

Lucent Technologies
Bell Labs Innovations



What's New in DEFINITY[®]
Enterprise Communications
Server
Release 8.1

Job Aid

555-233-752
Comcode 108600883
Issue 1
December 1999

Notice

Every effort was made to ensure that the information in this book was complete and accurate at the time of printing. However, information is subject to change.

Your Responsibility for Your System's Security

Toll fraud is the unauthorized use of your telecommunications system by an unauthorized party, for example, persons other than your company's employees, agents, subcontractors, or persons working on your company's behalf. Note that there may be a risk of toll fraud associated with your telecommunications system and, if toll fraud occurs, it can result in substantial additional charges for your telecommunications services.

You and your system manager are responsible for the security of your system, such as programming and configuring your equipment to prevent unauthorized use. The system manager is also responsible for reading all installation, instruction, and system administration documents provided with this product in order to fully understand the features that can introduce risk of toll fraud and the steps that can be taken to reduce that risk. Lucent Technologies does not warrant that this product is immune from or will prevent unauthorized use of common-carrier telecommunication services or facilities accessed through or connected to it. Lucent Technologies will not be responsible for any charges that result from such unauthorized use.

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Part 15: Class A Statement. This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio-frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Part 68: Network Registration Number. This equipment is registered with the FCC in accordance with Part 68 of the FCC Rules. It is identified by FCC registration number AS593M-13283-MF-E.

Part 68: Answer-Supervision Signaling. Allowing this equipment to be operated in a manner that does not provide proper answer-supervision signaling is in violation of Part 68 Rules. This equipment returns answer-supervision signals to the public switched network when:

- Answered by the called station
- Answered by the attendant
- Routed to a recorded announcement that can be administered by the CPE user

This equipment returns answer-supervision signals on all DID calls forwarded back to the public switched telephone network. Permissible exceptions are:

- A call is unanswered
- A busy tone is received
- A reorder tone is received

Canadian Department of Communications (DOC)

Interference Information

This digital apparatus does not exceed the Class A limits for radio noise emissions set out in the radio interference regulations of the Canadian Department of Communications.

Le Présent Appareil Numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la class A prescrites dans le règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

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European Union Declaration of Conformity

The "CE" mark affixed to the DEFINITY® equipment described in this book indicates that the equipment conforms to the following European Union (EU) Directives:

- Electromagnetic Compatibility (89/336/EEC)
- Low Voltage (73/23/EEC)
- Telecommunications Terminal Equipment (TTE) i-CTR3 BRI and i-CTR4 PRI

For more information on standards compliance, contact your local distributor.

Comments

To comment on this document, return the comment card at the front of the document.

Acknowledgment

This document was prepared by Product Documentation Development, Lucent Technologies, Denver, CO.

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New Switch and Adjunct Support

1

About this Document

This document introduces new and enhanced features and capabilities of DEFINITY Enterprise Communications Server (ECS) Release 8. It does not contain comprehensive instructions for switch administration or complete feature descriptions, nor does it contain information about how to install, maintain, repair, or troubleshoot the switch.

It is intended for DEFINITY system administrators and managers, users interested in information about specific features, and Lucent Technologies personnel responsible for planning, designing, configuring, selling, and supporting the system.

This document assumes that you are familiar with DEFINITY ECS in a recent release of DEFINITY ECS software.

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DEFINITY R7 and BCS/Guestworks Issue 5 Customers: Read First

If you have purchased DEFINITY ECS R7 or DEFINITY BCS/Guestworks Issue 5 software, some features that this document describes will not be available to you. These are marked as *R8 only* when they are not available to R7 nor BCS/Guestworks customers.

New Features Available to DEFINITY R7 and BCS/Guestworks Issue 5 System Customers

New Switch and Adjunct Support

- Platform - Enhancements/Renewal
 - Optical Drive (TN2211)
- General Telephony Enhancements - Global
 - 64 Bridged Call Appearances
 - Circular Station Hunting
 - Group Call Pick-up
 - Long Hold Recall – Warning
 - Station Self Display
 - 6200 Analog Native Support
 - 6400 Tip/Ring (Data Module Features)
 - Abort Transfer
- New Hospitality-Related Features
 - Check In via the Hunt-To Feature
- New Mobility-Related Features
 - X-Station Mobility (DECT)
 - XStation Mobility (MWL)

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Networking Enhancements

- C-LAN Connectivity Changes and Enhancements
 - C-LAN Hardware Changes (TN799B)
 - C-LAN Administration Changes
- Networking - International
 - China Howler After Busy & Disconnect on No Answer
 - Time Supervision & Force Release (China)
- Networking - ISDN Private
 - QSIG Call Independent Signaling Connection (CISC) Enhancements (Not available with BCS/Guestworks)
- Networking - ISDN Public
 - BellCore Calling Name ID
 - Multiple Pubnet Calling/Connect Numbers/System (Italy)
 - Pass Advice of Charge (AOC) to BRI Endpoints
 - Restricted Presentation
- Networking - ATM
 - DEFINITY ATM Circuit Emulation Service
 - ATM CES Administration

Overview

DEFINITY[®] Enterprise Communications Server Release 8

- It is a multi-purpose platform developed to support a number of offers. These include:
 - DEFINITY ECS R8 and Prologix R3 (These are considered Offer A products.)
 - DEFINITY BCS and Guestworks Issue 5 (These are considered Offer B products.)
- It builds upon existing capabilities of the DEFINITY[®] ECS standard and special development releases to implement cost reductions for Lucent Technologies, and a new set of advanced capabilities for the global communications marketplace.
- Release 8 introduces these major features:
 - Completion of C-LAN
 - QSIG CAS enhancements (Offer A only)
 - ATM enhancements (Offer A only)
 - ASAI enhancements (Offer A only)
 - Call center enhancements (Offer A only)

Upgrades

Paths

R8 is an upgrade path for existing DEFINITY[®] system customers.

- From pre-R5 to R8
- From R5, R6, and R7 to R8 (through R5.5 for si customers with critical reliability configurations)
- Between specific R8 models

NOTE:

There are no upgrade paths for:

- Non-csi models to csi models
- Vs models to R8

Platform - Enhancements/Renewal

DADMIN Login (R8 only)

- Administration of the dadmin login uses the standard DEFINITY® login and permission form interfaces.
- Dadmin Login replaces Inads Login for Distributors.
- The dadmin login ID restricts access to commands that are limited to Lucent Services.
- The dadmin login service level is located between the inads and craft logins service levels in the system administration/maintenance login permission hierarchy.

Restart Strategy for Dadmin Login

- Login administration parameters are retained for the dadmin login on recovery level 1 (warm) and recovery level 2 (cold) restarts and require retrieval from a translation storage device for all other restart levels.

Number of Logins

Platform	Maximum Number of Logins *	Login Distribution
R8(vs/si/csi)	16	<ul style="list-style-type: none"> ■ 4 Lucent Services Logins ■ 1 Dadmin Login ■ 11 Customer Logins
R8(r)	25	<ul style="list-style-type: none"> ■ 4 Lucent Services Logins ■ 1 Dadmin Login ■ 20 Customer Logins

*The maximum number of logins does not include the "mis" login which is used internally by the system to establish connections to call management systems, CMS.

Feature To Feature Interactions

Access Security Gateway (ASG)

- ASG authentication not required by default for the dadmin login.
- ASG field on the dadmin login form defaults to n(o) and all fields that appear on the Access Security Gateway page of the login form are unassigned or set to system defaults.
- Secret Key field is not defaulted for the dadmin login.

Constraints and Limitations

- The number of logins supported for various system configurations is increased by one to accommodate the addition of the “dadmin” login.

Customer Options

- Administration of Version and Location fields remain under “init” control on the System Parameters Customer Options forms.

Offer Categorization

- Administration remains under the control of the init login.

Enable/Disable Login

- The system supports execution of the enable and disable login commands for the dadmin login.
- Permission to execute these commands for the dadmin login is restricted to the init and dadmin logins, and to the inads login, if it has been administered to have “Administer Permissions” permissions.
- It is possible for the dadmin login to disable itself by executing the disable login dadmin command.
- Execution of the command will not terminate the current login session, however, subsequent attempts to log in to the system using the dadmin login will be denied.
- Re-enabling the dadmin login must be performed by the init login or the inads login, if it has been administered to have “Administer Permissions”.

Optical Drive (TN2211)

- The TN2211 Optical Drive is a direct replacement for the TN1656 Tape Drive, and offers the following:
- The TN2211 provides removable storage for software upgrades, translation backups, announcement file backups, and core dumps
- The TN2211 Optical Drive resolves several problems related to the tape drive such as availability, cost, performance, reliability, and storage capacity.
- The TN2211 is designed to be less expensive and more reliable than the TN1656.
- Installation and Upgrade procedures for the TN2211 optical drive are nearly the same as for the TN1656 tape drive.

- The tape commands are replaced by removable-media commands.
 - test tape becomes test removable-media, or test rem for the shorthand version.
- An optical drive is faster than a tape drive, but it is not related to call flow.
 - A full backup to an optical disk cartridge takes approximately 20 minutes, compared to about 95 minutes for a tape.

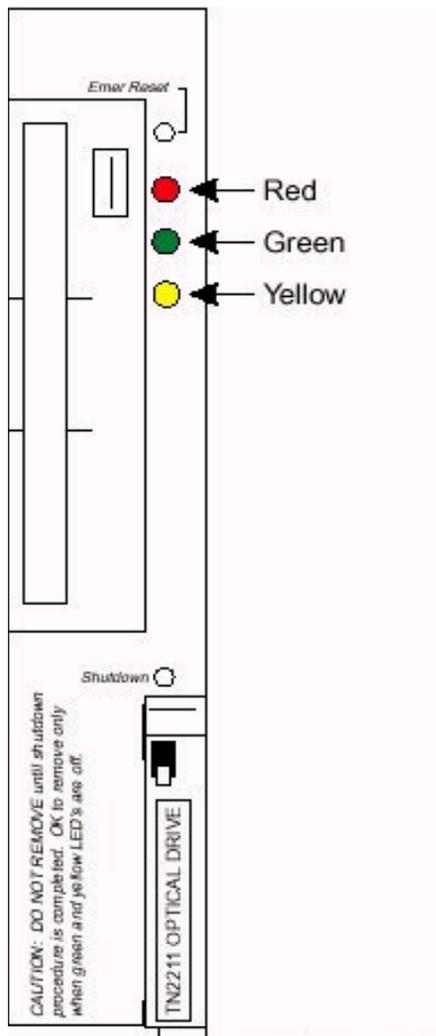


Figure 1. Optical Drive (TN2211)

Configuration

- The configuration is a G3r switch (simplex or duplex) with a TN2211 Optical Drive and a UN332C MSSNET OR a TN1656 Tape Drive and a UN332B MSSNET.
- All commands using tape are replaced by removable-media.
- Commands such as test tape, busy tape, release tape, etc. are replaced by removable-media.
 - The commands are test removable-media, busy removable-media, etc. removable-media can be shortened to rem (test rem, busy rem).
- If a user enters tape instead of removable-media, the error/help message "tape is no longer valid; use removable-media" is displayed on the SAT.
- All instances of tape on output displays are replaced with removable-media or R-MEDIA as appropriate.
- Both the tape drive and optical drive are supported by R8 software.
- G3r switches running R8 software are shipped with the TN2211 Optical Drive and the UN332C MSSNET
 - New switches are shipped with the TN1656 Tape Drive and hardware
- The UN332C MSSNET must be used with the TN2211 Optical Drive.



NOTE:

UN332C MSSNET is backward-compatible with the UN332B. UN332C will work with a tape drive.

Serviceability

- A (remote) maintenance user can identify between the two drive types by using the list config command to determine the TN code.
- The tape commands are replaced with removable-media commands (rem for short).
- A user can verify the correct suffix of the UN332C by reading the circuit pack label or reading the output from the list configuration control command.

Upgrades

- Typically, a defective tape drive will be replaced with another tape drive for existing systems.
- Customers are not required to upgrade the tape drive to an optical drive for bugfix.
- For “purchased” upgrades to R8, the customer will be required to upgrade to the TN2211 optical drive and UN332C MSSNET.
- The procedure to both upgrade from pre-R8 to R8 and to change from a TN1656 to a TN2211 at the same time is not supported.
- Services must upgrade the hardware first (TN1656 to a TN2211 and a UN332B to a UN332C), then upgrade to the R8 software.
 - The hardware must be upgraded prior to the software.
 - This will take advantage of the faster optical drive technology for some of the upgrade steps.
 - This does not require that the new software be shipped on two different media forms (tape and optical disk cartridge).
- Replacement of the tape drive with the optical drive does not impact the call preserving nature of the upgrade.

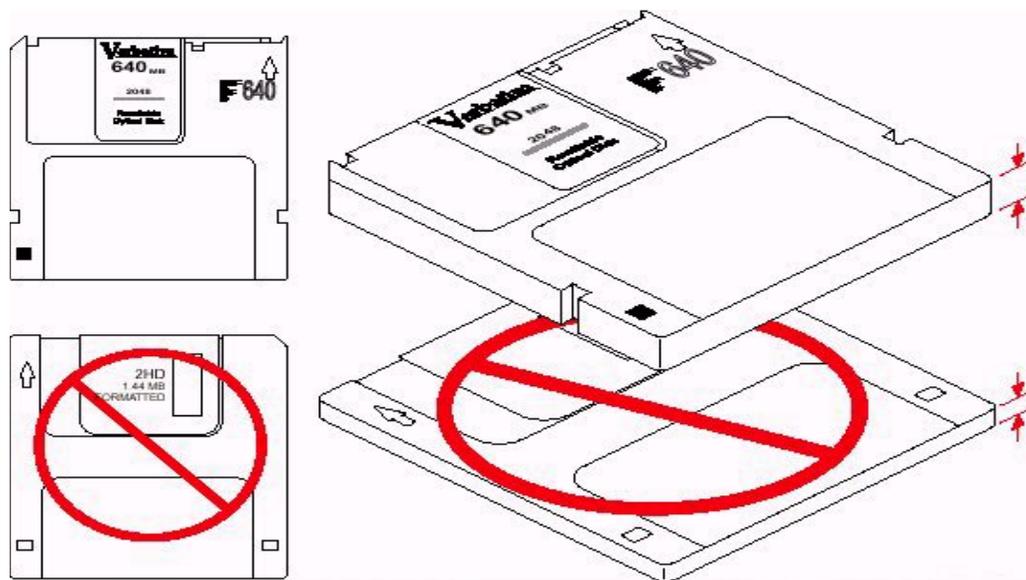
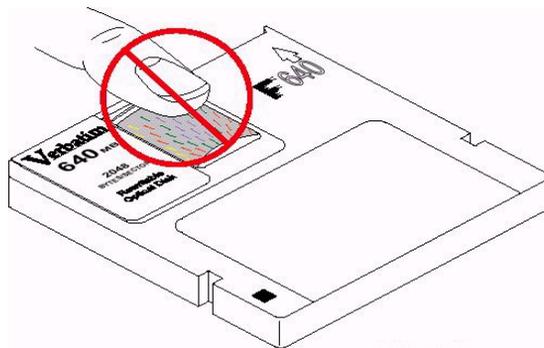


Figure 2. Optical Drive Cartridge

Maintenance



NOTE:

Refer to Definity ECS Release 8 Upgrades and Additions for R8r, 555-230-121, Issue 6.

- A TN2211 is maintained in software as if it were a TN1656.
- After inserting an optical disk cartridge, the access lamp of the drive should be on for a few seconds, then should turn off.
 - Access lamp blinking afterwards typically means a cartridge should be reinserted.

Maintenance Object appears as "R-MEDIA"

- The Maintenance Object appears as R-MEDIA for either the TN1656 or the TN2211.
- This Maintenance Object is used in the output of commands such as display alarms, display errors, test removable-media, etc., and functions as follows:
 - If an error or alarm log contains an entry for TAPE, the description changes to R-MEDIA after the software has been upgraded to R8.
- The list config command output describes the TN1656 and the TN2211 as R-MEDIA DRIVE.
- Both the tape and optical drives are now generically described as R-MEDIA DRIVE.
 - The only way to differentiate between the two drives in R8 is to look at the TN code via the list config command.

No limit on the number of accesses

- The software is not limited the number of accesses of an optical disk cartridge.
- Error 5512 of test 812 no longer applies to a TN2211 (access limit has been exceeded).



NOTE:

Important! The TN2211 Optical Drive does NOT require cleaning.

Any attempt to clean the optical drive will damage it.

- The LMM will display TAPE on boot-up on the SAT, even if an optical drive and optical disk cartridge are present.
- In duplicated systems, either carrier may have an optical drive or a tape drive, since software supports both.
- The drives can be mixed between carriers (one carrier has a TN1656, the other has a TN2211).

