures illustrate the three types of OSN set displays supporting the following types of ESA calls:

- Station Set Initiated (Figure 5.2.4)
- Attendant Console Initiated (Figure 5.2.5)
- Incoming Non-ISDN Trunk Initiated (Figure 5.2.6)

Station Set-Initiated ESA Call



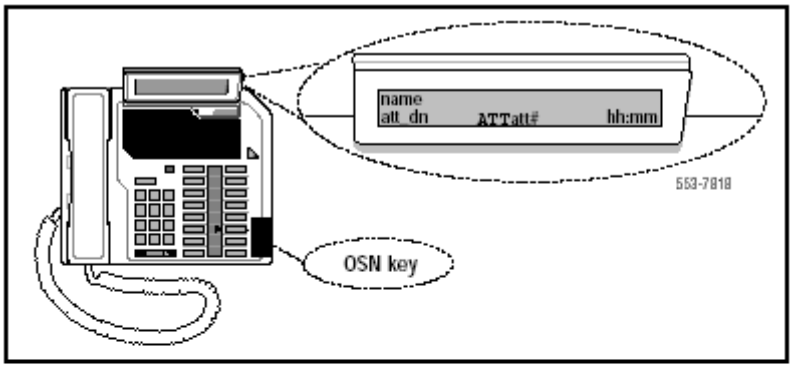
Field	Description
name	The name (as defined using the NAME prompt in Overlay 95) associated with the originating DN[a].
dn	The originating DN.
des	The telephone designator[b] of the originating set (as defined using the DES prompt in Overlay 10, 11, or 27).
hh:mm	The 24-hour time stamp of when the ESA call was made.

a. The Meridian 1 must be equipped with the Calling Party Name Display (CPND) package 95 in order to display the originating name.
b. The Meridian 1 must be equipped with the Office Data Administration System (ODAS) package 20 in order to display the telephone designator.

Figure 5.2.4: Station Set-Initiated ESA Call

Lesson Content: OSN Set Displays, continued

Attendant Console-Initiated ESA Call

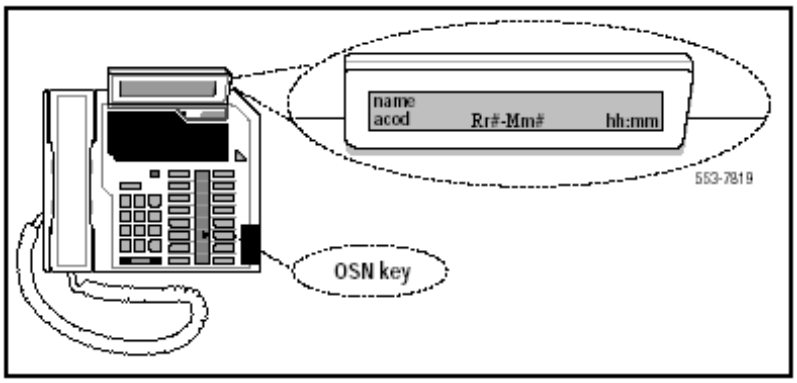


Field	Description
name	The name (as defined using the NAME prompt in Overlay 95) associated with the attendant DN[a].
attn_dn	The attendant DN (as defined using the ATDN prompt in Overlay 15).
ATTatt#	The attendant number of the originating attendant console (as defined using the ANUM prompt in Overlay 12).
hh:mm	The 24-hour time stamp of when the ESA call was made.

a. The Meridian 1 must be equipped with the Calling Party Name Display (CPND) package 95 in order to display the originating name.

Figure 5.2.5: Console-Initiated ESA Call

Incoming Non-ISDN Trunk-Initiated Tandem ESA Call



Field	Description
name	The name (as defined using the NAME prompt in Overlay 95) associated with the attendant DN[a].
accod	The route access code of the incoming trunk (as defined using the ACOD prompt in Overlay 16).
Rr#-Mm#	The route and member number of the incoming trunk (as defined using the RTMB prompt in Overlay 14).
hh:mm	The 24-hour time stamp of when the ESA call was made.

a. The Meridian 1 must be equipped with the Calling Party Name Display (CPND) package 95 in order to display the originating name.

Figure 5.2.6: Incoming Non-ISDN Trunk-Initiated ESA Call

Lesson Content: ESA System Configurations

Configuring ESA

There are literally hundreds of different ways to configure ESA using a Meridian 1 system, such as the CS1000E. Examples are displayed on the following pages.

