Update instructions

4ESS™ Switch Product Release Document,

4E24 Release 2 Generic

234-090-242AC

Overview This package contains a "History of revisions" sheet and updates for Product Release Document (PRD) Lucent Technologies 234-090-242AC.

Instructions This "Update instructions" sheet may be disposed of after placing the revised pages in the PRD or it may be retained. If retained, file this sheet in the ring binder immediately following the title page.

Revisions Chapter 13, on Feature 6881, is revised to include a feature backout procedure. This information is given on pages 13-6 through 13-9.

Chapter 16, on Feature 7063, is revised to add a section on the use of RC Form 634. This information is given on page 16-7.

Remove and replace pages as follows:

Remove old	Insert new
Chapter 13	Chapter 13, Revision 1
Chapter 16	Chapter 16, Revision 1

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Issue 1, April 1999
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History of revisions

4ESS™ Switch Product Release Document,

4E24 Release 2 Generic

234-090-242AC

Overview   Always retain the latest "History of revisions" sheet. File in the Product Release Document (PRD) binder immediately following the "Update instructions" sheet (if retained) or immediately following the title page.

Revisions   The following is a history of revisions:

Revised item	Revision date	Reason for revision
Chapter 13	August 1999	Include backout procedure for feature 6881
Chapter 16	August 1999	Include instructions on using RC Form 634 with Feature 7063

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13 *4ESS*™ -2000 Switch SCS Cache Change to 128 Milliseconds Feature (6881)

Overview

This feature improves the sound quality of short duration announcements by decreasing the cache increment from 512 milliseconds and 1.024 seconds to increments of 128 milliseconds.

In This Chapter

This chapter contains the following topics:

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Feature Description

Background   Prior to this feature, the *4ESS*™ Service Circuit System (SCS) stored
announcements in cache in a single 513-millisecond increment or in 1.024-
second increments. When these announcements were put together, the overall
announcement such as a string of digits sounded unclear and choppy. This
new feature allows for announcement lengths of 128, 256, 384, 512, 640, 768,
and 896 milliseconds; and 1.024 seconds to 32.640 seconds, in 128
millisecond increments.

Specific   Specifically, this feature provides the following capabilities:
Capabilities

- Provides a utility for converting existing SCS cache-based announcements
  to 128-millisecond increments.

- Provides each SCS with a total of 512 seconds of SCS cache-based
  announcements.

- Provides a total of 4096 eighth second (128 milliseconds). Note that this
  means that a total of 512 seconds of announcements can be stored in cache.

- Provides for a length of a single cache-based announcement of from 128
  milliseconds to 32.640 seconds, in 128-millisecond increments.

- Provides that the Centralized Announcement Update Control System
  (CAUCS) restricts creating records of new announcements to cache and
  copies of existing announcements to cache during feature deployment.
  However, after deployment, this restriction is removed.

Provides that CAUCS updates the announcement table with the correct
announcement "length value" for all existing cache-based announcements
after the SCS and Announcement Administrative Processor (AAP) utility has
been applied.

Call Flow (Not Affected)

Provisioning (Not Affected)

Recording (Not Affected)

Network Management (Not Affected)

Maintenance/Troubleshooting (Not Affected)

Transition Considerations

Feature Deployment

It is not necessary for all *4ESS* switches in the network to be running the 4E24 Release 2 Generic for this feature to be fully operational. However, all Service Circuit Units (SCUs) and AAPs must be running the latest software update for this feature to be usable as described in "Feature Activation".

Feature Interactions

This feature impacts the *Announcement Audit Feature 5379*. Cache-based announcements will fail until this feature has been deployed at all SCS locations.

Feature Activation

This feature is turned on automatically by software deployment—SCU and AAP software only.