General Telephony Enhancements - Global

Coverage of Calls Redirected Off-Net (CCRON) (R8 only)

Release 8 Enhancements

- Remote SAC Activation/Deactivation Call Processing
- Threshold Activated CF Timer Call Processing
- Coverage After Forward (per station) Call Processing
- ISDN Renewal (long term)
- Maintain SBA at Principal Call Processing

Remote Send All Calls (SAC) Activation/ Deactivation

- The Remote Send All Calls Activation/Deactivation feature allows a remote user to activate or deactivate send all calls.

Remote SAC Activation/Deactivation

- New Feature Access Codes
- Added to the Feature Access Codes (FAC) form.
 - These new feature access codes, followed by the user's extension, "#," associated Station Security Code (SSC) and "#," are used to activate/deactivate Send All Calls (SAC) for the specified extension from any on-site extension or remotely (offnet).
 - Activating/Deactivating SAC Via The Remote SAC Feature Access Code Or Existing Method Activating or deactivating SAC via either the Remote SAC feature access codes or existing SAC button or feature access codes have the same effect.
 - SAC may be activated by using a local SAC FAC, SAC feature button, or by activating Remote SAC.
 - SAC may be inactivated by using a local SAC FAC, SAC feature button, or by activating Remote SAC.

Remote SAC Activation/Deactivation Form

- Added New "Remote Send All Calls Activation:" and "Deactivation:" Fields on the FEATURE ACCESS CODE (FAC) Form
- Added two fields to the FEATURE ACCESS CODE form, "Remote Send All Calls Activation" and "Deactivation".
 - FACs allow a remote user to activate or deactivate the Send All Calls feature.
 - Feature access codes may be 1 to 4 digits; * and # may be used as the first digit only. The defaults are blank.

Feature Access Code (FAC) Form (page 3 of x)

change feature-access-codes	Page 3 of X
FEATURE ACCESS CODE (FAC)	
Program Access Code: _____	
Refresh Terminal Parameters Access Code: _____	
Remote Send All Calls Activation: _____	Deactivation: _____
Send All Calls Activation: _____	Deactivation: _____
Station Security Code Change Access Code: _____	
Terminal Dial-up Test Access Code: _____	
Terminal Translation Initialization Merge Code: _____	Separation Code: _____
Transfer to AUDIX Access Code: _____	
Trunk Answer Any Station Access Code: _____	
User Control Restrict Activation: _____	Deactivation: _____
Voice Coverage Message Retrieval Access Code: _____	
Voice Principal Message Retrieval Access Code: _____	
Whisper Page Activation Access Code: _____	

Feature Access with Console Permissions

- New
- When the new remote SAC activation/deactivation feature access codes are used from a station with console permissions, the Station Security Code is not required.

Telecommuting Access Extension

- Allows access to Remote SAC activation/deactivation by remote users.

Station Security Code

- Will Not Appear On Display Sets
- For all kinds of attendant and station display sets (except BRI), the Station Security Code digits will not be displayed when they are dialed.

Non-blank Station Security Code

- Necessary for Access to Feature
- The new feature access codes are denied if an extension number is entered which has (default) blank entered for the Station Security Code.



NOTE:

If the extension has console permissions, the Station Security Code is not required; i.e., it may be blank.

'#' as Abbreviation for Extension of Currently Active Appearance

- For either of the new feature access codes, a '#' dialed directly after the feature access code will signify that the extension of the appearance being dialed from is the extension being administered, and the extension need not be dialed; i.e., the initial '#' is followed by the Station Security Code, '#'.

Remote User

- Access this feature by dialing the telecommuting access extension telephone number directly or by being transferred to it.
 - Alternatively, the remote user can dial the remote access extension.
- On receipt of system dial tone the user would enter the appropriate FAC (either activate or deactivate SAC).
- The user then dials the station extension number, followed by a "#" and station security code (SSC), followed by a "#."
- Then either confirmation or intercept tone is returned if any of the following conditions exist:
 - The extension number entered is invalid (logged as an invalid attempt).
 - The extension number is not accessible from the user's partition.
 - The SSC is invalid for the extension entered (logged as invalid attempt).
 - Interdigit time out has occurred.
- If Remote SAC activation/deactivation is successful, then confirmation tone is returned and SAC is either activated or deactivated at this point.

Local User

- The Remote SAC Activation/Deactivation feature can also be activated by a local user from any local extension.
- The local user would access this feature on receipt of dial tone by entering the appropriate FAC (either activate or deactivate SAC) and receive recall dial tone.
- The user then dials the station extension number, followed by a “#” and station security code, followed by a “#.”
- If the user is dialing from the extension which is to be administered, the user may enter just the ‘#’ followed by the SSC, followed by “#,” this will signify to the system that the extension number of the appearance being dialed from is the extension number being administered.
- Then either confirmation or intercept tone is returned if any of the following conditions exist:
 - The extension number entered is invalid (logged as an invalid attempt).
 - The extension number is not accessible from the user's partition.
 - The SSC is invalid for the extension entered (logged as an invalid attempt).
 - Interdigit time out has occurred.
- If activation/deactivation is successful, then confirmation tone is returned and SAC is either activated or deactivated at this point.

Threshold Activated Call Forward Timer

- When an incoming trunk call to a station is redirected off-net, the so-called Call Forward timer is activated to temporarily block any further incoming trunk calls to that station from being redirected off-net until the timer expires.
 - This precaution prevents an infinite loop around condition where a party forwards or covers off-net and at the off-net destination the call is routed back to the original principal, resulting in off-net trunks being appropriated for this one call until all available trunks are exhausted.
- This allows a user administered threshold to be reached before the block is enforced.
- Some potential exists for this loop around condition, but if enough incoming trunk calls arrive within the timer interval, the block will kick in.

- The defined timer interval is 30 seconds for offnet forwarding and 45 seconds for offnet coverage.
 - The offnet coverage interval is longer to compensate for the additional time a hypothetical loop around coverage call might spend ringing at the principal, waiting in a Caller Response Interval (CRI), and perhaps ringing at a number of local coverage points before redirecting back offnet.
-
- Although implemented in R8, the administered field “Number of Successive Incoming Trunk Calls Allowed Redirected Off-Net:” was established in R6.3, but was not made visible.
- The field re-titled “Threshold for Blocking Offnet Redirection of Incoming Trunk Calls” made visible in R8.1
 - This field will have a range of 1-7 and n.
 - “N” means that call processing never activates the Call Forward timer; in other words, an infinite number of calls to a principal may be redirected off-net.

Threshold Activated Call Forward Timer

- The switch limits the number of incoming trunk calls to a particular station that are allowed to redirect off-net in a set interval to the number specified by the “Threshold for Blocking Offnet Redirection of Incoming Trunk Calls” on the SYSTEM PARAMETERS--CALL COVERAGE / CALL FORWARDING form.
- The possible responses are in a range from 1 to 7 calls or “all,” which means that no limit is imposed in the number of calls that may be redirected off-net.

Coverage After Forwarding (per station)

- In Release 8.1, the system administrator will have the option to turn-on or turn-off Coverage After Forwarding on a per-station basis with the use of a new field on the Station form entitled “Coverage After Forwarding?”
- When a call is to forward off-net, call processing reads the “Coverage After Forwarding” field on the Station form and (1) does call classification if the field value is “y”, (2) does not do call classification if the field value is “n”, or (3) defer to the instructions given by the “Coverage After Forwarding” field” on the SYSTEM PARAMETERS - CALL COVERAGE/ CALL FORWARDING form if the field value is “s” (for system).
- This capability has the same effect as the Coverage After Forwarding (per system) capability added in Release 6.3.1, though on a per-station, rather than per-system basis.

- Call forwarded offnet, but since the call will not be classified, it remains at the offnet destination until either it is answered or the calling party hangs-up.
- Overrides the Coverage After Forwarding System Selection for a specific station
- The per station "Coverage After Forwarding" option specification overrides the per system specification (determined from the "Coverage After Forwarding?" field on the SYSTEM PARAMETERS--CALL COVERAGE / CALL FORWARDING form).
- If the per system specification is "y" and the per station specification is "n", then unanswered offnet calls forwarded from that station will not be redirected to coverage and if the per system specification is "n" and the per station specification is "y", then unanswered offnet calls forwarded from that station will be redirected to coverage.
- The "Coverage After Forwarding" field on the Station form may be set to the value "s" (for system) to indicate to call processing software that the value set per system by the "Coverage After Forwarding?" field on the SYSTEM PARAMETERS--CALL COVERAGE / CALL FORWARDING form is to be used for this station
- No per station override has been specified and call processing should utilize the per system value.

ISDN Renewal (Interworking Assumption)

When CCRON calls are extended over ISDN facilities, two scenarios are possible.

1. ISDN end-to-end facilities are established

Or

2. ISDN end-to-end facilities are not available; a portion of the connection is not ISDN and ISDN facilities interworking is required for some link between endpoints.
 - ISDN end-to-end was assumed for a period of time, after which interworking was assumed unless a positive indication from the ISDN network signaled otherwise.
 - In Release 6.3 the time for which end-to-end ISDN was assumed, unless otherwise indicated, was extended to 9 seconds.

- ISDN public networks *always* provide answer supervision, because they are required by the protocol to send CONNECT at some point.
 - If it's a public network (CO) connection, the CONNECT accurately reflects the moment the far end answers.
 - It's private networks where a potential problem occurs.
 - Answer supervision is provided by the CONNECT message, but the CONNECT *may* not be accurate, depending on what sort of non-ISDN trunk is used.
 - It's not possible to distinguish an accurate interworked CONNECT from an inaccurate one.
- Does not require any administration.
- Assume ISDN End-to-end Signaling for all CCRON Calls over ISDN Facilities unless otherwise indicated
 - Does not attach a call classifier to any CCRON call placed over ISDN facilities until interworking is indicated by an appropriate ISDN PROGRESS or ALERT message from the ISDN network.

Maintain Simulated Bridged Appearance at Principal

- Has been requested that the switch not automatically provide a simulated bridged appearance (SBA) on the principal's telephone set whenever a call is redirected to coverage.
 - Customers would rather reserve call appearance buttons for receiving incoming telephone calls.
- In R6.3.1 the "Maintain SBA at Principal" field was added to the SYSTEM PARAMETERS - CALL COVERAGE/CALL FORWARDING form to handle administration of this option on a system wide basis.
 - The field was not visible in R6.3.1; but it will be made so for R8.
- In R8, the QSIG VALU Coverage feature utilizes this field to determine whether it will block re-routing for the coverage call.
- Option to Maintain Simulated Bridged Appearance at the Principal for Coverage Calls.
 - When a call is about to redirect to coverage, call processing will query the value of the "Maintain SBA at Principal" field of the SYSTEM PARAMETERS - CALL COVERAGE/CALL FORWARDING form and will provide a simulated bridged appearance at the principal if the field value is "y" and will not provide an SBA if the field value is "n".

Administration

- In R8, new administration includes:
 - New facility access codes for Remote Send All Calls activation/deactivation on the FEATURE ACCESS CODE form.
 - New per station “Coverage after Forwarding” field on the STATION forms.
 - Re-titling several fields on the SYSTEM PARAMETERS - CALL COVERAGE / CALL FORWARDING form.

Off-Net Coverage Points

- Any point in a principal's coverage path can be administered as an off-net destination.



NOTE:

Time-of-Day Coverage feature increases the number of coverage points from 3 to 6.

Increase Number of Remote Coverage Points

- Number of Remote Coverage Points available (on all platforms) increased from 225 to 999.

Increase Number of Coverage Paths

- Number of coverage paths increased from 600 to 999 on the small mips and from 7500 to 9999 on the large mips.

Coverage of Calls Redirected Off-Net Field – Customer Options Form

- A new field “Coverage of Calls Redirected Off-Net” added to the System-Parameters Customer-Options Form.
- Field is set to allow a customer to access the feature.
- It is set when the customer pays for the feature; it is not accessible by the customer.

Coverage of Calls Redirected Off-Net Field - Features Form

- New field “Coverage of Calls Redirected Off-Net Enabled” added to the System-Parameters Features Form.
 - Field permits a customer to activate/deactivate the Coverage of Calls Redirected Off-Net feature.

Call Classifier for Last CCRON Coverage Point

- Option to Permit Off-Net Coverage without Call Classifier.
- Establishes a new field, "Maintain SBA at Principal (For Final CCRON Coverage Point)?"
- Title changed to "Activate Answer Detection (Preserves SBA) On Final CCRON Cvg Point" in R8.1.

New System Parameters--Call Coverage / Call Forwarding Form, Page 1

```
change system-parameters coverage-forwarding                Page 1 of 2
                    SYSTEM PARAMETERS -- CALL COVERAGE / CALL FORWARDING

CALL COVERAGE/FORWARDING PARAMETERS
  Local Cvg Subsequent Redirection/CFWD No Ans Interval (rings): _
  Off-Net Cvg Subsequent Redirection/CFWD No Ans Interval (rings): _
  Coverage - Caller Response Interval (seconds): _
  Threshold for Blocking Off-Net Redirection of Incoming Trunks Calls: 1

COVERAGE
  Keep Held SBA at Coverage Point? _
  External Coverage Treatment for Transferred Incoming Calls? _
  Immediate Redirection on Receipt of PROGRESS Inband Information? _
  Maintain SBA At Principal? _
  QSIG VALU Coverage Overrides QSIG Diversion with Rerouting? _
  Station Hunt Before Coverage? n

FORWARDING
  Call Forward Override? _
  Coverage After Forwarding? _
```

New System Parameters--Call Coverage / Call Forwarding Form, Page 2 CCRON Enabled

```
change system-parameters coverage-forwarding                Page 2 of 2
                    SYSTEM PARAMETERS -- CALL COVERAGE / CALL FORWARDING

COVERAGE OF CALLS REDIRECTED OFF-NET (CCRON)
  Coverage Of Calls Redirected Off-Net Enabled? y
  Activate Answer Detection (Preserves SBA) On Final CCRON Cvg Point? y
  Ignore Network Answer Supervision? y
  Disable call classifier for CCRON over ISDN trunks? n
```

New System Parameters--Call Coverage / Call Forwarding Form, Page 2 CCRON Disabled

```
change system-parameters coverage-forwarding                Page 2 of 2
                    SYSTEM PARAMETERS -- CALL COVERAGE / CALL FORWARDING

COVERAGE OF CALLS REDIRECTED OFF-NET (CCRON)
  Coverage Of Calls Redirected Off-Net Enabled? N
```

Threshold Activated Call Forward Timer

- Establishes a new field, "Number of Successive Incoming Trunk Calls Allowed Redirected Off-Net".
- Field has a range of 1-7 and "n".
 - "n" will mean that call processing never activates the Call Forward timer
 - An infinite number of calls to a principal may be redirected off-net.
 - The default is 1, which provides the current operation.
 - When a customer is upgraded from a release prior to R8, this field is set to 1.



NOTE:

Created in R6.3.1, but was not made visible to the user.

- Activates "Threshold for Blocking Off-Net Redirection of Incoming Trunk Calls" field for Release 8.
- The "Number of Successive Incoming Trunk Calls Allowed Redirected Off-Net" field added to the SYSTEM PARAMETERS--CALL COVERAGE / CALL FORWARDING form re-titled as "Threshold for Blocking Off-Net Redirection of Incoming Trunk Calls.
- When DEFINITY systems (prior to R8) are upgraded to R8, the default value for the "Threshold for Blocking Off-Net Redirection of Incoming Trunk Calls" field on the SYSTEM PARAMETERS--CALL COVERAGE / CALL FORWARDING form set to 1.
- To conform with previous operation, the initial value of the threshold is to be set to 1
- All incoming trunk calls to a particular station are blocked from redirecting offnet during the call forward timer interval.
- The R8.1 user can change this value.

Coverage After Forward (Station Option)

- Adds a new field entitled “Coverage After Forwarding (station specific)?” to page 2 of the Station form for all stations.
- The field may contain any of three different values:
 - y - indicates, that for this station, coverage treatment should be applied after forwarding, regardless of the value of the “Coverage After Forwarding?” field on the SYSTEM PARAMETERS - CALL COVERAGE / CALL FORWARDING form
 - n - indicates, that for this station, coverage treatment should not be applied after forwarding., regardless of the value of the “Coverage After Forwarding?” field on the SYSTEM PARAMETERS - CALL COVERAGE / CALL FORWARDING form.
 - default - indicates, that for this station, use the value of the “Coverage After Forwarding?” field on the SYSTEM PARAMETERS - CALL COVERAGE / CALL FORWARDING form.



NOTE:

Application of coverage treatment does not guarantee that the call will definitely redirect to a coverage point, since the coverage criteria as applied at the forwarded-to destination may not be satisfied.