Non-networking configuration examples:

- DID DN Call (Figure 5.2.7)
- Non-DID DN Call (Figure 5.2.8)

Non-ISDN networking configuration examples:

- Non-Meridian 1 Originating Node (Figure 5.2.9)
- Meridian 1 Originating Node (Figure 5.2.10)

Meridian 1 Non-Networking ESA Application for DID DN Call

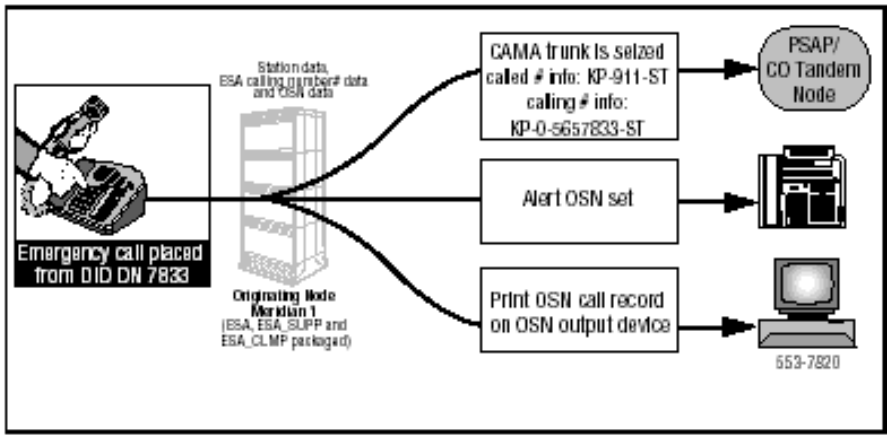
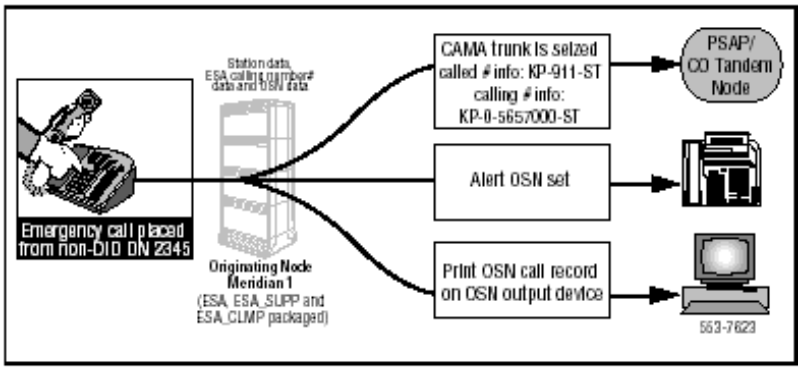


Figure 5.2.7: Meridian 1 Non-Networking ESA Application for DID DN Call

Lesson Content: ESA System Configurations, continued

Meridian 1 Non-Networking ESA Application for Non-DID DN Call



In Figure 8, an emergency call is placed at the originating node from non-DID DN 2345 (by dialing the ESDN 911.) The following call processing takes place:

— An outgoing CAMA trunk is seized at the originating node.

— 911 is outpulsed as part of the called number via MF signaling.

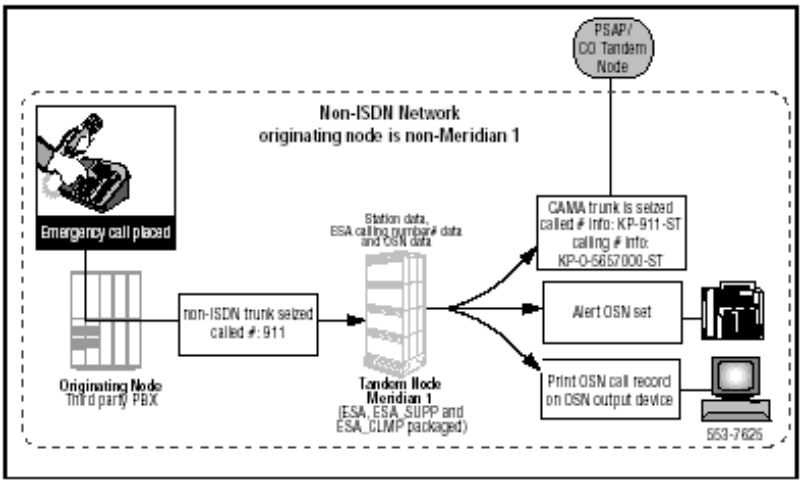
— The appropriate calling number information for the non-DID DN is composed and outpulsed via MF signaling Refer to the section “Calling number for station set-initiated ESA calls” on page 26.

— The OSN set is alerted by ESA.

— The OSN call record is printed on the output device. Refer to Figure 1 “OSN call record print for a station set-initiated ESA call” on page 44.

Figure 5.2.8: Meridian 1 Non-Networking ESA Application for Non-DID DN Call

Non-ISDN Networking ESA Configuration, Originating Node is Non-Meridian 1



In Figure 10, an emergency call is placed from the originating node over a non-ISDN trunk to a tandem Meridian. At the tandem Meridian 1, the following call processing takes place:

— An outgoing CAMA trunk is seized.