Transition Considerations (cont'd)

Feature Backout

This feature can be backed out, using the following procedure, as long as an announcement record or a delete to the cache memory has not taken place with the new SCU software of this feature. Once a cache memory record has occurred with the new SCU software, Feature 6881 can no longer be backed out; in this case, the SCU disks would have to be re-copied to eliminate this feature.

Enable

Feature 6881 is enabled in the SCU when the SCU is restored with the new SCU Feature 6881 software. Conversion of the old half-second Announcement Cache Memory announcements, to new eighth-second announcements, will automatically be done during the restoral process. No additional action is necessary.

However, Feature 6881 is not usable until all SCU's across the network have been updated with the new SCU software, and the AAP's have been updated with their new software.

Disable

As long as an announcement record to the Cache Memory has not taken place with the new SCU Feature 6881 software, Feature 6881 can be backed-out. Once a Cache Memory record has taken place with the new SCU software, Feature 6881 can no longer be backed-out. In this case the SCU disks would have to be re-copied to eliminate Feature 6881.

Since activation of Feature 6881 results in SCU disk announcement data structures being modified, feature backout requires "careful" steps in a specific order. Each SCU that has been restored with Feature 6881 must have the following steps performed (while still loaded with the new SCU Feature 6881 software):

Transition Considerations (cont'd)

Step	Action
1	Write two data locations on each disk of pair-0 in SCU using the following "SCU Raw Disk Write" order: - Disk logical address 0x00000207 = 0x1234 - Disk logical address 0x00000208 = 0x5678 This can be accomplished with the following 1B input orders: Disk-0, Bus-0: LOAD:DISK;SCS x,SCU y,DSK 0,RAW,BUS 0,HADR (0000,0207):HDATA 1234 ! LOAD:DISK;SCS x,SCU y,DSK 0,RAW,BUS 0,HADR (0000,0208):HDATA 5678 ! Disk-0, Bus-1: LOAD:DISK;SCS x,SCU y,DSK 0,RAW,BUS 1,HADR (0000,0207):HDATA 1234 ! LOAD:DISK;SCS x,SCU y,DSK 0,RAW,BUS 1,HADR (0000,0208):HDATA 5678 !

Transition Considerations (cont'd)

Step	Action
2	Run the SCU demand diagnostic on each SCU disk of pair-0 modified in step #1, (using the new Feature 6881 SCU software). Both disks of pair-0 must be run (Phases 90 and 91).
	In this special diagnostic case, the actual disk diagnostic will not run. Instead, a special Feature 6881 backout utility will run. The backout utility will undo the disk changes made when Feature 6881 was enabled.

	This can be accomplished with the following 1B input orders:
	   Disk-0, Bus-0:
	   DGN:SCS x,SCU y;UCL,PH 90 !
	   Disk-0, Bus-1:
	   DGN:SCS x,SCU y;UCL,PH 91 !

	Each diagnostic will produce a failure almost immediately with the following failure data:
	   R0 = 11111
	   R1 = 22222
	   R2 = 33333
	   R3 = 44444
	   R4 = 55555

	The above demand phase diagnostic normally takes a long time to run (up to more than an hour). When the special backout utility is enabled, the normal diagnostic will not run. Instead, once the utility has backed-out the eighth-second changes, the diagnostic will force a stop by generating a pretend failure. This should happen almost immediately after the diagnostic order is sent since the backout utility does not take long to run. If the diagnostic does not fail immediately, or fails with different failure data, the backout utility did **not** run.
	Important! If the backout is successful, it is important to note that at this point the SCU must not be restored to service again with the new SCU software, or Feature 6881 will be automatically re-enabled and the disk changes removed by the back-out utility will be re-done.

Transition Considerations (cont'd)

Step	Action
3	Reload the previous SCU software (or change SCU translations to select the SCU software version on disk that still contains the old SCU software).
4	Restore the SCU to service. (Feature 6881 no longer exists on the SCU.)
5	Note that before Announcement Cache Memory recording can resume, Feature 6881 must be backed-out of the Announcement Administration Processor (AAP) as well.