- When a DEFINITY® system with CCRON activated is upgraded to R8, the value “s” (for ‘system’) set in the “Coverage After Forwarding ?” field on the Station form for all stations
- When a customer is upgraded from a release prior to R8, this field is set to “s” for all stations, indicating that call processing uses the value on the Coverage After Forwarding field on the SYSTEM PARAMETERS--CALL COVERAGE / CALL FORWARDING form.
- To override the system-wide parameter for a given station, the system administrator must set the field on the Station form.

Station Form (Page 2 of X)

add station 1014	STATION	Page 2 of X
FEATURE OPTIONS		
LWC Reception? msa-spe	Auto Select Any Idle Appearance? n	
LWC Activation? y	Coverage Msg Retrieval? y	
LWC Log External Calls? n	Auto Answer: none	
CDR Privacy? n	Data Restriction? n	
Redirect Notification? y	Idle Appearance Preference? n	
Per Button Ring Control? n		
Bridged Call Alerting? n	Restrict Last Appearance? y	
Active Station Ringing: single		
H.320 Conversion? n		
	Per Station CPN - Send Calling Number? _	
	Special Character for Restricted Number? n	
MWI Served User Type: _____	Display Client Redirection? n	
AUDIX Name: _____	Select Last Used Appearance? n	
Messaging Server Name: _____	Coverage After Forwarding? _	
Recall Rotary Digit? n	Multimedia Early Answer? n	

Maintain SBA at Principal

- Some have objected to the appropriation of a call appearance button on the principal's phone by the simulated bridge appearance by a coverage call.
 - They feel the ability to take phone calls is more important than the capability of the principal to retrieve calls that have already redirected to coverage.

Option to Dispense with Call Classifier On Coverage Call

- Established a new field, "Maintain SBA At Principal?"
- This is a y/n field.
- The default is y, which maintains current operation.
- When a customer is upgraded from a release prior to R8, this field is set to y.

"Maintain SBA at Principal?" field visible

- "Maintain SBA at Principal" field on the SYSTEM PARAMETERS--CALL COVERAGE / CALL FORWARDING form becomes visible.

Call Classifier for Last CCRON Coverage Point

- For R8.1, the title of the field on the SYSTEM PARAMETERS -- CALL COVERAGE/CALL FORWARDING form changes.

Re-titled "Maintain SBA at Principal (For Final CCRON Coverage Point)" Field.

- "Maintain SBA at Principal (For Final CCRON Coverage Point)" field titled to read "Activate Answer Detection (Preserves SBA) On Final CCRON Cvg Point".

13-Digit Authorization Codes (R8 only)

- The system now supports authorization codes from a minimum of 4 digits to a maximum of 13 digits in length.
 - The number of authorization codes allowed (90,000 in a G3r, 5,000 in a G3i) (not changed).
- The user may have to dial up to 13 digits to enter an authorization code.
- The use of the authorization code information for ARS, AAR, incoming trunk authorization, remote access, or any other feature that may require the collection of an authorization code has not changed.
- If a standard CDR format is used and there are more than 7 digits in an authorization code, the authorization code is truncated to the high 7 digits to fit the format.
- The customized format supports 13-digit authorization codes, and is encouraged for those with larger authorization codes.

Feature Administration

- Feature Administration allows the length of the authorization code assigned on the system - parameters features form to be from 4 to 13 digits.
- If a number greater than 7 is entered and the release is not at least R8, an error message appears indicating G3 Version must be V8 or greater.
- The change/display authorization-codes screen has been modified to show 4 columns of authorization codes and CORs instead of the original 6 columns to accommodate 13-digit authorization codes.
- The error message is expanded to Code length invalid: please check authorization code length.
- The security violations status form has changed to allow 13-digit authorization codes.
- The administration of the Authorization Code feature remains the same except the length of the authorization code on the system-parameters feature form accepts lengths from 4 to 13 digits.
- The Authorization Code form shows 4 columns of 16 authorization codes instead of 6 columns.

OLD SCREEN

```
monitor security-violations authorization-code
```

```
SECURITY VIOLATIONS STATUS
```

```
Date: 17:51 MON SEP 28 1999
```

```
AUTHORIZATION CODE VIOLATIONS
```

Date	Time	Originator	Auth-Cd	TG No	Mbr	Bar-Cd	Ext	CLI/ANI
09/28	17:19	Trunk	9639632	1			1	
09/28	17:10	Trunk	8998989	1			1	

NEW SCREEN

```
SECURITY VIOLATIONS STATUS
```

```
Date: 17:51 MON SEP 28 1999
```

```
AUTHORIZATION CODE VIOLATIONS
```

Date	Time	Originator	Auth-Cd	TG/Mbr	Bar-Cd	Ext	CLI/ANI
09/28	17:19	Trunk	9639632	123456	1/		1
09/28	17:10	Trunk	8998989	123456	1/		1

```
list authorization-code
LIST AUTHORIZATION CODES REPORT
```

Authorization Code	Class of Restriction(COR)
00000000000000	0
11111111111111	1
22222222222222	2
33333333333333	3

Call Detail Recording (CDR) Formatting**NOTE:**

CDR formats are "standards" therefore no attempt was made to modify them to fit larger authorization codes.

A customized CDR format handles 13-digit authorization codes and allows any format to be created.

- The form for translating authorization codes has changed to fit the new maximum length.
 - The new form displays a maximum of 48 codes (3 columns), leaving only 1 column for adding more codes.
 - To enter more codes, execute change authorization - code 9999999.... to show a blank screen, allowing 64 codes to be submitted at one time rather than the original 96.

Original screen

```
change authorization-code 1111111 Page 1 of 1
Authorization Code - COR Mapping

NOTE: 96 codes administered. Use 'list' to display all codes

AC COR AC COR AC COR AC COR AC COR AC COR
1111111 1 2222222 2 3333333 3 4444444 4 5555555 5 6666666 6
1111112 1 2222223 2 3333334 3 4444445 4 5555556 5 6666667 6
1111113 1 2222224 2 3333335 3 4444446 4 5555557 5 6666668 6
. (12 more rows)
.
.
1111125 1 2222236 2 3333347 3 4444458 4 5555569 5 6666680 6
```

New screen

```
change authorization-code 1111111111111 Page 1 of 1
Authorization Code - COR Mapping

NOTE: 64 codes administered. Use 'list' to display all codes

AC COR AC COR AC COR AC COR
1111111111111 1 2222222222222 2 3333333333333 3 4444444444444 4
1111111111112 1 2222222222223 2 3333333333334 3 4444444444445 4
1111111111113 1 2222222222224 2 3333333333335 3 4444444444446 4
(12 more rows)
.
.
1111111111125 1 2222222222236 2 3333333333347 3 4444444444458 4
```



NOTE:

The standard Call Detail Recording (CDR) formats have not changed.

- Users with authorization codes longer than 7 digits can see authorization codes truncated to the high 7 digits.
- The custom CDR output supports 13 digit authorization codes.
- The custom CDR output is encouraged for those using 13-digit authorization codes.

- When an authorization code field is entered, the length defaults to a value of 13.
- If using both authorization codes and account codes, be aware that there is a problem with phone calls that involve more than 36 digits.
 - The length of the account code and authorization code should not have more than 36 digits.

As an example:

- ars access code = 1 digit
- phone number = 15 digits
- account code access code = 3 digits
- This leaves a total of 17 digits for the total of authorization and account code lengths.



NOTE:

For Call Detail Recording (CDR), users with over 7-digit authorization codes may have to change their call accounting system to accommodate the larger authorization code size.

Auto Exclusion (R8 only)

- When Privacy - Manual Exclusion is activated, all other users with appearances of an extension are prevented from bridging onto the active call.
 - If the Exclusion button is pressed while other users are bridged onto the call, the other users are dropped from the call.
 - The only way to activate Exclusion is by pressing the Exclusion button on a per-call basis.
- Exclusion is deactivated when the Exclusion button is pressed a second time, or when the call is terminated.
- Under R8 with Automatic Exclusion active, the Manual Exclusion feature can now be automatically activated on a COS basis.
- If a user is assigned a COS which has the Automatic Exclusion option set to y, then Exclusion will automatically be activated when the user goes off hook on a station which has an Exclusion button assigned.
- For Manual Exclusion users, (users with Auto Exclusion set = n in COS), under R8 with Automatic Exclusion active, Manual Exclusion can now be selected via button push before dialing a call.
- Manual Exclusion can be activated while active on a call and it can be activated before dialing.
- Manual Exclusion still cannot be activated while the user is idle (onhook).

1 New Switch and Adjunct Support

General Telephony Enhancements - Global

- Under R8 with Automatic Exclusion active, a held exclusion call can be unheld by any station with a bridged appearance of the appearance that put the call on hold.
- Automatic Exclusion will NOT be automatically activated when the principal (or a bridged appearance of the principal) bridges onto a call that has been answered by a coverage point.

COS screen

```

change cos                                     Page 1 of 1
                CLASS OF SERVICE
                0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
Auto Callback          n y y n y n y n y n y n y n y n
Call Fwd-All Calls    n y n y y n n y y n n y y n n y
Data Privacy          n y n n n y y y n n n n n y y y
Priority Calling       n y n n n n n n n y y y y y y y
Console Permissions   n n n n n n n n n n n n n n n n
Off-hook Alert        n n n n n n n n n n n n n n n n
Client Room           n n n n n n n n n n n n n n n n
Restrict Call Fwd-Off Net n y y y y y y y y y y y y y y
Call Forward Busy/DA  n n n n n n n n n n n n n n n n
Personal Station Access n n n n n n n n n n n n n n n n
Extended Forwarding All n n n n n n n n n n n n n n n n
Extended Forwarding B/DA n n n n n n n n n n n n n n n n
Trk-to-Trk Restriction Override n n n n n n n n n n n n n n n n
QSIG Call Offer Originations n n n n n n n n n n n n n n n n
Automatic Exclusion      n n n n n n n n n n n n n n n n
    
```

- Allows a user to activate automatically Exclusion when they go off hook on a station that has an assigned EXCLUSION button. If set to **n**, allows a user manual exclusion when they press the EXCLUSION button before dialing or during a call. Appears when, on the Feature-Related System Parameters screen, the Automatic Exclusion by COS field is **y**.

Feature-Related System Parameters screen - Page 10

```

change system-parameters features             Page 10 of 10
                FEATURE-RELATED SYSTEM PARAMETERS

AUTOMATIC EXCLUSION PARAMETERS

                Automatic Exclusion by COS? y
                Automatic Exclusion Coverage/Hold? y
                Automatic Exclusion with Whisper Page? y
                Recall Rotary Digit: 2
    
```

- Automatic Exclusion by COS

Activates automatic exclusion automatically by class of service when a user goes off hook on a station with an assigned EXCLUSION button. This works only for stations on the local switch.

Valid entries Usage

y Enables automatic exclusion by a class of service.

n Exclusion operates normally.

- Automatic Exclusion Coverage/Hold

Appears when Automatic Exclusion by COS field is **y**.

Valid entries Usage

y The principal can bridge onto the call by pressing the appropriate bridged appearance button. And, if the coverage point places the exclusion call on hold, the principal can retrieve the call.

n If a coverage point has answered a call and there is active exclusion on the call, the principal cannot bridge onto the call. And, if the coverage point places the exclusion call on hold, the principal cannot retrieve the call.

- Automatic Exclusion with Whisper Page

Appears when Automatic Exclusion by COS field is **y**.

Valid entries Usage

y The whisper page goes through to an excluded call.

n The whisper page is denied when a station attempts to whisper page to a station that is on an excluded call.

- Recall Rotary Digit

This establishes the digit to use for rotary phones to receive recall dial tone. Dialing this digit simulates switch hook flash so that users of rotary phones can use features such as conference and transfer. The phone must also be administered to use the recall rotary digit.

Valid entries Usage

0-9 Enter the digit users can dial to generate recall dial tone. Use a number that is not the first digit in normal dialing patterns.

64 Bridged Call Appearances

- DEFINITY[®] system bridged appearance limit of 26 expanded to 64.
 - Bridged appearance feature button for a given extension increased to 63, reserving one appearance for the primary set.
- There are limits on the number of sets per system that can be administered for more than 26 bridged appearances per set.
 - R8 csi and si can have up to 50 such sets, while R8r can have up to 250 such sets.

Circular Station Hunting

- Provides a new method of administering a hunt group.
- A new group type, circ (for circular) added to the list of available group types entered on the Hunt Group form.
 - When administering a circular station hunt group, the order in which the extensions for those stations participating in the hunt group are administered is the order in which calls will be directed.
 - System must keep track of the last extension in the hunt group, to which a call was connected, such that when the next incoming call arrives, the system can determine the next idle extension in the circular hunt group.
 - Extensions in the hunt group that are busy are skipped in the algorithm, and the next idle extension within the hunt group is selected regardless of past call history.
- The caller hears a busy tone when all extensions in the hunt group are busy.
 - The capability exists to have a call go to coverage or to the attendant if there are no idle stations available in the hunt group.

Group Call Pick-up

- Work groups in Japan use this feature.
- Allows users to dial a FAC and then a pickup group number, in order to answer a call pickup call from a different call pickup group.

Long Hold Recall – Warning

- When a call stays on hold past an administered time, this feature will give visual or audible warnings to the set that put the call on hold, similar to the warning given to attendants when calls stay in queue too long.

Station Self Display

- When a station user goes offhook, the station set will display the extension number of the set itself.
- Once the user starts to dial, the dialed number is displayed.
- People in small work groups in Japan use this feature as they move from desk to desk while working.

Special Dial Tone [China] (R8 only)

- Adds the ability to play a special dial tone whenever an analog set would normally receive dial tone, but there is a feature or condition active at the set that the user needs to be notified.
- Examples of such features or conditions include:
 - Features that can be activated and deactivated via a FAC from the station, and cause some re-routing of calls to that station
 - Features that can be activated and deactivated via a FAC from the station and invoke some restriction of calls from the station
- The special dial tone of 450 Hz, on 400ms, off 50ms, repeating, at -10 +/- 3 dBm0.
- Tone is administered via the country code, and via the current tone administration.

6200 Analog Native Support

Description

- The 6200 Analog Native Support feature provides the user with the capability to administer the 6200 family of analog terminals directly in DEFINITY[®] ECS rather than aliasing them as some other existing terminal.
- The terminal type, CallrID, added to permit the aliasing of various terminals and adjuncts for Caller ID purposes.
- When CallrID (one word limited to seven characters) is designated, this permits the aliasing of analog terminals with Caller ID capabilities, or analog terminals with Caller ID boxes, or adjuncts, capable of displaying calling party information via Bellcore (US, Bahrain V.23) standards.
- Analog terminals are 6210, 6218, and 6220.

Upgrades

- Native administration of the 6200 family of terminals, and the CallrID terminal type are available when systems are upgraded to Release 8.

Administration

Screen for 6200 Terminals

- The administration screen shows the Page 1 of the STATION administration form where, as an example, station 1000 has been administered as a 6210 terminal.
 - This screen shows the default values that will appear when 6210, 6218 or 6220 value is entered as a terminal type.

Station Form

```

add station next                                     Page 1 of 3
STATION

  Extension: 1000                                     Lock Messages? n
  Type: 6210                                          Security Code:      TN: 1
  Port:                                              Coverage Path 1:   COR: 1
  Name:                                              Coverage Path 2:   COS: 1
                                                    Hunt-to Station:   Tests? y

STATION OPTIONS
  Off Premises Station? n                           Message Waiting Indicator: led
                                                    Message Lamp Ext: 1000

```

- HELP values for the "Type" field will include 6210, 6218 and 6220.
- Default value for the "Message Waiting Indicator" field is "led".
- Misspelled word "Premise" corrected in the "Off Premises Station" field.
- No other changes to fields on any of the pages of the STATION form.

Description of the terminals

6210

- 6210 is a Lucent set with handset volume control, ringer volume control, timed switch-hook disconnect, tone dialing (only), Flash, Set Redial, Set Hold, Data Jack (same T&R pair), and DEFINITY[®] system LED MWI.

6218

- 6218 is a Lucent set that is the same as the 6220, but without Speakerphone and without Mute.

6220

- 6220 is a Lucent set with 6210 features plus Speakerphone, Mute, Repertory Dialing, Repertory Keylock, Set Personalized Ring, System Hold CallrID, and Caller ID analog terminals (analog terminals with Caller ID boxes, or adjuncts) that support Caller ID according to Bellcore, Bellcore V.23, or NTT standards.
- MWI is supported via FSK (Bellcore standard). MWI is also optionally supported via DEFINITY® system LED voltage method or via neon lamp.
- TeleMatrix and Teledex Caller ID terminals use a neon lamp MWI in hospitality environments.