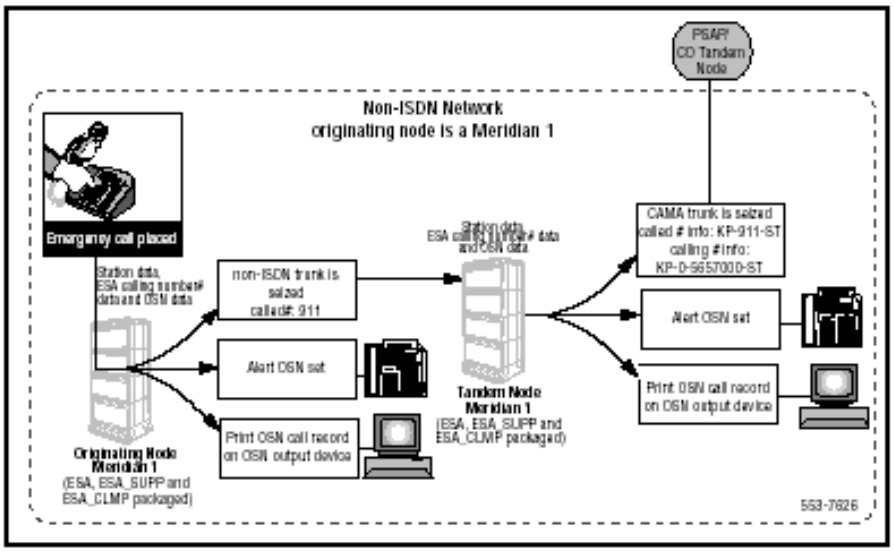
— 911 is outpulsed as part of the called number via MF signaling.

— The appropriate calling number information for the incoming non-ISDN trunk is composed and outpulsed via MF signaling. Refer to the section

Figure 5.2.9: Non-ISDN Networking ESA Configuration Originating Node is Non-Meridian 1

Lesson Content: ESA System Configurations, continued

Non-ISDN Networking ESA Configuration, Originating Node is a Meridian 1



In Figure 11, an emergency call is placed from the originating node, where the following call processing occurs:

— An outgoing Meridian 1 non-ISDN trunk is seized.

Figure 5.2.10: Non-ISDN Networking ESA Configuration. Originating Node is a Meridian 1

Lesson Content: ESA Call Routing

Introduction

The proper routing of ESA calls using dedicated ESA emergency trunks is made possible through the use of the ESA Routing function. ESA routes are programmed in LD 24 using the ‘ESRT’ prompt.

NOTE: Although it is possible to configure emergency trunks to be *shared* with non-emergency types of calls, laws in most localities (for obvious reasons) prohibit this and require a minimum of two **dedicated** emergency trunks for ESA call routing.

When an emergency call is made, the CS1000E uses the ESA Call Recognition feature to identify the call as an ESA call. The CS1000E then seizes the first available emergency services trunk and routes the call over that trunk to the PSAP. If no ESA emergency services trunk is available, the call overflows to the alternate route that was defined in LD 16 using the ‘STEP’ prompt.

Trunk Types

The following trunk types support the routing of ESA calls:

- CAMA (Centralized Automatic Message Accounting)
- COT (Central Office)
- DID (Direct Inward Dialing)
- FEX (Foreign Exchange)
- TIE (TIE Trunk)
- WATS (Wide Area Telephone Service)

ESA emergency calls are not subject to, and automatically override access restrictions such as TARG/TGAR, Class of Service (CLS), and Code Restrictions.

Lesson Content: ESA Call Routing, continued

ESA Call Routing using CAMA Trunks

The most common trunk type used for routing ESA emergency calls is the CAMA (Centralized Automatic Message Accounting) trunk.

The FCC (Federal Communications Commission) recommends the use of CAMA trunks (between switches) during ESA call processing when either of the following conditions exists:

- ESA routing from a Meridian 1 directly to a PSAP
- ESA routing from a Meridian 1 to a CO (Central Office), then connecting to a PSAP

During ESA call processing, when a call is routed to an outgoing CAMA trunk, both Called Number and Calling Number information are sent (transmitted) over the trunk using MF (Multi-Frequency) signaling. This process will be discussed next.

ESA Called Number Information Routed over CAMA Trunks

The Called Number information for outgoing ESA calls transmitted over a CAMA trunk consists of the following, in order:

- KP (Key Pulse) Signal
- Called Number
- ST (Start) Signal

In North America (World Zone 1) the called number (as received by the E911 Provider) to access emergency services must be one of the following:

- 911, 11, or 1

The actual digits required to be outpulsed by the Meridian 1 is specified by the E911 provider. Normally the called number that is outpulsed is the ESDN, however, the ‘DDGT’ (ESA Directing Digits) prompt in LD 24 can identify a totally different DN to outpulse instead of the ESDN.

Lesson Content: ESA Call Routing, continued

ESA CALLING Number Information Routed over CAMA Trunks

The Calling Number information for outgoing ESA calls transmitted over a CAMA trunk consists of the following, in order:

- KP (Key Pulse) Signal
- Information Digit Signal
- Calling Number
- ST (Start) Signal

The Information Digit will be ‘0’ if the Calling Number is transmitted by the Meridian 1. If the Calling Number cannot be transmitted by the Meridian 1, then the Information Digit will be “2”.