Input/Output Manual Pages (Not Affected)

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16 Modification Request to AT&T Digital link Phase IV Feature (7063)

Overview

This Modification Request (MR) identifies additional *4ESS*™ switch functionality required to allow alternate routing features to engage Software Defined Network (SDN) and *MEGACOM** 800 telecommunications services calls addressed to AT&T Digital Link Phase IV (ADL4) nodal locations. The intent is to have the following types of features engage under the same conditions (either individually or in combination) to alternate route calls that are addressed to either an ADL2 or an ADL4 nodal location:

- Switch-based Interim Split Access/Flexible Egress Routing (SAFER)/AMA Call Detail Recording Adjunct (ACDR)
- Network Control Point (NCP)-based Centralized Alternate Destination Call Redirection (CADCR)/Alternate Destination Redirection (ADR).

*Registered service mark of AT&T.

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Feature Description

Interaction of Alternate Routing Features with ADL4

Current Operation of Alternate Routing Features

Both switch-based and NCP-based alternate routing features are available to *4ESS*™ switch nodal subscribers. These features are triggered at the Originating AT&T Switch (OAS) when trunks to the nodal location are busy, or when an Integrated Digital Services Network (ISDN) User Part (UP) Release message with a Cause Value of either 17 or 34 is received from the Terminating AT&T Switch (TAS) indicating that a user or network busy condition is encountered in attempting to complete the call.

The SDN Off-Net Overflow on Terminating Busy (OFOB) feature is an NCP-based alternate routing feature that allows the subscriber to specify an alternate destination for SDN calls encountering a network busy condition. The subscriber purchases this feature on a network basis and specifies its deployment on a per-location basis. Figure 16-1 illustrates the current operation of SDN OFOB when an SDN call is routed to a *4ESS* switch nodal location provisioned to support this feature.
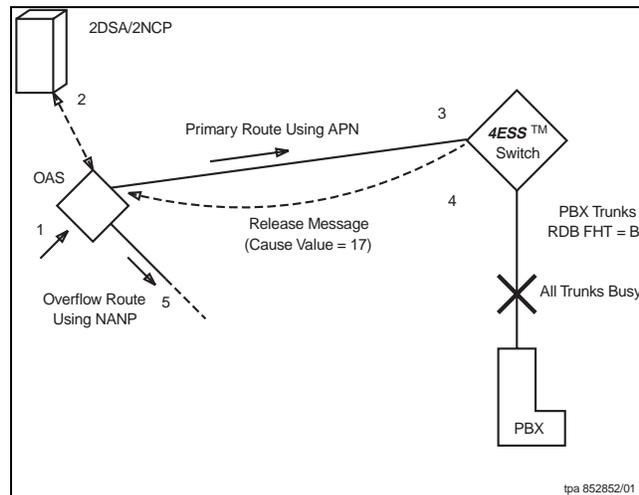
Figure 16-1. Current Operation of SDN Off-Net Overflow on Busy

Feature Description (cont'd)

Interaction of Alternate Routing Features with ADL4 (cont'd)

At the OAS, an originating SDN call triggers the involvement of an NCP that provides routing instructions to the *4ESS* switch. The NCP routing instructions contain both an Action Point Number (APN) and a North American Numbering Plan (NANP) address if alternate routing is allowed on the call. The call is routed first by its APN address to the TAS. If trunks to the PBX are busy and if SDN OFOB applies at this particular location, the *4ESS* switch returns a Release message with Cause Value = 17 (User Busy). This triggers alternate routing at the OAS using the NANP address provided by the NCP.

> *Note*: The SDN OFOBG is engaged only after an interim SAFER search. In this example, it is assumed that the primary APN address provided is not associated with interim SAFER.

Cause Value = 17 is returned by the TAS in the ISUP Release message when all PBX trunks are busy, and when the Routing Data Block (RDB) used to route to the PBX trunk group has its Final-Handling Treatment (FHT) parameter set to BT (Busy Tone).