**NOTE:**

Caller ID feature requires the TN793B or TN2793B circuit pack.



Figure 3. 6210 Analog Telephone



Figure 4. 6220 Analog Telephone

Description of the terminals(continued)

- The 6200 family of analog terminals requires DEFINITY® ECS R8 software.
- If R8.1 is used as a bugfix, access to the CallrID terminal type is blocked.
 - Access is not blocked for the 6200 family of terminals.
- 6200 Analog Native Support is available and supported in both Offer Category A and Offer Category B.
- 6200 family is compatible with existing DEFINITY® system analog line circuit packs.
 - Can be used where the 8110 terminal is used.
- If a CallrID terminal type used to provide Caller ID requires Release 8 software and the 24-Port Analog Line with Caller ID circuit pack TN793B or TN2793B.

Caller ID terminals

- TN793B/TN2793B circuit pack supports the following Caller ID terminals:
 - TeleMatrix 2802 CID Guest Room Telephone
 - Teledex Millennium 2505C and 2510C
 - Commercial sets with Caller ID capabilities that comply with the protocols supported by the Caller ID
 - Caller ID display boxes, or adjuncts, that comply with the protocols supported by the Caller ID

**NOTE:**

Many Caller ID protocols specify FSK signaling for MWI.

- For any given CallrID station, FSK may be administered along with either LED or neon.
 - Useful when a Caller ID box or adjunct (with FSK MWI) is connected in parallel with an analog station equipped with LED.
 - Both indicators will light when there is a message in the user's voice mailbox.

6400 Tip/Ring (Data Module Features)

- The 6400 Tip/Ring feature supports the operation of an analog adjunct operating independently on an I2 channel with its own extension for 64xx DCP telephones.
- Allows the operation of an analog adjunct to be independent of the digital telephone's extension for the use of fax machines or modems without compromising the user's voice extension.
 - 6416D+
 - 6424D+ DCP

**NOTE:**

When set for I2 operation, the module transmits an S2-channel button press message for button 01h of group 00h whenever it detects an analog switch hook flash.

The DEFINITY[®] system ignores any of these button depression messages. This does not cause any trouble report. While set for I2 operation, the button press message cannot be suppressed.



Figure 5. 6416D+ DCP Terminal



Figure 6. 6424D+ DCP Terminal

Administration

The 6416D+ and the 6424D+ terminals are administered with a data option field for an analog adjunct.

- Administer as a data module field on add station form.
- An option on the add station form allows users to administer their own particular extension.
 - Previously, what is now the data option field, was the data module field for all of the 6400 terminals.
 - User can choose from analog, data module, or none.

Station Form page 1 used for 6416D+ and 6424D+ terminals only

STATION		Page1 of X
Extension: 1003	Lock Messages? n	BCC: 0
Type: 6424D+	Security Code: ____	TN: 1_
Port: _____	Coverage Path 1: ____	COR: 1_
Name: _____	Coverage Path 2: ____	COS: 1_
Hunt-to-Station: _____		
 STATION OPTIONS		
Loss Group:	Personalized Ringing Pattern: 1	
Data Option: analog	Message Lamp Ext: 1000	
Speakerphone: 2-way	Mute Button Enabled? y	
Display Language: english	Expansion Module? n	
	MM Complex Data Ext: n	

- DEFINITY[®] system 8.1 provides the following form only if the set is a 6416D+ or 6424D+ and Expansion Module = y on Page 1.

Station form used only with 6416d+ or 6424d+ equipped with XM24 expansion module

Page X of X

STATION

EXPANSION MODULE BUTTON ASSIGNMENT

1: _____	13: _____
2: _____	14: _____
3: _____	15: _____
4: _____	16: _____
5: _____	17: _____
6: _____	18: _____
7: _____	19: _____
8: _____	20: _____
9: _____	21: _____
10: _____	22: _____
11: _____	23: _____
12: _____	24: _____

- DEFINITY® system 8.1 provides the following form if the set is a 6416D+ or 6424D+ and data option is equal to analog

Station Form used only with the 6416D+ or the 6424D+ when Data Option equal to analog

Page 6 of 6

STATION

Analog Adjunct

Data Extension: 1003

Name: BCC: 0

COS: 1

COR: 1

TN: 1

ITC: restricted

ABBREVIATED DIALING

List1:

SPECIAL DIALING OPTION:

ASSIGNED MEMBER (Station with a data extension button for this analog adjunct)

Ext Name

1:



NOTE:

DSA is impacted when implementing these new features.

Station Form Page 3 Used For All 6400 Voice Terminals Except the 6402/D

	STATION	Page 3 of X
SITE DATA		
Room: _____		Headset? n
Jack: _____		Speaker? y
Cable: _____		Mounting: d
Floor: _____		Cord Length: 0
Building: _____		Set Color: _____
ABBREVIATED DIALING		
List 1: _____	List 2: _____	List 3: _____
BUTTON ASSIGNMENTS		
1: _____	5: _____	
2: _____	6: _____	
3: _____	7: _____	
4: _____	8: _____	

Station Form Page 3 Used For 6402/D Voice Terminals Only

	STATION	Page 3 of X
SITE DATA		
Room: _____		Headset? n
Jack: _____		Speaker? y
Cable: _____		Mounting: d
Floor: _____		Cord Length: 0
Building: _____		Set Color: _____
ABBREVIATED DIALING		
List 1: _____	List 2: _____	List 3: _____
BUTTON ASSIGNMENTS		
1: call-appr _____		
2: call-appr _____		

Station Form Page 4 Used For 6402/D Voice Terminals Only

STATION	Page 4 of X
<p>FEATURE BUTTON ASSIGNMENTS</p> <p>1: _____</p> <p>2: _____</p> <p>3: _____</p> <p>4: _____</p> <p>5: _____</p> <p>6: _____</p> <p>7: _____</p> <p>8: _____</p> <p>9: _____</p> <p>*: _____</p> <p>0: _____</p> <p>#: _____</p>	

Station Form Page 4 Used For 6416D+ Only

STATION	Page 4 of X
<p>FEATURE BUTTON ASSIGNMENTS</p> <p>1: _____</p> <p>2: _____</p> <p>3: _____</p> <p>4: _____</p> <p>5: _____</p> <p>6: _____</p> <p>7: _____</p> <p>8: _____</p>	

Station Form Page 4 Used For 6424D+ Only

<p style="margin: 0;">STATION</p> <p style="margin: 0;">FEATURE BUTTON ASSIGNMENTS</p> <p style="margin: 0;">1: _____ 9: _____</p> <p style="margin: 0;">2: _____ 10: _____</p> <p style="margin: 0;">3: _____ 11: _____</p> <p style="margin: 0;">4: _____ 12: _____</p> <p style="margin: 0;">5: _____ 13: _____</p> <p style="margin: 0;">6: _____ 14: _____</p> <p style="margin: 0;">7: _____ 15: _____</p> <p style="margin: 0;">8: _____ 16: _____</p>	<p style="margin: 0;">Page 4 of X</p>
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Station Form Page 5 Used for all 6400 Display Sets Other Than the 6402D

<p style="margin: 0;">STATION</p> <p style="margin: 0;">SOFTKEY BUTTON ASSIGNMENTS</p> <p style="margin: 0;">1: _____</p> <p style="margin: 0;">2: _____</p> <p style="margin: 0;">3: _____</p> <p style="margin: 0;">4: _____</p> <p style="margin: 0;">5: _____</p> <p style="margin: 0;">6: _____</p> <p style="margin: 0;">7: _____</p> <p style="margin: 0;">8: _____</p> <p style="margin: 0;">9: _____</p> <p style="margin: 0;">10: _____</p> <p style="margin: 0;">11: _____</p> <p style="margin: 0;">12: _____</p>	<p style="margin: 0;">Page 5 of X</p>
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Station Form used Only With 6416D+ or 6424D+ Equipped With XM24 Expansion Module

Page X of X

STATION

EXPANSION MODULE BUTTON ASSIGNMENT

1: _____	13: _____
2: _____	14: _____
3: _____	15: _____
4: _____	16: _____
5: _____	17: _____
6: _____	18: _____
7: _____	19: _____
8: _____	20: _____
9: _____	21: _____
10: _____	22: _____
11: _____	23: _____
12: _____	24: _____

6400 Terminal Parameters Form

Page X of X

STATION

6400-TYPE TERMINAL PARAMETERS

Default Parameter Set: 1 Customize Parameters? y

OPTIONS

Display Mode:	Handset Expander Enabled?
Volume:	

PRIMARY LEVELS

Voice Transmit (dB):	Voice Sidetone (dB):
Voice Receive (dB):	Touch Tone SideTone (dB):
Touch Tone Transmit (dB):	

2-WAY BUILT-IN SPEAKER LEVELS:

Voice Transmit (dB):	Voice Receive (dB):
Touch Tone Transmit (dB):	

1-WAY BUILT-IN SPEAKER LEVELS

Voice Receive (dB):	Touch Tone SideTone (dB):
---------------------	---------------------------

Tip Fields

Fields, field placements, and valid keywords

6400	8400/ 9400	Differences
6402/D	8403B	6402 has 1 less call appearance.
6408	8410B	6408 has 2 less call appearances and no 2 way-speaker-phone.
6408+	8405B	6408+ has 3 more call appearances
6408D	8405D	6408D has 3 more call appearances and no 2-way speaker-phone.
6408D+	8405D+	6408D+ has 3 more call appearances.
6416D+	8434D	6416D+ has 18 less call appearances and 3 less soft-keys (12 v 15). The 8434 has a 2 x 40 display instead of a 2 x 24 display
6424D+	8434D	6416D+ has 18 less call appearances and 3 less soft-keys (12 v 15). The 8434 has a 2 x 40 display instead of a 2 X 24 display

Support for 24-button expansion modules

- The XM24 expansion module is fully functional when administered together with the 6416D+ and 6424D+ voice terminals.

Abort Transfer

- The Abort Transfer provides the user with the optional capability to abort a transfer attempt when pressing a non-idle line appearance or going on-hook, putting the previously soft-held call on hard hold.
- In a Pre Release 8.1 operation, the user might have received an urgent call that they needed to pick up and then later transfer the urgent call to yet another party.
 - The user forgets that the first call is still on soft-hold awaiting transfer and the user instead presses the transfer button to transfer the urgent call to a third party.
 - As soon as the user presses the transfer button, the first and second calls are transferred together which is not what the user intended.
 - If the user of a DCP, Hybrid, Wireless, or ISDN-BRI terminal presses a non-idle call appearance (or goes on-hook) in the middle of performing a Transfer operation, the Transfer operation is not aborted but is left in an active state.
- Abort Transfer allows abort the transfer operation whenever he/she presses a non-idle call appearance in the middle of the transfer operation or when the user hangs-up (assuming that the Transfer Upon Hang-Up feature is not enabled).
- The original call that was on soft-hold in the transfer-pending mode will be changed to be on hard-hold so that the original call is not lost.
- When the user then presses the transfer button, the user will be initiating a new transfer for the call appearance he/she is currently on.
- Abort Transfer is an optional feature.
 - This allows the option of not adding changes into the operations of the transfer feature.
- The DEFINITY[®] switch must be up and running and voice terminals must be plugged into their jacks for this transfer enhancement to be operational.
- Voice terminal must be fully defined with an extension and an assigned port location before the user may access this transfer.
- Users can go from one terminal to another terminal and know exactly how the Transfer feature works if administered as a system-wide option.

- Switch aborts a transfer operation when the user selects a non-idle call appearance at any point before the transfer process is completed.
 - The call that was on soft-hold waiting to be transferred is placed on hard-hold and the green status light of the soft-held call is changed from the soft-hold transfer-pending status to the hard-hold status.
- Aborts transfer by:
 - selecting a non-idle call appearance
 - hanging up
 - picking up original call appearance

Abort Conference

- The Abort Conference enhancement provides the user with the optional capability to abort a conference attempt when going on-hook, putting the previously soft-held call on hard hold.
- This allows the user of a DCP, Hybrid, Wireless, or ISDN-BRI terminal to abort the conference operation whenever they hang-up.



NOTE:

The original call that was on soft-hold in the conference-pending mode will be changed to be on hard-hold so that the original call is not lost.

- When the user later presses the conference button, the user will be initiating a new conference for the call appearance they are currently on.
- Abort Conference is an optional feature.
- This feature does not include aborting when the user presses a non-idle call appearance because that would preclude a user from being able to use the meet-me conference capability.
- Aborts conference by:
 - hanging up
 - picking up original call appearance



NOTE:

The Abort Transfer / Abort Conference features are not applicable to Attendant Consoles.

Administration

Enable Abort Transfer Operation and Enable Abort Conference Operation

- Enabled/disabled on a per-system basis by the use of 2 new fields on the system-parameters features form.
- Automatically disabled on upgrades.

New on the system-parameters features form

- "Abort Transfer?" and "Abort Conference Upon Hang-Up?" are added to Page 5 of the form as shown

```

change system-parameters features                                     Page 5 of 10
                                FEATURE-RELATED SYSTEM PARAMETERS

Public Network Trunks on Conference Call: 5                        Auto Start? n
Conference Parties with Public Network Trunks: 6                    Auto Hold? n
Conference Parties without Public Network Trunks: 6                Attendant Tone? y
Night Service Disconnect Timer (seconds): 180                      Bridging Tone? n
Short Interdigit Timer (seconds): 3                                Conference Tone? n
Unanswered DID Call Timer (seconds): _____                  Intrusion Tone? n
Line Intercept Tone Timer (seconds): 30                           Special Dial Tone? n
Long Hold Recall Timer (seconds): 160
Reset Shift Timer (seconds): 0
Station Call Transfer Recall Timer (seconds): 0
                                DID Busy Treatment: tone
Allow AAR/ARS Access from DID/DIOD? _
Allow ANI Restriction on AAR/ARS? _ Transfer Upon Hang-Up? n
Abort Conference Upon Hang-Up? n Abort Transfer? n
7405ND Numeric Terminal Display? n 7434ND? n
DISTINCTIVE AUDIBLE ALERTING
Internal: 1 External: 2 Priority: 3
Attendant originated Calls: _ _____
DTMF Tone Feedback Signal to VRU - Connection: _ Disconnection: _

```

- Abort Transfer? Fixed field identifying whether the Abort Transfer feature is enabled or disabled.
 - Help: n(o), y(es)
 - Default: n
 - Error: invalid entry, press help.
- Abort Conference Upon Hang-Up? Fixed field identifying whether the Abort Conference feature is enabled or disabled.
 - Help: n(o), y(es)
 - Default: n
 - Error: invalid entry, press help.

Interaction Operations

Automatic Hold

Selecting a Non-Idle Call Appearance

- Places the transfer-to call appearance on hard-hold when the Automatic Hold feature and the Abort Transfer feature are both enabled and the user has selected a non-idle call appearance in the middle of a transfer operation.
- Tears down the transfer-to call appearance when the Automatic Hold feature is disabled and the Abort Transfer feature is enabled and the user has selected a non-idle call appearance in the middle of a transfer operation.
- The Abort Conference feature will always tear down the conference-to call appearance when the Abort Conference feature is enabled and the user goes on-hook.

Automatic Selection of Any Idle Appearance

- Auto Select Any Idle Appearance field on the station form allows for the automatic selection of an idle call appearance after the user presses the transfer button the first time.
 - If set to no, the users must manually select an idle call appearance in order to get dial tone, dial the transfer-to party, and then complete the transfer operation.
 - If set to yes, the idle call appearance is chosen for them automatically. If the user then manually selects the same call appearance, the switch should not abort the transfer attempt.

Call appearance selection

- If the Abort Transfer feature is enabled, the user is able to continue the transfer process if they manually select the active call appearance during the transfer process.

Call Park

- Allows users to put a call on hold and then retrieve the call from any other voice terminal within the system.
- The user may use the Conference or Transfer button to perform the Call Park feature if they don't have a Call Park button administered on their terminal.

Park Call with Abort Transfer

- If the Abort Transfer feature is enabled, a user is able to abort the process of transfer/call park by pressing a non-idle call appearance or going on-hook (the on-hook case applies except for when Transfer Upon Hang-Up is also enabled).

Park Call with Abort Conference

- If the Abort Conference feature is enabled, a user is able to abort the process of conference/call park by going on-hook.

Conference

- Allows conference with press of call appearance
 - If the Abort Conference feature is enabled or disabled, the switch keeps the conference operation active when the user presses a non-idle call appearance with the assumption that the user has started the conference operation by pressing the Conference button .