The ESA feature determines the Calling Number as follows:

- For a station set initiated ESA call routed over a CAMA trunk, the ESA Calling Number is determined by the use of **ESA Calling Number Composition** on the previous pages.
- For an Attendant Console initiated ESA call routed over a CAMA trunk, the ESA Calling Number is determined by the use of **ESA Calling Number Composition—Attendant-Initiated Calls** on the previous pages.

See the following two tables for additional examples of Calling Number information on the following pages.

Calling Number for Incoming Trunk-Initiated Tandem ESA Call

Length of incoming ANI/CLID	Length of ESA calling number for the incoming trunk	Resulting calling number
7 or 10	Does not matter	Incoming ANI/CLID
Other than 7 or 10	7 or 10	ESA calling number for the incoming trunk
Other than 7 or 10	Other than 7 or 10	Null

Once the outgoing calling number is identified, the resulting calling number information that is outpulsed is described in the next table.

CAMA Multifrequency Compelled Format of the Calling Number Information

Calling number length	Calling number information
0	KP_2_ST
7	KP_0_7 digit calling number_ST
10	KP_0_10 digit calling number_ST

Lesson Content: ESA Feature Implementation

Implementing ESA

The following is a list of steps, in sequential order, required to implement ESA.

How to Implement ESA	
Step	**Action**
1	In LD 15, modify the customer’s CLID database to allow ESA calling number composition.
2	Using LD 16, configure at least two non-ISDN routes with CLID entries to support ESA call processing.
3	Using LD 14, create dedicated ESA trunks to support ESA call processing. Only the following trunk types may be used: • CAMA (Centralized Automatic Accounting) • COT (Central Office) • DID (Direct Inward Dial) • FEX (Foreign Exchange) • TIE (TIE Trunks) • WATS (Wide Area Telephone Service)
4	In LD 10 and 11, create a CLID entry for both analog and digital sets.
5	Configure the following OSN notification data: • Create an OSN output device using LD 17. • Configure an OSN set using LD 11. • Define terminal designator (DES) data on all phones (both analog and digital) in LD 10 and 11.
6	Configure ESA as follows: • Configure applicable ESA data in LD 24. • Configure ESA route data using LD 16. • Using LD 86, configure ESA Digit Manipulation and call routing. In LD 90, configure ESA Call Recognition parameters. (
End of procedure	

Lesson Content: ESA Feature Implementation, continued

Modify Customer CLID Database for ESA Calling Number Composition

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	NET	Networking data.
CUST	xx	Customer number.
...		
CLID	YES	Configure Calling Line Identification (CLID) options.
- SIZE	0-4000	Specify the maximum number of CLID entries required.
- INTL	1-4	Country code (1 to 4 digits).
- ENTRY	0-(1)-3999	CLID entry to be configured. CLID entries must be between 0 and (the value entered at the size prompt - 1). ENTRY is repeated until a <cr> is entered.
- HNTN	x...x	National code for home national number (1 - 6 digits). Precede with ‘X’ to delete digits.
- ESA_HLCL	x...x	Home local code for Emergency Service Access call. Up to 12 digits are accepted. Precede with ‘X’ to delete entry.
- ESA_INHN	(NO) YES	Do not insert HNTN in front of ESA_HLCL. Insert HNTN in front of ESA_HLCL.
- ESA_APDN	(YES) NO	Append the originating DN after ESA_HLCL. Do not append the originating DN after ESA_HLCL.
...		
- ENTRY	xx	Configure another CLID entry. ENTRY is repeated until a <cr> is entered.

Lesson Content: ESA Feature Implementation, continued

LD 16—Configure CLID Entries for Non-ISDN Route

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	RDB	Route Data Block.
CUST	xx	Customer number.
ROUT	0-511 0-127	Route number. For Option 11C.
...		
TKTP	aaa	Trunk type where: aaa = CAM, COT, DID, FEX, TIE, WAT
...		
ISDN	NO	Route is not an ISDN route.
...		
- ISAR	NO	Route is not an ISA service route.
...		
ACOD	x...x	Route Access Code. It must not conflict with numbering plan. Up to 4 digits (7 digits if the DN Expansion package equipped.)
CLEN	0-(1)-3999	Calling Line Identification entry number. Configured in LD 15. CLEN will not be prompted for NI-2 CBC or ISA master routes.
...		

LD 14—Configure the ESA Trunk Type

Prompt	Response	Description
REQ	NEW	New.
TYPE	aaa	Trunk type, where aaa can be one of the following: CAM = Centralized Automatic Message Accounting COT = Central Office DID = Direct Inward Dial FEX = Foreign Exchange TIE = TIE WAT = Wide Area Telephone Service
TN	l s c u c u	Terminal Number For Option 11C.
RTMB	0 - 511 1- 254	Route number, Member number.

Lesson Content: ESA Feature Implementation, continued

LD10—Configure a CLID Entry for Analog Sets

NOTE: While Overlay 10 is loaded, you may want to configure the terminal designator date required for On Site Notification configuration for analog (500/2500 type) sets.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	500	500/2500 type set data block.
TN	l s c u c u	Terminal Number For Option 11C.
...	...	...
DN	xxxx (0)-N	DN and CLID entry. N = CLID SIZE-1 (where SIZE is defined in LD 15).
...		