> *Note*: If the FHT parameter is set to NCA (No Circuit Announcement), Cause Value = 34 is returned. The receipt of Cause Value 34 at the OAS currently does not trigger SDN OFOB, and the call is subject to final-handling treatment.
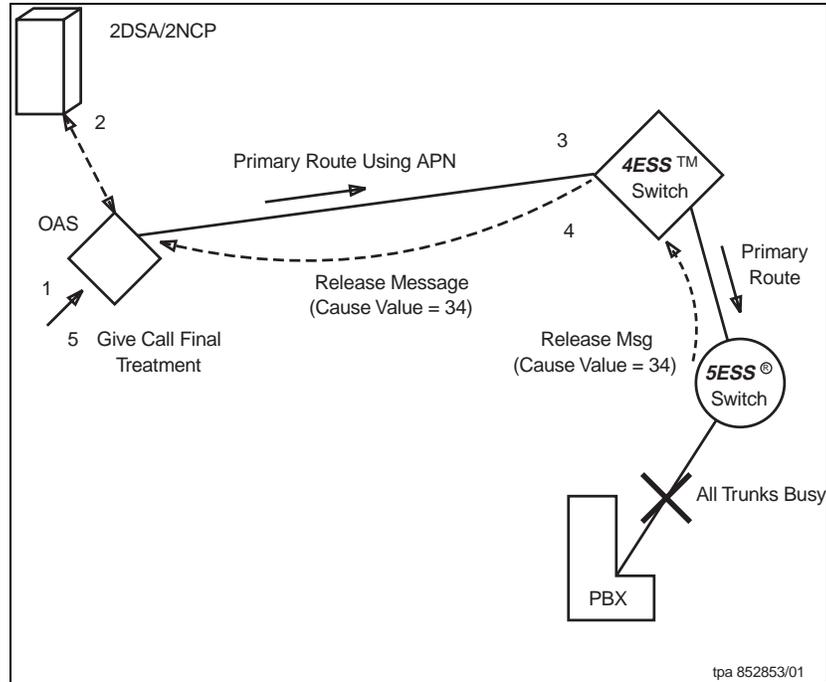
Current Operation of Alternate Routing Features with ADL4

Figure 16-2 illustrates the current operation of SDN OFOB when an SDN call that qualifies for alternate routing is routed to a nodal location served by an ADL4 switch.

Feature Description (cont'd)

**Interaction of
Alternate
Routing
Features with
ADL4 (cont'd)**

**Figure 16-2. Current Operation of SDN Off-Net Overflow
On Busy with ADL4**

Call processing up to the point that the call arrives at the TAS is the same as described in the preceding paragraphs. In this case, the call attempts to route to the nodal location served by the ADL4 switch. If all trunks to the ADL4 switch are busy, the TAS returns an ISUP Release message to the OAS with Cause Value = 34. If the PBX trunk group to the nodal location is busy or unavailable, the *5ESS* electronic switch returns a Release message with Cause Value = 34 to the TAS. The TAS, in turn, returns a Release message and Cause Value 34 to the OAS. In either case, the OAS does not attempt the alternate route after receiving the Release message with Cause Value 34. The OAS final handles the call.

Feature Description (cont'd)

Modified Operation of Alternate Routing Features to Accommodate ADL4

The scenario presented in the previous section illustrates the characteristics of the ADL4 architecture that impact the operation of alternate routing features on calls addressed to ADL4 nodal locations. The characteristics are as follows:

- The presence of the ADL4 switch between the nodal customer and the *4ESS* switch network
- The ADL4 switch uses the ISUP Release message with Cause Value = 34 to indicate that the nodal trunk group is busy.