Conference Upon Hold

- Abort Conference available with Conference Upon Hold
 - If a call placed on hold meets the criteria necessary to be conferenced from the hold state, the user is able to abort the initiated conference process by going on-hook if the Abort Conference feature is enabled
- Conference Upon Hold available with Abort Conference
 - If a conference operation has been aborted using the Abort Conference feature and there are no other held calls or active calls, the user can restart the conference process by pressing the conference button without having to re-select the original call appearance

Consult

- Allows a covering user, after answering a coverage call, to call the covered party for private consultation.
- Activated by first pressing the Conference or Transfer button followed by the Consult button to call the principal.
- The covering user can complete the conference and add the calling party to the conversation or the call can be transferred to the principal.

Consult with Abort Transfer

- If the Abort Transfer feature is enabled, a user is able to abort the consult transfer feature as soon as the user selects a non-idle call appearance or goes on-hook (the on-hook case applies except for when Transfer Upon Hang-Up is also enabled).

Consult with Abort Conference

- If the Abort Conference feature is enabled, a user is able to abort the consult conference feature as soon as the user goes on-hook before the second press of the Conference button.

Deluxe Loudspeaker Paging Access (Deluxe Paging)

- Provides integrated access to voice paging equipment and Call Park capabilities.
 - Activate Deluxe Paging with the following steps if the multi appearance voice terminal user is on a call with another party.
 - Press the Transfer/Conference button.
 - Dial the trunk-access code for the desired paging zone.
 - Dial the extension where the call is to be parked.
 - Make the announcement.
 - Press the Transfer/Conference button and go on- hook.

Deluxe Paging with Abort Transfer

- If the Abort Transfer feature is enabled, the user is able to abort the Deluxe Paging operation by selecting a non-idle call appearance or going on-hook (the on-hook case applies except for when Transfer Upon Hang-Up is also enabled)

Deluxe Paging with Abort Conference

- If the Abort Conference feature is enabled, the user is able to abort the Deluxe Paging operation by going on-hook before the second press of the Conference button.

Drop

- Press Drop button to suspend transfer or conference
- The switch maintains the operation of the Drop feature if the Abort Transfer feature or the Abort Conference features are enabled.
- Pressing the Drop button after the first press of the Transfer/Conference button suspends the transfer/conference operation, giving the user dial tone on the active line appearance and leaving the original call in the soft-hold state.
- For 6400 series voice terminals, if a Drop button is administered, it can be used to suspend the transfer/conference operation.



NOTE:

6400 series voice terminals do not have a hard Drop button, but a Drop button may be administered as a softkey. It is recommended that a Drop button be administered on 6400 series voice terminals for users that use the Transfer or Conference features.

Transfer to a call on hold

- If the Abort Transfer feature is disabled, the user is able to select a held call as the transfer-to party.
- If the Abort Transfer feature is enabled, selecting a held call as the transfer-to party causes the transfer to be aborted.

Malicious Call Trace (MCT)

- A user can use the Transfer or Conference button in lieu of the Hold button to start the Malicious Call Trace feature.
- User is not expected to complete the transfer or conference, but is simply using the Transfer or Conference button instead of the Hold button.

Transfer with Malicious Call Trace - Before Alert of MCT Controller

- If the Abort Transfer feature is enabled, the user is able to abort the remainder of the Transfer operation that was used to enable the Malicious Call Trace feature by selecting a non-idle call appearance or by going on-hook at any point before the Malicious Call Trace feature has alerted the MCT Controller.
- Cause the Malicious CallTrace feature to be aborted.

Transfer with Malicious Call Trace - After Alert of MCT Controller

- If the Abort Transfer feature is enabled, the user is able to abort the remainder of the Transfer operation that was used to enable the Malicious Call Trace feature by selecting a non-idle call appearance or by going on-hook (regardless of whether the Transfer Upon Hang-Up feature is enabled or disabled) at any point after the Malicious Call Trace feature has alerted the MCT Controller.
- Does not cause the Malicious Call Trace feature to be aborted.

Conference with Malicious Call Trace - Before Alert of MCT Controller

- If the Abort Conference feature is enabled, the user is able to abort the remainder of the Conference operation that was used to enable the Malicious Call Trace feature by going on-hook at any point before the Malicious Call Trace feature has alerted the MCT Controller.
- Cause the Malicious Call Trace feature to be aborted.

Conference with Malicious Call Trace - After Alert of MCT Controller

- If the Abort Conference feature is enabled, the user is able to abort the remainder of the Conference operation that was used to enable the Malicious Call Trace feature by going on-hook at any point after the Malicious Call Trace feature has alerted the MCT Controller.
- Does not cause the Malicious Call Trace feature to be aborted.

Multimedia Call Handling (MMCH)

- Allows administration of a non-BRI voice terminal and a multimedia endpoint as a multimedia complex.
- Through this multimedia complex, users can place and receive voice or video calls using the single number of their voice station.
- Can conduct video conferences, and forward, cover, hold, or park multimedia calls much like standard voice calls, after the system converts those calls to voice.
- The Abort Transfer and Abort Conference features are allowed for multimedia complexes.

Music on Hold

- The Music-on-Hold feature automatically provides music, silence, or tone to a caller on hold.
- This includes calls on soft-hold (in a transfer or conference pending state).
- Available when a call that was in soft-hold transfer pending status is changed to hard-hold status by a user using the Abort Transfer or Abort Conference features.

Pull Transfer

- Allows either the transferring party or the transferred-to party to press the Transfer button to complete the transfer operation.
-
- If the Pull Transfer field on the system-parameters features form is enabled to yes and the Abort Transfer feature is enabled, the switch allows the transfer operation to be aborted if the transferring user selects a non-idle call appearance or goes on-hook (the on-hook case applies except for when Transfer Upon Hang-Up is also enabled).
- The Pull Transfer field on the system-parameters features form must be enabled to yes for a Pull Transfer to work.

Release

- Agents of CALLMASTER terminals do not go on-hook to terminate a call, rather they use the Release hard button to terminate a call.
- The Release button can also be administered as an optional button on other types of voice terminals that an agent might be using instead of a CALLMASTER terminal.
- The Release button behaves as hanging up the handset does for the Abort Transfer feature and the Abort Conference feature.

Reset Shift Call

- If the Reset Shift Call feature is enabled, the user is able to dial a single digit to complete a call when presented with the reset shift dial tone during a transfer or conference operation regardless of whether the Abort Transfer feature or Abort Conference feature is enabled or disabled.

Use of speakerphone

- The switch allows the Abort Transfer and the Abort Conference features for calls using speakerphones as well as the handsets or headsets.

Transfer Upon Hold

- Abort Transfer available with Transfer Upon Hold
 - If a call placed on hold meets the criteria necessary to be transferred from the hold state, the user is able to abort the initiated transfer process by selecting a non-idle call appearance or going on-hook (the on-hook case applies except for when Transfer Upon Hang-Up is also enabled)
- Transfer Upon Hold available with Abort Transfer
 - If a transfer operation has been aborted using the Abort Transfer feature and there are no other held calls or active calls, the user can restart the transfer process by pressing the transfer button without having to re-select the original call appearance.

Transfer Upon Hang-Up

- Transfer Upon Hang-Up allowed
 - If the Abort Transfer feature and the Transfer Upon Hang-Up feature are both enabled, the user is able to complete the transfer process by hanging up assuming the conditions for completing a transfer upon hang-up are met.
- Abort Transfer By Hang-Up when Transfer Upon Hang-Up enabled
 - If the Abort Transfer feature and the Transfer Upon Hang-Up feature are both enabled, the switch aborts the transfer process when the user hangs up assuming the conditions for completing a transfer upon hang-up are not met.

New Hospitality-Related Features

Auto Selection Direct Inward Dial (DID) Numbers (R8 only)

- Provides the capability to have the system automatically choose a number among a list of available DID numbers to be assigned to a guest's room upon check-in.
- Useful for any hotel wishing to have direct dialing to rooms without attendant intervention. It is unlikely to get a central office to assign DID numbers directly associated with a hotel's room numbering plan.
- Useful for hotels that wish to give guests a phone number that is not related to the room number.
- Invoked when a check-in is done from the switch (via a button on the console) or remotely via a PMS system.
- The switch assigns a DID number to the checked-in room from a list that is administered as DID stations at the switch.
- All calls made to the DID number are directed to the room's extension as if the room was called directly.
- The Auto Digit Rotation for Direct Inward Dial feature uses x-ports to create the XDIDs; thus, the effective station capacity of the system is reduced by the number of DIDs administered.

**NOTE:**

xdid assignments may count against the port count for the "port sensitive pricing" for Offer A customers.

- The Auto Digit Rotation for Direct Inward Dial feature increases hotel guests' security as they can publish their "phone number" without giving away their room number.

Process Codes in PMS Check-in Message

1. Check in request from PMS to switch. Byte 37 of the check-in message has a valid value of y to indicate that the room wants a DID assignment. It remains NULL for all other cases.
2. Check-in message received, no action taken, room already checked-in (to PMS). (unchanged)
3. Check-in received, successful. DID assignment is in name field. (To PMS).

Example

When guests check in, they receive the 7- or 10-digit number associated with their DID number assignment.

- Hotel personnel know the area code and office code to precede the DID number to create the 7- or 10-digit public network number.
- All outside calls to the guest use the 7- or 10-digit number associated with that DID number.
- The guests phone will ring and cover as if the room was dialed directly.
- From inside the hotel, either the room/extension number or the 2- to 5-digit DID number may be used.



NOTE:

XDIDs that are unused will follow the coverage path.

All xdids cover to voice mail so that they can get a recording that says nobody is checked in.

Administration

Coverage

- XDID ports perform the Hunt-to function before coverage.
- After hunting, coverage criteria for these calls is based upon the DID, but the coverage points are based upon the hunted-to station (room).
- The Hunt-to feature is modified so that calls placed properly to the DID number route properly to the mailbox associated with the room's extension (hunted-to number).
- Do not assign XDID numbers a client room class-of-service.

DID assignments

- DID assignments are saved in translation.
- Assignments are potentially changed each day. Any system resets of 3 or higher lose all DID assignments made since the last save translation.

New field to activate DID assignment feature

- A new field is added to the system-parameters hospitality form to activate the Automatic DID assignment feature Automatic DID Assignment on Check-in?
 - The field accepts only valid values of y or n, which indicates whether the feature is active.
 - The field defaults to n (no).
- Whether the feature is administered from the switch-activated check-in or from a PMS check-in depends on which check-in mode is active on the switch.

PMS Message Set changes

- For process code 1 (PMS sends check-in.), spare byte 37 has an ascii y to indicate that the PMS requests a DID assignment for this check-in.
- A new process code 3 is created to send the requested DID assignment back to the PMS.
- The DID is in the name field. It will only be sent if the DID feature is turned on, but regardless of whether or not PMS has requested a DID assignment on the check-in message.

Enhance list station command to show hunt-to assignments

- The list station command has a new field to display hunt-to assignments.
- This field always shows regardless of whether the DID feature is assigned. It is directly under the name field on line 2.

New button type xdid-view

- New button type xdid-view is similar to the check-in button.
- The system allows this button's use whether the switch or a PMS administers check-ins, to allow DID assignments to be looked up and changed at any time.
- The button is allowed only on display sets.
- When changed, the old DID, if it existed, is placed back into the queue.
- Use will only be allowed on a station with console permissions.
- The DID can continue to be changed as long as y is pressed.

New Screens

```

add station 1014                                     Page 1 of X
                                                    STATION
Extension: 1014                                     Lock Messages? n      BCC: 0
Type: 6048D+                                       Security Code: _____ TN: 1
Port: _____                                    Coverage Path 1: ____ COR: 1
Name: _____                                    Coverage Path 2: ____ COS: 1
                                                    Hunt-to-Station: ____

STATION OPTIONS
  Loss Group: _
  Data Module? n
  Speakerphone: 2-way
  Display Language? English
  Personalized Ringing Pattern: 1
  Message Lamp Ext: 1014
  Mute button enabled? y

```

Page 2 of 3

```

HOSPITALITY
Dual Wakeup? y Daily Wakeup? y VIP Wakeup? y
      VIP Wakeup Per 5 Minutes: _____
      Room Activated Wakeup With Tones?
Time of Scheduled Wakeup Activity Report: _____
Time of Scheduled Wakeup Summary Report: _____
Time of Scheduled Emergency Access Summary Report: _____
      Announcement Type:
Length of Time To Remain Connected To Announcement: 30____
Extension To Receive Failed Wakeup LWC Messages: _____
Routing Extension On Unavailable Voice Synthesis: _____
      Display Room Information in Call Display? n
      Automatic DID Assignment on Check-in? n
      Number of Digits from PMS: 1
      PMS Sends Prefix? y
      Number of Digits in PMS Coverage Path: 3
      Digit to Insert/Delete:

```

Call Detail Recording (CDR)

- With Call Detail Recording (CDR), incoming calls to the DID port are recorded as coming to the DID rather than the room's extension number.
- Outgoing calls are recorded as coming from the room's extension number.
- The PMS room image message processing has been modified to accept a DID number as an extension number when the DID feature is active.
 - Message contains the room associated with the DID number in the name field.
 - In case the switch crashes, the PMS still has a record of DID to room extension assignments.
- The DID assignments are not added to the current room image message for the rooms.
- The switch assigns a DID number to the room rather than selecting a random number.
- The switch verifies that the number is in the list of currently unused DID numbers.

Call Processing

- PMS can request a DID assignment from the switch in the check-in message.
- When the Automatic DID assignment feature is active and check-ins are done from the PMS, the system assigns all check-ins received from the PMS with a y in byte 37 a DID number from the list of XDID numbers.
 - The number is chosen from the list in a FIFO manner.
 - The DID chosen is always the oldest number.
 - This number is sent back to the PMS in a new check-in message.
- The returned check-in message has a new process code 3 and the DID is sent in the name field.
- The new message is always sent if the DID feature is active, regardless of whether the PMS requested a DID assignment.
- The XDID port has the Hunt-to field filled in with the room extension.
- Checkouts clear the Hunt-to field and return xdid, if there is one, to the free list.

Switch check-in allows optional DID assignment

- When the check is normally complete, then the number is displayed on the set that is doing the check-in.
- The display is changed to "CHECK-IN COMPLETE, DID=dddd" where dddd is the DID assignment.
- The XDID port has the Hunt-to field filled in with the room extension.
- When the DID feature is active, hunt-to stations are treated as the called station.
- When the DID station number is called, the call hunts before coverage and the hunted-to station is treated as though it was dialed directly.
- Coverage applies as if from the hunted-to station.
- Incoming calls use the COS and COR of the DID.
- Outgoing calls use the room extension's COS and COR.

Crisis Alert to Pager (R8 only)

The primary use of this feature is in addition to the Crisis Alert to an Attendant or Digital station.

- It is not recommended to notify only a pager of the Crisis Alert due the possibility of the paging message not getting immediate response.
- If a crisis alert call is originated in an emergency situation, a message will be sent to a pager to notify the page of the extension and location where the emergency call was originated.
 - The message begins with a customer administrable crisis code, then the room number or extension and then the location, which can be the main telephone number or any type of location code.
- Depending on the type of paging service, the Crisis Alert message may be from 7 to 22 digits.



NOTE:

Important! Be aware that a crisis alert call will use from 2 to 4 trunks. This is because one trunk is used for the actual emergency call and 1 to 3 trunks are used to notify the pager(s) depending on the how many pagers are administered.

- Not limited to a particular digital numeric pager and service but must adjust the length of the main number field to fit the pager display.
- The feature should already be administered in the ARS digit analysis table, if not a digit pattern must be selected, i.e. 911, and the call type must be set to "alt".
- If a Crisis Alert situation occurs the pager will be alerted and display the crisis alert code, the extension/room number and the main number, if one is entered, so that the pagee will know the location where the emergency call was originated.

Administration

Administration of the Crisis Alert to Pager feature consists of the following:

- Adds new fields on the Feature-Related SYSTEM PARAMETERS form.
- New fields added to the CRISIS ALERT form.
 - An administrable originating extension field that is the originating extension for the alert call to a pager.
 - A Crisis Alert Code field that is administrable by the customer for identifying a crisis alert pager message.
 - Code is the first part of the alert message that is sent to a pager, for example in the U.S. the code may be 911.
- When the alert digit pattern is dialed a visual and audible alert is sent to all attendants and digital stations that have a crss-alert button assigned.
- The Crisis Alert to a Digital Pager feature must be turned on using the Alert Pager field on the CRISIS ALERT SYSTEM PARAMETERS form.
- When the Alert Pager field is turned on new fields appear, Originating Extension, Crisis Alert Code, Retries, Retry Interval, Main Number, three pager numbers and three pin numbers.
- The Originating Extension field requires a valid extension to be entered for use as the extension originating the call to send a crisis alert message to a pager.
- A crisis alert message sent to a pager needs to be identified, so the customer can administer a code in the Crisis Alert Code field.
- The Retries field allows the user to choose the number of times the system tries to send out the alert message in case of an unsuccessful attempt.
- The Retry Interval field allows an administrable time period between retries.
- The Main Number field is for entering a main phone number to the location or a location code, up to 15 digits.
- Three pager number fields are available for inputting up to a 15-digit number.
 - Required that one of the three pager number fields has a number entered or the form cannot be submitted.
 - The last three fields are for a pin number associated with each of the pager number fields.
 - The user has 15 spaces for entering the letter p, *, #, or digits in any combination or the field can be left blank.
 - The p is for pause for timing purposes, so the system will wait to send out the pin number and then wait after the pin number to send the message.
 - A pager number or the main number may be entered using dashes to separate the digits, such as 123-456-7890.