LD 11—Configure Calling Line Identification for Meridian 1 Sets

NOTE: While Overlay 11 is loaded, you may want to configure the OSN set and terminal designator data required for On Site Notification configuration for Meridian 1 proprietary sets.

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	xxxx	Telephone type, where: xxxx = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616 or 3000.
TN	l s c u c u	Terminal Number For Option 11C.
...		
KEY	aa bbb yyyy (0)-N	Directory Number, where: aa = key number. bbb = key type or function; one of the following: SCR, SCN, MCR, MCN, or HOT. yyyy = DN. (0)-N = CLID entry, where N = SIZE-1 (SIZE is defined in LD 15).
...		

Lesson Content: ESA Feature Implementation—On-Site Notification Configuration

LD 17—Configure an Output Device

Prompt	Response	Description
REQ	CHG	Change data.
TYPE	ADAN	Action Device and Number
- ADAN	CHG bbb x	Change Action Device and Number where: bbb = TTY, or PRT x = Port number
...		
USER	MTC	Maintenance output device.
...		

LD 11—Configure the Set

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	xxxx	Telephone type, where: xxxx = 2006, 2008, 2016, 2216, or 2616.
TN	l s c u c u	Terminal Number For Option 11C.
...		
CUST	xx	Customer number.
...		
KEY	aa bbb yyyy (0)-N	Directory Number, where: aa = key number. bbb = key type or function; one of the following: SCR, SCN, MCR, MCN, or HOT. yyyy = DN. (0)-N = CLID entry, where N = SIZE-1 (SIZE is defined in LD 15).
KEY	xx OSN	Key number and the On-Site Notification key mnemonic.
...		

Lesson Content: ESA Feature Implementation—On-Site Notification Configuration, continued

LD 10—Configure Terminal Designator Data for Analog Sets

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	500	500/2500 type set data block.
TN	l s c u c u	Terminal Number For Option 11C.
...	...	...
DES	d...d	Office Data Administration System Station Designator.
...		

LD 11—Configure Terminal Designator Data for Meridian 1 Sets

Prompt	Response	Description
REQ:	NEW CHG	Add new data. Change existing data.
TYPE:	xxxx	Telephone type, where: xxxx = SL1, 2006, 2008, 2009, 2016, 2018, 2112, 2216, 2317, 2616 or 3000.
TN	l s c u c u	Terminal Number For Option 11C.
...		
DES	d...d	Office Data Administration System Station Designator.
...		

Lesson Content: ESA Feature Implementation—Emergency Services Access Configuration

LD 24—Configure Access Data

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	ESA	Emergency Services Access.
CUST	xx	Customer number.
ESDN	x...x	Emergency Services Directory Number (e.g. 911). Up to 4 digits are accepted.
ESRT	0-511 0-127	ESA route number. For Option 11C. The trunk type can be CAM, COT, DID, FEX, TIE, or WAT
DDGT	xxxx	Emergency Services Directing Digits (e.g. 1, 11, 911, etc.). Up to 4 digits are accepted. The DDGT digits are output as the called number if the ESA call terminates onto an outgoing CAMA trunk. Otherwise, the ESDN is output.
DFCL	x....x	Default Calling Line Identification. The input must be of the following length: — On a system that is not FNP packaged, the input must be nothing, or 7 or 10 digit. If nothing is entered, KP-911-ST is output. — On a system that is FNP packaged, any number of digits, up to 16, are allowed to be entered.
OSDN	x....x	On-Site Notification Directory Number. The input must be a valid single appearance internal DN that belongs to a Meridian 1 proprietary telephone configured with an OSN key. This DN must be the same as the OSDN configured for the OSN set in LD 11. Refer to page 98.

Lesson Content: ESA Feature Implementation—Emergency Services Access Configuration, continued

LD 16—Configure Access Route Data

Prompt	Response	Description
REQ	NEW CHG	Add new data. Change existing data.
TYPE	RDB	Route Data Block.
CUST	xx	Customer number.
ROUT	0-511 0-127	Route number. For Option 11C.
...		
TKTP	aaa	Trunk type where: aaa = CAM, COT, DID, FEX, TIE, WAT
...		
STEP	0-511 0-127	ESA alternate route number. For Option 11C.
...		

Lesson Content: OSN Feature Operations

OSN Set Purpose

The purpose of the OSN set is to provide basic information about the originator of an emergency (911) call at the time of the call. This Meridian 1 set (with display) has a single key-lamp pair assigned to support the OSN function. Additionally, the set should also have a DISPLAY key assigned. There are three possible key-lamp states:

- If the OSN lamp is extinguished (dark), ESA information is waiting to be displayed
- If the OSN lamp is flashing, information is waiting to be displayed
- If the OSN lamp is steadily lit, information is being displayed

Display OSN Data

To display OSN data:

Step	Action
1	Press the DISP key, followed by the OSN key. This leaves the ESA information in a waiting state and allows the data to be re-displayed if use of another set of operations is required. The OSN lamp remains flashing as long as the information is held in a waiting state.
2	Press the OSN key only. The OSN lamp changes to steadily lit, and the ESA caller information is actively displayed on the set.
End of procedure	

NOTE: Any attempt to answer another call, go on-hook or take a call off hold permanently discards all ESA information.