The scenario shows that alternate routing is not engaged when a Cause Value 34 is received at the OAS. It demonstrates that current *4ESS* switch alternate routing functionality does not accommodate the needs of ADL4. A recent investigation of *4ESS* switch alternate routing that pertains specifically to ADL4 operation is summarized as follows:

- The *4ESS* switch tries to set up a call to an APN address. When an ISUP Release message with Cause Value = 17 is received, the switch attempts an alternate route if an alternate route is provided by either the NCP or interim SAFER. If Cause Value = 34 is received, the switch does not attempt to alternate route the call.
- The *4ESS* switch tries to set up a call to an NANP address. When an ISUP Release message with Cause Value = 17 or 34 is received, the switch attempts an alternate route if an alternate route is provided by the NCP.

In order to accommodate nodal subscriber locations served by both *4ESS* and ADL4 switches, the conditions under which the OAS engages alternate routing features is expanded. The OAS triggers alternate routing whenever it receives an ISUP Release message with a Cause Value of either 17 or 34 in response to its attempt to complete the call to either an APN or an NANP address. This modification is illustrated in Figure 16-3.
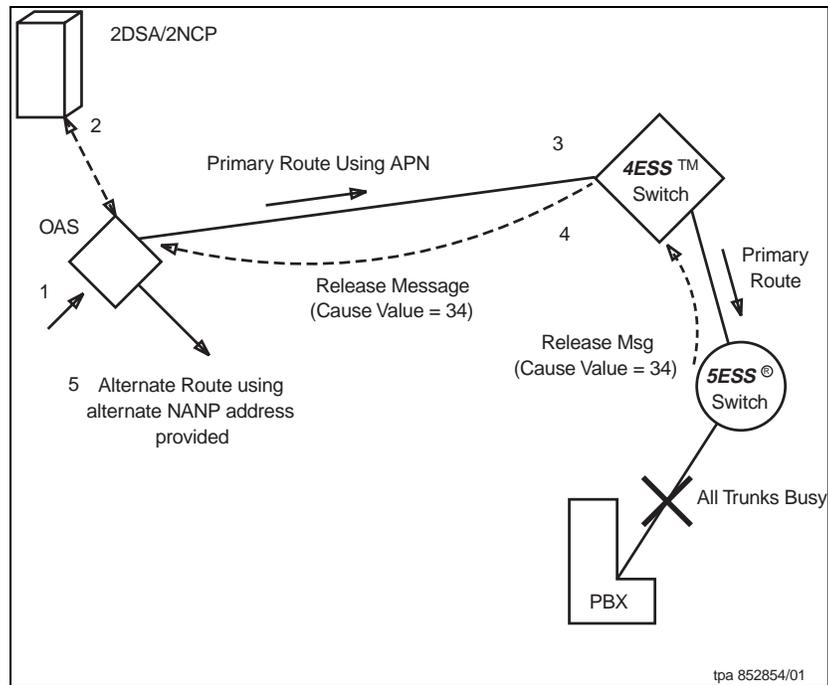
Feature Description (cont'd)

Figure 16-3. SDN Overflow on Busy to an ADL4 Location with MR

Call Flow (Not Affected)

Provisioning

RC Form 634   The Service Circuit System (SCS) expanded announcements are used to specify per-announcement data.

Important! When using Recent Change Form 634, the CIVO (Common Channel Signal Voice Calls and Old Announcements) field **must** be set to REL (Release) in order to send a release back to the originating switch to try a secondary route. The CIVO field must **not** be set to PA (Play Announcement), otherwise the call will be killed.

Recording (Not Affected)

Network Management (Not Affected)

Maintenance/Troubleshooting (Not Affected)

Transition Considerations

Related Documentation This feature is a modification request to Feature 5538, *End Office Local Nodal* (4E23 Release 2 Generic).

Feature Deployment It is not necessary for all *4ESS* switches in the network to be running the 4E24 Release 2 Generic for this feature to be fully operational.

Feature Activation This feature is automatically turned on by software deployment.

Input/Output Manual Pages (Not Affected)

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