- Two fields for DTMF duration, Tone (msec) and Pause (msec), allow the tone and pause time to be administered.
- The tone time is the actual length of the DTMF tone out pulsed and the pause time is the time between tones.
 - These fields have a range of 20 to 2550 in milliseconds.
- For CO type trunks, on the trunk form either the trunk Answer Supervision Timeout field be set to 0 (zero) and the Receive Answer Supervision field set to y or make appropriate adjustment to the Answer Supervision Timeout with the Receive Answer Supervision field set to n.
- Alert 1, 2 or 3 pagers if Alert Pager field is turned on.
- No alert sent to pager if Alert Pager field is turned off.
- If the Crisis Alert to a Digital Pager field, Alert Pager, is turned on and a Crisis Alert situation occurs, a message is sent out to the pager.
- The user must administer one pager number for the Crisis Alert message to be sent.
- The message will begin with the crisis alert code, then the extension/room number of the user that initiated the call and then the main number, if administered.
- If more than one pager number, up to three different numbers, is administered then the same message is sent to all pagers. If the Alert Pager field is turned off, no call should be made to the pager.
- When the Alert Pager field is turned on, set to y (yes), new dynamic fields will appear, Originating Extension, Crisis Alert Code, Retries, Retry Interval, Main Number, three pager numbers and three pin numbers.
 - A valid extension, according to the dial plan, must be entered in the Originating Extension field. The help and error messages are the same as for a standard extension field.
- The Crisis Alert Code field requires a digit entry up to 3 digits. The help message is "Enter up to 3 digits to identify a Crisis Alert pager message," and the error message is "Entry must be all digits."
- For the Retries field the default value is 0 and values can be entered from 0 to 10. The help message is "Enter a number between 0-10". The error messages are "Entry must be all digits" and "Entry out of range".
- The Retry Interval field defaults to 30 measured in seconds. The range of valid values is from 30 to 60. The help message is "Enter a number between 30-60" and the errors messages are "Entry must be all digits" and "Entry out of range".
- The DTMF duration fields, Tone (msec) and Pause (msec), default to 100 and have valid entries of 20 to 2550. Then help message for both fields is "Enter number between 20-2550 in increments of 10" and error messages are "Entry must be all digits" and "Entry out of range".

- If the form is submitted without an entry in one of the three pager number fields the cursor will move to the first pager number field and give the error "Required data not specified."
- If the form is submitted with a pin number administered without an associated pager number the cursor will move to the field and give the error "Entry Invalid; please press HELP."
- Dynamic fields disappear when Alert Pager is turned off.
- When the Alert Pager field is turned off and then the form submitted all dynamic fields will disappear. When the Alert Pager field is turned on again original data will appear in the fields.

FEATURE-RELATED SYSTEM PARAMETERS

```

FEATURE-RELATED SYSTEM PARAMETERS

SYSTEM PRINTER PARAMETERS
    System Printer Extension:                Lines Per Page: 60
    EIA Device Bit Rate: 9600

SYSTEM-WIDE PARAMETERS
    Switch Name:

MALICIOUS CALL TRACE PARAMETERS
    Apply MCT Warning Tone? n                MCT Voice Recorder Trunk Group:

SEND ALL CALLS OPTIONS
    Send All Calls Applies to: station
    Auto Inspect on Send All Calls? n

UNIVERSAL CALL ID
    Create Universal Call ID (UCID)? N        UCID Network Node ID:

CRISIS ALERT:Every User Responds? n

```



NOTE:

The Alert Pager field will not be displayed unless the software version is V8 or later.

Alert Pager field turned off

```

change system-parameters crisis-alert
    CRISIS ALERT SYSTEM PARAMETERS

ALERT STATION
    Every User Responds? n
ALERT PAGER
    Alert Pager? Y

```

Alert Pager field turned on

```

change system-parameters crisis-alert
                CRISIS ALERT SYSTEM PARAMETERS

ALERT STATION
  Every User Responds? n

ALERT PAGER
  Alert Pager? y
  Originating Extension: 7768
  Crisis Alert Code: 911
    Retries: 5
  Retry Interval (sec): 30
    Main Number: 303-555-0800

                Pager Number          Pin Number
                1: 3035559001         1: 7614567890
                2: 123456789012345    2: ppp1234567890pp
                3: 123456789012345    3: ppp1234567890pp

                DTMF Duration - Tone (msec): 100  Pause (msec): 100

```

Attendant receives alert

- To receive the Crisis Alert message there must be at least one attendant with a crss-ahrt button administered. With the Alert Pager field turned on, the attendant will receive the correct alert.

Crisis Alert to Digital Station**Digital Station(s) receives alert**

- To receive the Crisis Alert message there must be at least one digital display set with a crss-ahrt button administered.
- With the Alert Pager field turned on, any station with a crss-ahrt button will receive the correct alert.

Emergency call goes out on Cama trunk

- When an emergency call is originated it will connect over a Cama trunk.

Multiple messages

- If there are multiple crisis alert messages, each message is sent out to the pager service in the order that they are initiated.
- Emergency 911 call is not affected by message to pager.
- The originated emergency call will not be interrupted by the call going out to the pager.
- PBX will retry if failure to connect to paging service.

- If the call to the pager service is busy or has no answer (hearing ring back with no connection), the PBX will retry the call as many times as is administered in the Retry field on the CRISIS ALERT SYSTEM PARAMETERS form.
- The time between retry attempts can be administered in the Retry Interval field.
- DTMF duration fields control the out pulse time.
- Adjustment of the tone and pause timer fields will control the tone and pause time of the DTMF out pulse.
 - By changing the tone timer the tone length will be longer or shorter depending on the administered value.
 - Changes to the pause timer will increase or decrease the pause time between the DTMF tones.
- Entry logged on the emergency log.
- An entry is appended to the emergency log noting whether delivery of the page was successful or unsuccessful.
- Result of attempt to pager sent to journal printer.
 - The journal printer prints out the result, successful or unsuccessful, of the final attempt of sending a message to the pager.
 - Each pager number has status sent to the journal printer.

Hardware

- Digital Numeric Pager
- TN2182 - Tone Board/Call Classifier or TN744B, C.
- Applies to all DEFINITY[®] platforms.

Check In via the Hunt-To Feature

- Check In via the Hunt-To Feature provides the user with the capability to have the system automatically check in several related extensions with one check-in command. The check-in command can come from the user's PMS, or can be an on-switch check-in from the attendant.
- This feature allows hotels that offer suite rooms with several phones to check in all the phones associated with that suite at once.

Process

- When a guest checks into a room, the PMS sends a check-in message to the DEFINITY[®] system.
- The DEFINITY[®] system turns on the phone in the room by removing controlled outward restriction, adds the guest's name to the station record, sets the coverage path, removes any LWC messages, and marks the room as occupied.
- With the suite check-in feature active, when a room phone is checked in, the system will look if there is a hunt-to extension associated with that station. If so, the system will also check in the station found in the hunt-to field.
- The system will remove outward restriction, store the guest's name for that extension, store the call coverage path, remove LWC messages, and set station state to occupied. In turn, if the hunt-to (second or subsequent) station has an extension in its hunt-to field, that station will be checked in as well.
- The system will continue checking in stations until it encounters a station in the chain with a blank hunt-to field.

Administration

- System option The Station Hunt Before Coverage option allows the customer to choose that a call to a busy station will perform station hunting before going to coverage. This feature allows customers to have calls hunt to the other stations associated with their room (suite) before going to coverage, if the primary number called is busy.
- To activate the Suite Check-in feature, the Suite Check-in? field on the system-parameter hospitality form must be set to y.
- For a group of stations to appear as a suite, the primary extension (the extension that the PMS will be passing to the switch in the check-in message) must have the secondary extension administered in its hunt-to field on the station form.
- To have additional extensions associated with this suite, the user should enter the next extension into the secondary extension's hunt-to field. The final station in the hunt-to chain will have a blank entry in its hunt-to field, thus denoting the end of this suite.
- If the Suite Check-in field is set to y, and a check-in message is received, the extension sent in the check-in message will be checked in. If the extension to be checked in has an extension in its hunt-to field on the station form, that extension will be checked in as well.

- To activate the Station Hunt Before Coverage feature, the "Station Hunt Before Coverage?" field on the system-parameters coverage form must be set to y. The system will check to see if there is a hunt-to station assigned to the busy station. If there is, the system will try to terminate to the hunt-to station before going to coverage. If the hunt-to station is busy as well, the system will continue hunting down the hunt-to chain. If all stations in the hunt-to chain are busy, the call will go to the principal's coverage.

**NOTE:**

There is no limit on how many stations can be linked (via administration) on a hunt-to chain. However, the system will only hunt to 30 stations in the chain on a call. This feature will adhere to that limit. When a station is checked in, a maximum of 30 stations in the chain will be checked in.

- When the DEFINITY[®] receives a check-out message, the extension sent in the message as well as any associated extensions (those found in the hunt-to chain) will be checked out. If the primary extension sent on a check-in, or any stations on the hunt-to chain are already in the checked in state, the room will not be checked in, and the message "Room already Occupied" will be given. If the primary extension sent on a check-out, or any stations on the hunt-to chain are already in the checked-out state, the rooms will be checked out, and the message "Room already Vacant" is given.
- The Suite Check-in and Station Hunt Before Coverage features are only available to customers with DEFINITY[®] G3 software with Version 7 or higher.
- When the Suite Check-in feature is active, and a check-in message is received, the system will check in that station. In addition, if this station has an extension in its hunt-to field, the hunt-to station will be checked in as well.
- When the secondary extension is being checked in, the controlled restrictions will be removed from the extension. The name sent in the check-in message will be added to the database, but with a special character, *, added to the beginning of the name so that the entry for the secondary extension will not be found by the dial by name feature.
- The status of the secondary extension will be set to occupied. The secondary station will be given the same call coverage path as the primary, and the LWC messages is cleared from the secondary station as well.
- When the Suite Check-in feature is active, and a check-out message is received, the system will checkout the station indicated in the message as it does today. If this station has an extension in its hunt-to field, that station will be checked out as well.

- When a secondary extension is being checked out, the controlled restrictions will be removed and outward restrictions will be activated on this extension. The name associated with this extension will be removed from the database, and the status of the secondary extension will be set to vacant.
- When the Station Hunt Before Coverage feature is active, and a station is called that is busy, the system will check to see if the busy station has a hunt-to station administered. If it does not, the call will go to the principal's coverage.
- When the Suite Check-in feature is active, and a check-in message is received, before processing the check-in message, the system will check if the station to be checked in and all stations in its hunt-to chain (up to 30) are guestrooms in the vacant state. If any of these stations are not guestrooms or not in the vacant state, the check-in will return the error, "All rooms are not in the vacant state".
- When the Suite Check-in feature is active, and a check-out message is received, if the principal is not in the occupied state, the standard "Room already vacant" message will be given. The system will not check if any of the rooms in the hunt-to chain are in the occupied state, they will be checked out regardless.
- If the Station Hunt Before Coverage feature is active, and a call terminates to a busy station, and the station has a hunt-to station administered, the call will attempt to terminate to the hunt-to station.

Example

- When a guest checks in to a hotel that offers suite rooms, the user does not want to have to enter each check-in separately. This feature will allow the clerk to enter one check-in message, and have several guest phones checked in or out as a result.
- When the guest is in the suite, it is desirable that if the primary phone is busy, calls to the room will be directed to another phone in the room, instead of going directly to coverage.

Changes to the hospitality form

```
change system-parameters hospitality page 3 of 3
HOSPITALITY
ROOM STATES:
Definition for Rooms in State 1: Rooms in State 1
Definition for Rooms in State 2: Rooms in State 2
Definition for Rooms in State 3: Rooms in State 3
Definition for Rooms in State 4: Rooms in State 4
Definition for Rooms in State 5: Rooms in State 5
Definition for Rooms in State 6: Rooms in State 6

HOSPITALITY FEATURES
Suite Check-in ? n
```

Changes to the system-parameters coverage-forward form

```

change system-parameters coverage-forwarding                                page 1 of 2

      SYSTEM PARAMETERS -- CALL COVERAGE / CALL FORWARDING

CALL COVERAGE/FORWARDING PARAMETERS
  Local Cvg Subsequent Redirection/CFWD No Ans Interval (rings): _
  Off-Net Cvg Subsequent Redirection/CFWD No Ans Interval (rings): _
      Coverage - Caller Response Interval (seconds): _
  Threshold for Blocking Off-Net Redirection of Incoming Trunks Calls: 1

COVERAGE
      Keep Held SBA at Coverage Point? _
  External Coverage Treatment for Transferred Incoming Calls? _
  Immediate Redirection on Receipt of PROGRESS Inband Information? _
      Maintain SBA At Principal? _
  QSIG VALU Coverage Overrides QSIG Diversion with Rerouting? _
      Station Hunt Before Coverage? n

FORWARDING
      Call Forward Override? _
      Coverage After Forwarding? _

```

Feature Interactions**Automatic Wakeup**

- An automatic Wakeup is set only on the dialed station, not the hunt-to extensions.

Automatic Selection of DID numbers to Guest rooms

- If the customer has the Automatic Selection of DID numbers feature active, then a DID number will be assigned only to the initial extension and not to all of the hunt-to extensions.

Call Coverage

- If the customer has the Station Hunt Before Coverage feature active on the switch, a call to a busy station will try to terminate to the hunt-to station before going to coverage.
- If the call does go to coverage, it will be the coverage of the original station dialed, unless the station is an XDID. If it is an XDID, the call goes to the coverage of the non-XDID station found in the XDID's hunt-to field.

Dial by Name

- Secondary stations that are checked in will insert a * before the name. They will not appear when the Dial By Name feature is used. The name, with the * in front of it, will appear when the station dials the attendant or another display set.

Do Not Disturb

- When a station has Do Not Disturb activated, a call to that station will go to intercept treatment and will not perform station hunting. When Do Not Disturb is activated for a station, it is active only for that station and not for other stations in the hunt-to chain.

Maid Status Changes

- When a room status feature access code is dialed, the room status is updated only for the extension from which the code was dialed (not the hunt-to stations as well).

Send All Calls

- When a station has Send All Calls active, and the station is called, the call will go directly to coverage without station hunting being performed.
- If a hunted-to station has Send All Calls active, it will be skipped in the hunt chain.

Call Detail Recording (CDR)

- Calls made from a suite will record the extension they were dialed from, not the suite number.

Property Management System (PMS)

- Database Swap
 - When a database swap occurs between the PMS, the switch and the PMS sends a station that should be checked in and the station is not currently checked in, all stations in the hunt-to chain are updated along with the primary station.
- Room Change
 - Room Change clears all the information for the old station and the hunt-to stations associated with it. It also inserts all the information to the new station and its hunt-to extensions.
- Room Swap
 - The system changes the guest name and coverage path information between the two rooms for the principal station and the hunt-to stations.
- Controlled Restriction
 - When a controlled restriction is applied to the primary extension, the restriction will also be applied to the hunt-to stations in the chain. This applies to restrictions done from the PMS, attendant console, or from a phone.

New Mobility-Related Features

X-Station Mobility (DECT)

- X-Station Mobility Feature allows phones remoted over a trunk interface to be controlled by DEFINITY® as if they were directly connected to it.
- Accomplished by administering a station record for each station to be so controlled as of type X-mobile.
- X-mobile stations have additional administration information further describing the capabilities of the remote station.
- Each X-mobile station has a Trunk Group associated with it.
- If the call or other signal needs to be sent to it, DEFINITY® uses the associated D-Channel to communicate with the remote terminal.
- When a call arrives over a D-Channel that carries X-mobile traffic, that call is analyzed to check if an X-mobile remote station originated it.
 - If it did, then the call is associated in call processing as an internally originated call from the local X-mobile station.
 - Allows a large number of DEFINITY® system features to work for the remotely controlled station, including bridging.
- Used to provide DEFINITY® system feature integration with wireless handsets.
- DEFINITY® Wireless DECT Release 2.0 uses this capability to field a competitive wireless offering.