Lesson Content: OSN Feature Operations, continued

Clear OSN Display

To clear an OSN display:

Step	Action
1	Go on-hook.
2	Press the Release (RLS) key.
3	Answer an incoming call, make a new call, or return to a previously established call.
End of procedure	

Examples of OSN key operation and lamp state are displayed in the following tables.

OSN Key Operation and Lamp State, Part 1

Event	Current OSN Key Lamp State		
	Dark There is no ESA caller information to be displayed	Flashing An ESA caller information is waiting to be displayed	Lit An ESA caller information is being displayed
A new ESA call is presented to the OSN set.	OSN buzzing is given to the OSN set. The OSN key lamp changes to flashing, and the caller information is linked to the OSN key.	The new caller information is not linked as there is a caller information already linked to the OSN key. The OSN key lamp remains flashing, and the previous caller information remains linked to the OSN key.	The new caller information is not linked as there is a caller information already linked to the OSN key. The OSN key lamp remains lit, and the previous caller information remains linked to the OSN key.
The Display (DISP) key is pressed, and then the OSN key.	No ESA caller information is displayed. The DISP key lamp changes to dark. The OSN key lamp remains dark.	The caller information that is linked to the OSN key is displayed. The DISP key lamp changes to dark. The OSN key lamp remains flashing, and the caller information remains linked to the OSN key.	The caller information that is linked to the OSN key is redisplayed. The DISP key lamp changes to dark. The OSN key lamp remains lit, and the caller information remains linked to the OSN key
The OSN key is pressed when the OSN set is not in idle state.	The operation is ignored. The OSN key lamp remains dark.	The operation is ignored. The OSN key lamp remains flashing, and the caller information remains linked to the OSN key.	The operation is ignored. The OSN key lamp remains lit, and the caller information remains linked to the OSN key.

Lesson Content: OSN Feature Operations, continued

OSN Key Operation and Lamp State, Part 2

Event	Current OSN Key Lamp State		
	Dark There is no ESA caller information to be displayed	Flashing An ESA caller information is waiting to be displayed	Lit An ESA caller information is being displayed
The OSN key is pressed when the OSN set is in idle state.	The operation is ignored. The OSN key lamp remains dark.	The caller information linked to the OSN key is displayed. The operation is ignored. The OSN key lamp changes to lit, and the caller information remains linked to the OSN key. The OSN buzzing ends, if it has not already timed out. While the OSN key lamp remains lit, the OSN set is in active state, with the OSN key being the active key.	The operation is ignored. The OSN key lamp remains lit, and the caller information remains linked to the OSN key.
A new ESA call is presented to the OSN set.	The new call is presented as per normal operation. The OSN key lamp remains dark.	The new call is presented as per normal operation. The OSN key lamp remains flashing, and the caller information remains linked to the OSN key.	The new call is presented to the OSN set. The set display continues to show the existing ESA caller information; it is not replaced by the new caller information. The OSN key lamp remains lit, and the caller information remains linked to the OSN key.

Lesson Content: OSN Feature Operations, continued

OSN Key Operation and Lamp State, Part 3

Event	Current OSN Key Lamp State		
	Dark There is no ESA caller information to be displayed	Flashing An ESA caller information is waiting to be displayed	Lit An ESA caller information is being displayed
A new ESA call is presented to the OSN set. The Display (DISP) key is pressed, and then the DN key on which the new call has been presented.	The caller information associated with the new call is displayed. The OSN key lamp remains dark.	The caller information associated with the new call is displayed. The OSN key lamp remains flashing, and the caller information remains linked to the OSN key.	The ESA caller information that was being displayed is replaced by the new caller information. The OSN key lamp remains lit, and the caller information remains linked to the OSN key. *Note: To redisplay the previous caller information, press the DISP key and then the OSN key.*
The OSN set user goes on-hook, or presses the RLS key.	The OSN key lamp remains dark.	The OSN key lamp remains flashing, and the caller information remains linked to the OSN key.	The OSN set is returned to the idle state. The OSN key lamp changes to dark, and the caller information is erased.
The OSN set user makes a new call, returns to a previously established call, or answers an incoming call.	The OSN key lamp remains dark.	The OSN key lamp remains flashing, and the caller information remains linked to the OSN key.	The OSN key lamp changes to dark, and the caller information is erased.

Lesson Content: Emergency Services Access in EM

Introduction

Element Manager supports the Emergency Services Access feature, which allows the phone switch to process emergency calls providing all previously detailed functionality. The Emergency Services Access components that are configurable using Element Manager correspond to data traditionally configured in LD 24. For all customer, phone, route and trunk configuration changes, refer to previous lessons.

Access Numbers and Routing

To configure Emergency Services Access, Click the **Emergency Services > Access Numbers and Routing** link in the **System** branch of the Element Manager navigator to open the **Access Numbers and Routing** Web page, as shown below. Click the **Edit** button to configure the On-Site Notification Station DN. Click **Submit** to save OSDN configuration.

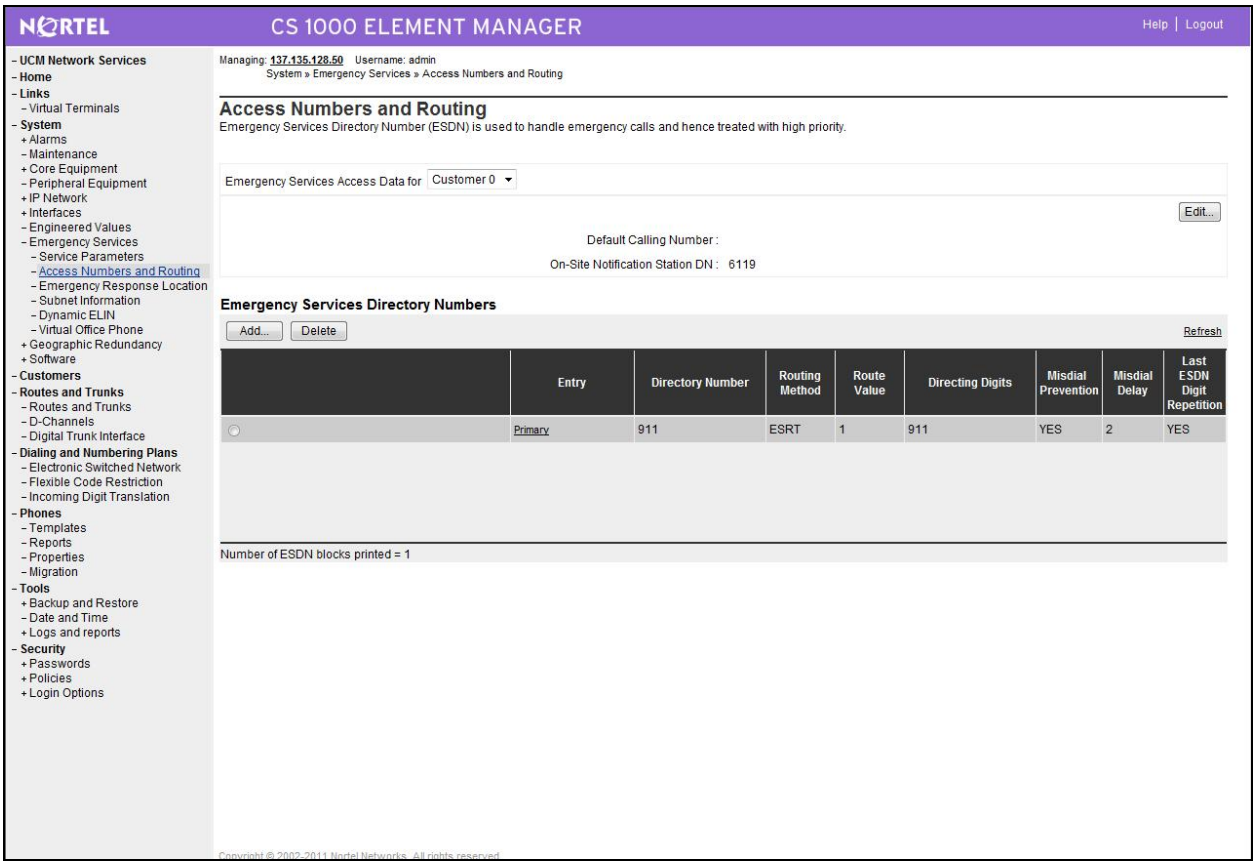


Figure 5.2.11

Continued on next page

Lesson Content: Emergency Services Access in EM, Continued

Emergency Services Directory Number

To configure Emergency Services Directory Numbers, Click the **Emergency Services > Access Numbers and Routing** link in the **System** branch of the Element Manager navigator to open the **Access Numbers and Routing** Web page, as shown on the previous page. Click the **Add** button under the **Emergency Services Directory Numbers** section to open the **Emergency Services Directory Numbers** webpage as shown below. Enter configuration information and click **Submit** to save.