Administration

Enabling X-Station Mobility

- New field Maximum XMOBILE Stations is created on the Customer Options form and defaults to 0.
- When this field is set to 0, the feature is disabled.
- It is only possible to set the field to $N > 0$ if the system is administered as R8 or later.
- This customer option is disabled by default for new R8 systems and for older systems that upgrade to R8.

Change system-parameters customer-options

```
change system-parameters customer-options                               Page 1 of 5

OPTIONAL FEATURES

                                G3 Version: V8                               Maximum Ports: 0
                                Location: 1                               Maximum XMOBILE Stations: 0
Abbreviated Dialing Enhanced List? N                                CAS Branch? n
Access Security Gateway (ASG)? n                                    CAS Main? n
Analog Trunk Incoming Call ID? n                                Cvg Of Calls Redirected Off-net? n
A/D Grp/Sys List Dialing Start at 01? n                            DCS (Basic)? n
Answer Supervision by Call Classifier? N                            DCS Call Coverage? N
```

Administering X-mobile Stations

- The station administration form changes to allow the station type of XMOBILE.
- An X-mobile station has the following new fields:

Field	Range	Default	Description
Trunk Group	1 to Max Trunk Groups	1	The trunk group to be signaled
MW Type	NONE, DISP[LAY]	NONE	Update X-mobiles
Display for MWI	Length of Display	1	Number of lines in the display (1 or 2)

- If the station type is changed to be non-xmobile, then all other fields are the same as for 2500 series stations.

Change station

```
change station 3000 Page 1 of 3
STATION

Extension: 3000 Lock Messages? n BCC:0
Type: XMOBILE Security Code: _____ TN: 1
Coverage Path 1: ___ COR: 1
Name: Jeff's Mobile Coverage Path 2: ___ COS: 1

Mobility Trunk Group: 1
Message Lamp Ext: 3000
Message Waiting Type: NONE

Length of Display: 1
```

Terminal Type

- Setting the type in the station screen to XMOBILE will identify an X-mobile station.

Signaling Group administration

- New field X-Mobility/Wireless Type is added to the signaling group form to indicate the type of X-mobile endpoints allowed for it (DECT or NONE).
- The default for the field is NONE.

Add signaling-group

```
add signaling-group 1 Page 1 of 5
SIGNALING GROUP

                Group Number: 1
Associated Signaling? y Max number of NCA TSC: 0
                Primary D-Channel: 01b1216 Max number of CA TSC: 0

Trunk Group for NCA TSC:
Trunk Group for Channel Selection: 1           X-Mobility/Wireless Type: DECT
Supplementary Service Protocol: a
```

- The X-Station capability is turned off unless specifically enabled by a non-zero number of x-mobile stations in the Customer Options screen.

Signaling

- ISDN PRI is modified to allow INFO messages with Display Information Elements to be sent at any time.
- ISDN PRI is also modified to allow INFO messages with Keypad Facility Information Elements to generate DTMF when x-mobility is enabled.
- The X-mobile station is treated as an analog station in terms of feature interactions except as noted.

Description

- When a call comes into a station administered to be X-mobile, the software checks for a trunk group associated to the station.
 - It then signals the call to that station using that trunk group.
- Very similar to how incoming calls are handled for BRI stations.
- When a call comes in from a trunk group marked as having X-mobile endpoints, the SETUP message is checked for a CALLING PARTY NUMBER Information Element.
 - If present, and if it matches the extension of a station marked as X-mobile, that call is re-stimulated as an internal call originating from the X-mobile station.

Calling Capabilities

- Administration of an X-mobile station allows an administrator to customize call options, based on the parameters for an analog station.

DTMF Generation

- When an X-mobile station is on a call and INFO messages are received indicating KeyPad numeric button pushes, DTMF is generated on the call.

Call Progress Tones to Remote Party

- When a party dials to an X-mobile station, the DEFINITY® system will provide Ring Back, Busy, or Reorder tone as appropriate.
- If the remote party is put on hold by the X-mobile station, Hold tone or Music on Hold will be provided as administered for the system.

Conference

- If an X-mobile station has initiated a second call by a previous flash operation and the third party has answered the second call, then a flash operation should conference all three parties.
- Another flash operation by the X-mobile station DROPs the last added party.
- A Disconnect indication from the X-mobile station while on a conference leaves the remaining parties connected and idle the X-mobile station.
- The operation is defined by the DEFINITY® system's treatment for conference by an analog station.



NOTE:

This applies only to second (enquiry) calls originated by the X-mobile. It does not apply to call waiting calls.

Call Park

- An X-mobile station is able to park a call after a flash operation in the normal method by feature access code.

Message Waiting Indication

- All text information sent to an X-mobile station contains information indicating a message is waiting for it, if the station is marked as having a message waiting noted by an MW at the end of the display line.

Distinctive Ringing

- All calls to be presented to the X-mobile station as internal calls should send a SIGNAL Information Element indicating pattern 1 alerting.
- For external calls, this indicates alerting pattern 2.

Send All Calls

- An X-mobile station activates send all calls by feature access code.

Abbreviated Dial

- An X-mobile station is allowed to use its station and system abbreviated dial lists.

Call Pickup

- An X-mobile station is allowed to be in a Call Pickup Group.

Call Detail Recording

- A Call origination from an X-mobile WT is present in the CDR as a call origination from the X-mobile station.
- A Call Termination to an X-mobile WT presents as a call termination to the X-mobile station in the CDR.

Call Processing

Basic Call Termination

- A call for an X-mobile station looks up the current trunk group associated with the X-mobile station.
- It then extends the call over the trunk group to the remoted station.

Basic Call Origination

- A call from an X-mobile station appears to DEFINITY® system Call Processing to have been locally originated by that station.
- DEFINITY® system associates call origination to X-mobile stations by analyzing the CALLING PARTY NUMBER Information Element in the SETUP message received over an ISDN trunk marked as having X-mobile endpoints and matching the number with the extension of an X-mobile station.

Flash Operation

- If an INFO message containing a KeyPad Facility Information Element of the value 0x15 or values 0x1B, 0x48, the message is interpreted as a Flash-hook operation by the remoted station.

Bridged Appearances

- An X-mobile station can have bridged appearances on wired stations.
- Those bridge appearance status LEDs reflect the status of the X-mobile station.
- The X-mobile station is able to bridge on or off calls at will like any directly connected wired station.

Call Progress Tones

- When an X-mobile station is on a call, the DEFINITY® system provides local call progress tones for that call
 - Dial Tone
 - Alerting
 - Coverage Tone
 - Busy
 - Reorder
 - Custom Alert
 - Call Waiting Tone
 - Call Prompting Tone
 - Confirmation Tone
 - Stutter Dial Tone.

Display

- When an X-mobile station is dialing after an offhook indication, and ISDN Info message is used to update its display whenever appropriate.

Called Party Name

- When an X-mobile station calls another party, DEFINITY® provides to the Xmobile WT the name administered for the called party.

Connected Party

- When call processing would normally update a station's display with text information, such as the connected party, it sends that information to the X-mobile station in an INFO message contained in a DISPLAY Information Element.

Calling Party Number

- Calling Party Number is sent to the Xmobile station when appropriate.

Xmobile to Trunk mapping

- No limit to the number of X-mobile stations that can be supported per Trunk Group.

Call Coverage

- The X-mobile station is allowed to cover calls not answered by the X-mobile, either Ring No Answer or Subscriber Absent, when coverage is administered for the X-mobile station.

Calling Party Name

- The X-mobile station is sent the calling party name information in a DISPLAY Information Element whenever normal call processing for that station would update the display of the station to indicate the calling party.

Call Transfer

- When an X-mobile station indicates a flash during a call, it is treated as initiating a transfer operation.
- The operation is defined by the DEFINITY[®] system's standard operation for transfer from an analog phone.

Call Forward

- An X-mobile station is allowed to activate and deactivate call forwarding (all, busy, don't answer) just as if it were a directly connected station.
- The remote Station State is used to determine if call-forwarding criteria are met.
- If the remote station is busy, then busy criteria is met.
- If the remote station does not answer the call, RNA criteria is met.

Capacity Constraints and Feature Limitations

- The X-Station Mobility works only when stations are remoted over ISDN trunks.
- An X-mobile station counts as wired DEFINITY[®] station in terms of station limits and configuration consideration.

Memory Impact of Capacity Changes

- The X-mobile capability is administered on the station admin screen

Performance

- When a new call is originated from a trunk group marked as allowing x-mobility, it is analyzed to check if the origination is from an X-mobile station.
- If it is, the origination is treated as a local station origination.

Scenarios

- All feature operations are intended to work exactly as if the X-mobile station were directly connected to the DEFINITY[®] System.
- Analog type feature operation were chosen, since most wireless terminals support only flash operations and are not multi-appearance or context sensitive.
- In almost all cases, the operation expected for an X-mobile station is identical to a similarly administered analog station.

XStation Mobility (MWL)

- Allows the DEFINITY[®] system to control and manage handsets not directly connected to the DEFINITY[®] system as if they were directly connected wired stations.
- The handset may have bridged appearances on wired terminals and thus be able to use DEFINITY[®] system features like call forwarding and call pickup.
- Icon-based message waiting update is also supported.
- Achieved by using the DEFINITY[®] system's Administration Without Hardware (AWOH) capability and extending it to actual signal remote points.

Description

- When a call comes into a station administered to be X-Mobile, the software checks for a trunk group associated to the station.
- It then signals the call to that station using that trunk group.
 - Similar to how incoming calls are handled for BRI stations.
- When a call comes in from a trunk group marked as having X-Mobile endpoints, the SETUP message is checked for a CALLING PARTY NUMBER Information Element.
- If present, and if it matches the extension of a station marked as X-Mobile, that call is re-stimulated as an internal call originating from the X-Mobile station.
- When a call termination is attempted to an X-Mobile, the DEFINITY[®] system will return ringback to the calling party and send an alerting message if the calling party is ISDN.
 - Occurs regardless of the disposition of the setup message on the X-Mobile trunk.
- If the X-Mobile trunk returns alerting, the software should use this only to start ringing timing for the station relative to call coverage don't answer conditions or call forward don't answer conditions.

- MWI Activation and Deactivation messages are exchanged between the DEFINITY[®] system and the DAS to update MW status on the X-Mobile WTs.
- Upon successful location registration of an X-Mobile WT, the DAS sends a location registration indication message to the DEFINITY[®] system.
 - Sends back an MWI Activation or Deactivation message back to the DAS to refresh the X-Mobile WT's MW status.
- Depending on the level of support on the X-Mobile WT, a detach indication may be sent to the DEFINITY[®] system indicating that the WT has left the system.
 - The DEFINITY[®] system ignores this indication until further definition of this capability is available.

**NOTE:**

If the X-Mobile trunk does not return alerting, and instead returns a disconnect or release, the DEFINITY[®] system software advances to the next coverage point, if administered.

If the next coverage point is not administered, DEFINITY[®] system software disconnects ringback tone and present busy tone.

On an ISDN interface, after XX seconds of busy tone, a disconnect with cause SUBSCRIBER ABSENT (17) is passed if the originator was ISDN.

- Allows phones remote over a trunk interface to be controlled by the DEFINITY[®] system as if they were directly connected to it.
- Accomplished by administering a station record for each station to be controlled as type X-Mobile.
- These X-Mobile stations have additional administration information further describing the capabilities of the remote station.
- Each X-Mobile station has an associated Trunk Group.
- If the call or other signal needs to be sent to it, the DEFINITY[®] system uses the associated D-Channel to communicate with the remote terminal.
- When a call arrives over a D-Channel which carries X-Mobile traffic, that call is analyzed to check if an X-Mobile remote station originated it.
 - If it was, then the call is re-associated in call processing as an internally originated call from the local X-Mobile station.
 - Allows a large number of DEFINITY[®] system features to work for the remotely controlled station, including bridging.

- Icon-based message waiting enables X-Mobile WT users to check for messages while idle instead of the display-based message waiting feature that only informs status while on a call.
 - When message is waiting at an idle X-Mobile WT, its switch-hook icon flashes.
- Both types of message waiting indication can co-exist in a system.

Administration

Enabling X-Station Mobility

- New field Maximum XMOBILE Stations is created on the Customer Options form and defaults to 0.
- When this field is set to 0, the feature is disabled.
- It is only possible to set the field to $N > 0$ if the system is administered as R8 or later.
- This customer option is disabled by default for new R8 systems and for older systems that upgrade to R8.

Change system-parameters customer-options

```
change system-parameters customer-options                               Page 1 of 5
OPTIONAL FEATURES
      G3 Version: V8
      Location: 1
Abbreviated Dialing Enhanced List? N
Access Security Gateway (ASG)? n
Analog Trunk Incoming Call ID? n
A/D Grp/Sys List Dialing Start at 01? n
Answer Supervision by Call Classifier? N
      Maximum Ports: 0
      Maximum XMOBILE Stations: 0
      CAS Branch? n
      CAS Main? n
      Cvg Of Calls Redirected Off-net? n
      DCS (Basic)? n
      DCS Call Coverage? N
```

- The station administration form is changed to allow the station type of XMOBILE.
- An X-Mobile station has the following new fields:

Field	Range	Default	Description
Trunk Group	1 to Max Trunk Groups	1	The trunk group to be signaled
Message Waiting Type	NONE, DISP[LAY], ICON	ICON	Update X-Mobile Display for MWI
Length of Display	1, 2	1	Number of lines in the display

- All other fields are the same as for 2500 series stations.

Change station

```

change station 3000                                     Page 1 of 3
                                                    STATION
Extension: 3000           Lock Messages? n           BCC: 0
  Type: XMOBILE           Security Code: _____   TN: 1
          Coverage Path 1: ____   COR: 1
Name: Vorry's Mobile   Coverage Path 2: ____   COS: 1

Mobility Trunk Group: 1
  Message Lamp Ext: 3000
Message Waiting Type: ICON

Length of Display: 1
    
```

Station form indicates MWI update type

- The Message Waiting Type field on the station form indicates the mode of MWI update to the WT.
- The MWI activation/deactivation message is used when the field is set to ICON.
- The MW is attached to the end of the display line during an incoming or outgoing call if the field is set to DISP.
- No MWI update is sent if the field is set to NONE.

Mobility Trunk Group field on station form changes

- This Mobility Trunk Group field is updated dynamically.
- If the field is changed through the change command instead of the add command, the following warning message appears on the SAT:

Overriding this field may cause failure in delivering incoming calls to this station.

- In a multiple DAS configuration, the Mobility Trunk Group field may change without user intervention after the last form submittal.
- As an X-Mobile WT roams among the DASs, it sends a location registration indication message to the DEFINITY[®] system through the signalling link of the trunk group associated with the particular DAS.
- This informs the DEFINITY[®] system to deliver incoming calls to the station through the updated trunk group's signalling link.
 - If this is overridden, incoming calls may be sent to a DAS that the X-Mobile WT is not currently registered to.

Signaling Group administration

- New field has been added to the signaling group form to indicate the type of X-Mobile endpoints allowed for it (DECT or NONE).
- The default for the field is NONE.

add signaling-group

```

add signaling-group 1                                     Page 1 of 5
SIGNALING GROUP

Group Number: 1
  Associated Signaling? y                               Max number of NCA TSC: 0
  Primary D-Channel: 01b1216                           Max number of CA TSC: 0
                                                                Trunk Group for NCA TSC: _
Trunk Group for Channel Selection: 1                   X-Mobility/Wireless Type: DECT
Supplementary Service Protocol: a

```

- If the administered software version is V5 or earlier this feature cannot be enabled.
- The only form that includes new fields is the signaling group form. The new field is defaulted to none on upgrades.
- The feature must be enabled from the customer options screen. If number of X-Mobile Stations is set to $N > 0$, then X-Station Mobility is enabled for this system.
- X-Mobility functionality requires that ISDN PRI is also enabled.

Capacity Constraints and Feature Limitations

- The X-Station Mobility only works when stations are remote over ISDN trunks.
- An X-Mobile station counts as a wired DEFINITY[®] system station in terms of station limits and configuration consideration.

Call Processing

Basic Call Termination

- A call for an X-Mobile station looks up the current trunk group associated with the X-Mobile station.
- It then extends the call over the trunk group to the remote station.

**NOTE:**

For PRI trunks, this involves sending a setup message with a calling party number and a called party number indicating the extension number of the X-Mobile WT.

Basic Call Origination

- A call from an X-Mobile station appears to DEFINITY® system Call Processing to have been locally originated by that station.
- DEFINITY® associates call origination to X-Mobile stations by analyzing the CALLING PARTY NUMBER Information Element in the SETUP message received over an ISDN trunk marked as having X-Mobile endpoints and matching the number with the extension of an X-Mobile station.