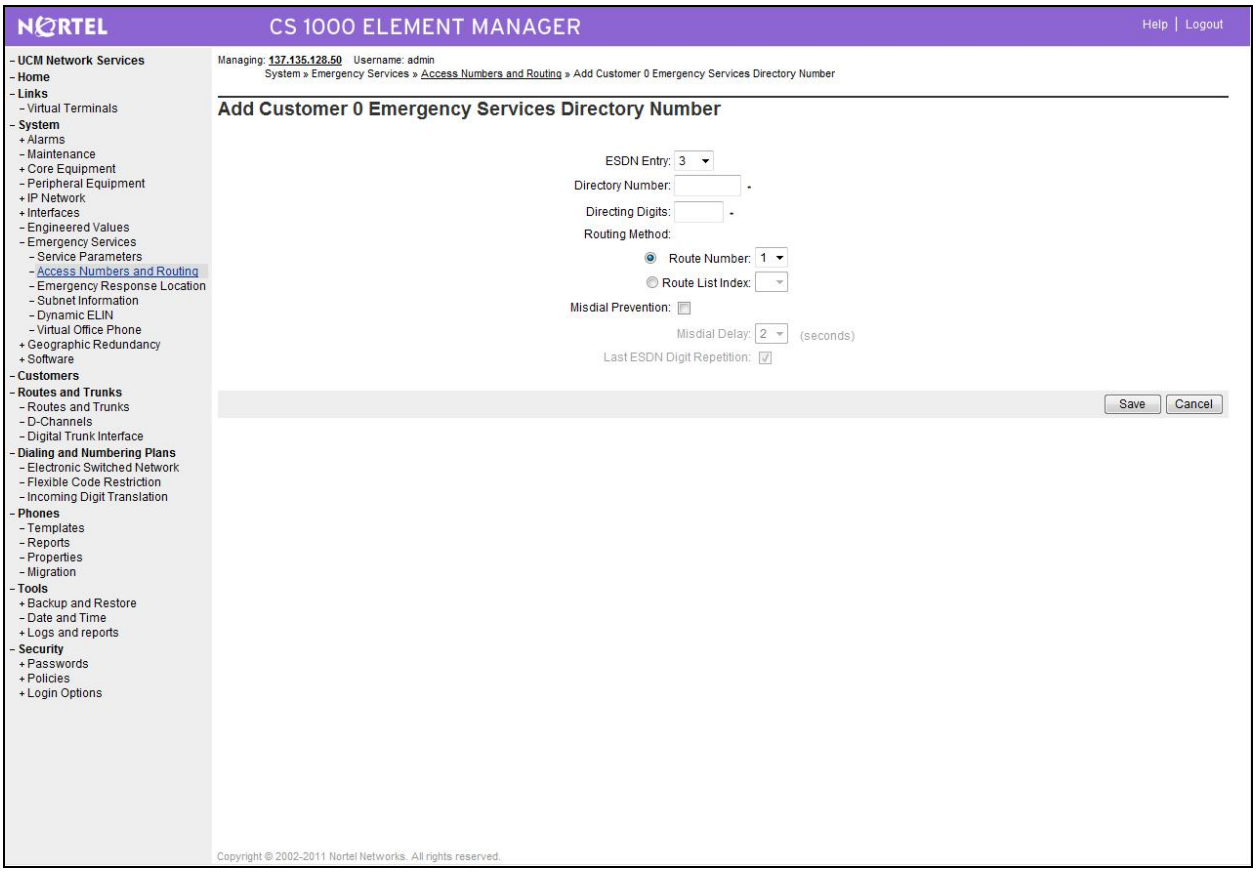


Figure 5.2.12

--End--

Review Activity: ESA Components

Directions

Covering the information you have learned in this module of instruction, answer the following questions:

Questions

1. What are the four major components of ESA?

   _____

   _____

   _____

   _____

2. What ESA process allows the creation of an ESDN on a per customer basis?

   _____

   _____

3. Which of the following are characteristics of an ESDN?

   A. Can be four digits in length
   B. Overrides all access restrictions
   C. Independent of ESN database
   D. Requires a BARS access code

4. What is the maximum number of Calling Line Identification entries allowed per customer in a CS1000E switch?

   _____

   _____

5. What does OSN stand for?

   _____

   _____

6. What parameter does the CS1000E use to locate the OSN set during the processing of an ESA emergency call?

   _____

   _____

Review Activity: ESA Components, continued

Questions, contd.

7. Which of the following are OSN set limitations?

   A. Only 1 ESA call can be handled at a time.
   B. ESA calls cannot be answered but can be monitored by the OSN set.
   C. ESA calls must be cleared manually before additionally ESA calls can be displayed.
   D. The number of OSN sets allowed per customer depends on the number of users assigned to the customer group.

8. How long will the user hear an audible buzz on their OSN set after an ESA call has been placed?

   _____

   _____

9. What trunk type is recommended by the FCC to support routing of ESA calls between a Meridian 1 switch and a PSAP?

   _____

   _____

10. When routing ESA calls using the trunk type defined in Question 9 (above), what information is transmitted over the trunk? What type of signaling is used?

   _____

   _____

Summary

Lesson Summary

Upon completion of this lesson presentation and practice exercise, you will be able to:

5.1 **PROGRAM** Emergency Services Access using Command Line Interface (CLI) and Element Manager (EM) with 100 % accuracy as evidenced by a positive function check.

- **5.1.1** **REVIEW** manufacturer’s documentation
- **5.1.2** **REVIEW** federal 911 legislation (FCC Ruling Oct 94)
- **5.1.3** **DETERMINE** customer configuration
- **5.1.4** **PERFORM** function check
- **5.1.5** **COMPLETE** unit documentation