**NOTE:**

The X-Mobile station is modeled as an analog station as far as a DEFINITY® system's internal call structures are concerned. The calling party number is the X-Mobile station's extension number. Digit modification is not required.

Flash Operation

- If an INFO message containing a KeyPad Facility Information Element of the value 0x15 or values 0x1B, 0x48, the message is interpreted as a Flash-hook operation from the remote station.

**NOTE:**

These values are defined by the ETSI DECT GAP standard and the RCR-28 PHS standard.

Bridged Appearances

- An X-Mobile station can have bridged appearances on wired stations, or be a bridged appearance of a station.
 - Those bridge appearance status LEDs reflect the status of the X-Mobile station.
- The X-Mobile station is able to bridge on or off calls at will, just like any bridge of a directly connected wired station.



NOTE:

When a wired phone has a bridged appearance of an X-Mobile, it is an analog bridge.

When the X-Mobile is a bridge of another phone, it is a digital button bridge.

Call Progress Tones

- When an X-Mobile station is on a call, the DEFINITY[®] system provides local call progress tones for that call
 - Dial Tone
 - Alerting
 - Coverage Tone
 - Busy
 - Re-order
 - Custom Alert
 - Call Waiting Tone
 - Call Prompting Tone
 - Confirmation Tone
 - Stutter Dial Tone

Display

- When an X-Mobile station is ringing or active, an ISDN Info message is used to update its display whenever appropriate.
- The display for an X-Mobile station is limited compared with standard DEFINITY[®] system displays.
- The length is limited to 15 characters.
- Other than the optional message waiting indication, display information is limited to calling/called party names or numbers.
- There are no redirection indications nor conference displays.

Called Party Name

- When an X-Mobile station calls another party, the DEFINITY® system provides to the X-Mobile WT the name administered for the called party via an ISDN info message.

Connected Party

- When call processing would normally update a station's display with text information (such as the connected party), it sends that information to the X-Mobile station in an INFO message contained in a DISPLAY Information Element.

Calling Party Number

- Calling Party Number is sent to the X-Mobile station when available.

The calling party number is not displayed when the number is restricted from display as defined by DEFINITY® system translation.

X-Mobile to Trunk mapping

- There is no limit to the number of X-Mobile stations that can be supported per Trunk Group.



NOTE:

The number of simultaneous calls supported by the interface is limited to the number of trunks assigned to an X-Mobile trunk group.

Call Coverage

- The X-Mobile station is allowed to cover calls not answered by the X-Mobile, either Ring No Answer (RNA) or Subscriber Absent, when coverage is administered for the X-Mobile station. An X-Mobile station is also allowed to be a coverage point.

Calling Party Name

- The X-Mobile station sends the calling party name information in a DISPLAY Information Element whenever normal call processing for that station would update the display of the station to indicate the calling party.



NOTE:

After connect, an INFO message overrides the handset operation of the display in order to keep the handset display current.

Call Transfer

- When an X-Mobile station indicates a flash during a call, it is treated as initiating a transfer operation.
- The operation is defined by DEFINITY[®] system's standard operation for transfer from an analog phone.



NOTE:

Transfer is completed with an onhook button press.

Call Forward

- An X-Mobile station is allowed to activate and deactivate call forwarding (all, busy, don't answer) just as if it were a directly connected station.
- The remote station state is used to determine if call-forwarding criteria are met.
- If the remote station is busy, then busy criteria is met.
- If the remote station does not answer the call, RNA criteria is met.

Terminal Type

- Setting the type in the station screen to XMOBILE will identify an X-Mobile station.

Calling Capabilities

- Administration of an X-Mobile station allows an administrator to customize call options, based on the parameters for an analog station.

DTMF Generation

- When an X-Mobile station is on a call, and INFO messages are received indicating Keypad numeric button pushes, DTMF is generated on the call.

Call Progress Tones to Remote Party

- When a party dials to an X-Mobile station, the DEFINITY[®] system provides ring-back, busy, or re-order tone as appropriate.
- If the remote party is put on hold by the X-Mobile station, hold tone or music on hold is provided as administered for the system.

Call Waiting

- When a call arrives for an X-Mobile station, and Call Waiting is administered, Call Waiting Tone is applied, as defined by the DEFINITY[®] system's operation for call waiting for analog phones.

Conference

- If an X-Mobile station has initiated a second call by a previous flash operation and the third party has answered the second call, then a flash operation will conference all three parties.
- Another flash operation by the X-Mobile station will DROP the last added party.
- A Disconnect indication from the X-Mobile station while on a conference will leave the remaining parties connected and idle the X-Mobile station.
- The operation is defined by DEFINITY®'s treatment for conference by an analog station.



NOTE:

Applies only to second (inquiry) calls originated by the X-Mobile, it does not apply to call waiting calls.

Call Park/Answer Back

- An X-Mobile station is able to park its current call after a flash operation in the normal method by feature access code.
- An X-Mobile station is able to answer a parked call by using the Answer Back feature access code.

Call Shuttle

- If administered, an X-Mobile station is alerted via call waiting tone when another incoming call arrives for it while the X-Mobile station is on a call.
- The X-Mobile station can accept the second call via a flash operation.
 - This will put the first party on soft hold.
- Subsequent flash operations will shuttle between the second and first parties.
- A disconnect operation in this case, where a party is being soft held, results in clearing the current call, and recalling the X-Mobile station to attempt to reconnect the soft held party.

Display-based Message Waiting Indication

- All text information sent to an X-Mobile station contains information indicating a message is waiting for it, if the station is marked as having a message waiting.
- Noted by an MW at the end of the display line.
- Content of the string is administrable.



NOTE:

The display IE is used to indicate message waiting indication and is sent anytime the display updates.

Distinctive Ringing

- All calls presented to the X-Mobile station as internal calls use a numbering plan code of 0x30 (network specific) in the calling party IE.
- For external calls, the numbering plan code is one of the standard public numbering plan values.
- As an example, 0x21 is national ISDN.

Send All Calls

- Able to activate send all calls for itself by feature access code.

Terminating Extension Groups

- Allowed to be a member of a terminating extension group.

Hunt Group

- An X-Mobile station is allowed to be a member of a hunt group.

Coverage Answer Group

- An X-Mobile station is allowed to be a member of a coverage answer group.

Abbreviated Dial

- An X-Mobile station is allowed to use its station abbreviated dial lists and system abbreviated dial lists.

Call Pickup

- An X-Mobile station is allowed to be in a Call Pickup Group.

Process

Idle X-Mobile WT's switch-hook icon flashes when message is waiting

- When a message is left for an X-Mobile Station either through a messaging adjunct (for example, INTUITY™ AUDIX®) or one of the DEFINITY® system-based features (for example, Leave Word Calling), the X-Mobile WT's message status indication is updated immediately.
- If the X-Mobile WT is idle, the switch-hook icon flashes.
- If the X-Mobile WT is offhook on a call, then the switch-hook icon starts flashing immediately after it goes onhook.
- The DEFINITY® system sends an MWI Activation message to the corresponding DAS whenever there is a change in the number of messages waiting at the X-mobile station resulting in one or more messages waiting for the user.

- Depending on the type of message server, the message may not be sent with every change in status unless it results in a change in the indicator to an on-state.
- The number of messages field in the MWI activation message is always set to 1 regardless of the number of messages.
- The MW status is stored locally on the X-Mobile WT.
- It starts flashing the switch-hook icon immediately after the station goes onhook.
- The MWI Activation message is sent to the control link that the DEFINITY® system received the last location registration indication from the X-Mobile WT.
- This should handle the configuration where more than one DAS are connected to the DEFINITY®.
- Idle X-Mobile WT's switch-hook icon remains off when no message is waiting.
- When a message is deleted from an X-Mobile Station resulting in no more message waiting for the station, the flashing switch-hook icon on the idle X-Mobile WT is turned off immediately. If the X-Mobile WT is offhook on a call, the switch-hook icon will not flash after the station goes onhook.
- DEFINITY® sends an MWI Deactivation message to the corresponding DAS whenever there is a change in the number of messages waiting at the X-mobile station resulting in no more messages waiting for the user.
- Depending on the type of message server, the message may not be sent with every change in status unless it results in a change in the indicator to an off-state.
- The number of messages field in the MWI Deactivation message is always set to 0.
- The MW status is stored locally on the X-Mobile WT.
- It will not flash the switch-hook icon after the station goes onhook.
- MWI operation follows ASN.1 specification in ETS 300 745-1.
- MWI Activation/Deactivation messages are conveyed through FACILITY messages.
- The DEFINITY® system sends the MWI Activation/Deactivation messages in a connectionless mode through the ISDN FACILITY messages.
 - This type of message does not require an associated call.
 - Call reference value is always set to 0x00.

Interface supports immediate mode only

- The DEFINITY® system supports the immediate mode MWI only.
- The messages are sent immediately upon a change in the number of message waiting at the X-mobile station.
- Depending on the type of message server, the message may not be sent with every change in status unless it results in a change in the indicator state.
- Does not retransmit the MWI status during a call origination.
- The deferred or combined modes are not supported.
- The DEFINITY® system refreshes MWI status during location registration.
- Upon successful location registration, the X-Mobile WT's MW status is refreshed.
- While idle, its switch-hook icon starts flashing if one or more messages are waiting at the station.
- After successful location registration with the X-Mobile WT, the DAS sends a location registration indication message to the DEFINITY® system.
- Upon receipt of the message, the DEFINITY® system sends an MWI Activation or Deactivation message back to the DAS depending if message is waiting at the WT.

Memory Impact of Capacity Changes

- The X-Mobile capability is administered on the station admin screen.
- There is a moderate user manager memory impact.

Maintenance

Status Station

- An X-Mobile station will display switch-hook state and connected port information.
- The display is the same as a standard analog station with one exception.
- When the station is onhook, the port field is blank.
- When the station is offhook the port field contains the identity of the connected ISDN trunk port.

DEFINITY® refreshes MWI hourly

- The DEFINITY® system runs an hourly MWI refresh (also known as audit) on a time available basis.
- It limits the refresh rate to no more than 6 MWI messages per second.
- The foreground traffic is assumed to be negligible as the refresh is run at a time available basis.
- At this rate, the DEFINITY® system does not overload the DAS's worst case MWI message handling capacity of 6 MWI messages per second.

Signaling

- ISDN PRI is modified to allow INFO messages with Display Information Elements to be sent at any time.
- ISDN PRI is also modified to allow INFO messages with Keypad Facility Information Elements to generate DTMF when the feature is enabled.
- The X-Mobile station is treated as an analog station in terms of feature interactions except as noted in previous requirements.

Call Detail Recording

- A Call origination from an X-Mobile WT appears in the CDR as a call origination from the X-Mobile station.
- A Call Termination to an X-Mobile WT appears as a call termination to the X-Mobile

Performance Impact

- There is a minimum impact on performance (similar to a BRI call).
- When a new call is originated from a trunk group marked as allowing X-mobility, it is analyzed to check if the origination is from an X-Mobile station.
 - If it is, the origination is treated as a local station origination.
 - The check yields the UID of the X-Mobile station if successful, the additional processing is minimal.

Scenarios

- All feature operations are intended to work exactly as if the X-Mobile station were directly connected to the DEFINITY[®] system.
- Analog-type feature operation was chosen, since most wireless terminals support only flash operations and are not multiappearance or context sensitive.
- In almost all cases, the operation expected for an X-Mobile station is identical to a similarly administered analog station.
- All flash (recall) operations behave identically to an analog station administered for flash answer back, including those that result in re-origination.
- In case of far-end (forward) disconnect, an X-Mobile station is forced onhook; therefore, there is no possibility of re-origination or hearing of tone (busy or intercept) after a far-end drop, as happens when a wired analog station remains offhook.

Telephony Applications - International

Reset Shift Call (R8 only)

When a station call is made to a busy station, reset shift dial tone, called second dial tone by the Japanese PBX manufacturers, is heard. During reset shift dial tone, a single digit may be entered, which replaces the last digit of the originally dialed extension, and the call is offered to the new station.

The length of the reset shift dial tone is administrable on a system basis and should have a range of 0-255. It is normally set to 10 seconds. Japanese PBXs can give this tone for up to 1 or 2 minutes before reverting to busy tone. If call coverage is supplied for the incoming number, the call goes to coverage as normal. If the coverage path is busy, the reset shift dial tone is heard and a single digit may be entered as described above. This feature is only active for station to station calls, not for incoming or outgoing calls. More specifically, the originator and destination of the call must both be stations connected to the DEFINITY® system. In DCS or QSIG environments, both stations need not be connected to the same DEFINITY® system, but must be on the same DCS or QSIG networks. Operation for transfer and conference is similar. If, while one is setting up a conference or transfer, the dialed party is busy, reset shift dial tone is heard and an opportunity is provided for a last digit reentry as on a normal call.

**NOTE:**

Multi-function analog terminal (MFAT) sets do not receive reset shift dial tone.

Performance Impact

This feature uses a port on a tone detector the entire time that a station is offhook and listening to reset shift dial tone. This means that whenever this feature is assigned, additional tone detector circuit packs may be needed. The number of additional tone detector circuit packs will vary depending on the following things:

- The percentage of calls that encounter busy.
- The average length of time that station set users will wait, listening to reset shift dial tone, before they dial a digit.
- The administered maximum duration of reset shift dial tone.

Requirements

- TN2182 tone/clock circuit pack, any suffix or vintage, or
- TN780 tone/clock circuit pack, vintage 2 or later.

This feature applies to all hardware platforms.



NOTE:

Since Japan does not have regulations on the characteristics for reset shift dial tone, users require training to properly identify the tone that DEFINITY® ECS uses for this feature. If the PBX is being used by people with limited dexterity, the timer associated with this feature is set to a large value, to give such users enough time to press the extra digit.

Call Processing

Reset shift feature operation

Play reset shift dial tone on busy calls if:

- A station or attendant originates a call, and
- The dialed endpoint is in the dial plan and is one of the following types:
 1. Station extension (extension)
 2. Prefixed extension (pextension)
 3. AAR (aar)
- The destination uses out-of-band signaling — either CCMS or ISDN trunk signaling — to signal “busy” back to the caller, then the calling set will receive reset shift dial tone.

Out of band signaling operation

Play reset shift dial tone on busy calls for non-ISDN trunks that use out of band busy signaling. This includes DCS trunks using out of band signaling such as X.25 or TCP/IP. Subsequent reset shift dial attempts if a user receives reset shift dial tone, enters a single digit, and the resulting destination is busy, the calling set will receive reset shift dial tone again and restart the reset shift timer.

While a station is receiving reset shift dial tone, the station user may attempt to carry out any action normally allowed while listening to busy tone. With the one exception, all such actions result in the switch treating the station the same way that the switch would treat a user listening to busy tone. That one exception is if the user dials a digit the switch will react to the dialed digit as follows:

- If a station is receiving reset shift dial tone and the station user dials a numerical digit, the switch will attempt to set up a call to the destination whose number differs from the previously dialed number by the last digit.
 - The display will display as it would have had the user dialed the full number without the reset shift call feature, and not just the last dialed digit.
- If the station dials a non-numeric digit # or *, nothing happens.

Turn off special dial

The PBX turns off reset shift dial tone when it receives a dialed digit from the station user. If a station user is listening to reset shift dial tone and the Reset Shift Timer expires, the station user receives busy tone.



NOTE:

The reset shift timer can be set to 0, in which case busy tone is sent instead of reset shift dial tone.

Maintain previous operation

When Reset Shift Timer field on systems parameter form is set to 0, operation will revert as if the Reset Shift Call Feature was not implemented.

The reset shift call feature does not give any additional permissions to a calling set than the permissions that the set ordinarily has. For example, suppose that Sandra has permission to call to 85027, but is blocked from reaching extension 85028 by:

- COR
- Tenant partitioning
- FRL (in a private network)
- Do not disturb
- Data Privacy
- Data Restriction
- Or by any other switch feature.

If Sandra dials 85027, hears reset shift dial tone, and then hits the digit 8, Sandra will receive intercept treatment.

While the same thing is true for the non-numeric digits A, B, C, and D, those digits are only accepted as part of the keypad when DEFINITY® ECS is running the special application SA7585.

For example, suppose that Norm dialed Richard at 84141 but both Richard's set and Rich's coverage path were busy. Norm would receive reset shift dial tone, and while listening to reset shift dial tone he could then dial 0. Norm would then be connected to another person, at 84140. If the second person's extension was busy, Norm would again receive reset shift dial tone and the reset shift timer would be reset providing a new opportunity for a replacement last digit. The switch ignores digits that the user dials while the switch is routing the call, to help prevent misdialing. For example, suppose that a station user dials 84141, gets reset shift dial tone, and then notices that Dura has just crashed. The station user panics and very rapidly dials the help desk number, 84357, forgetting to hang up the handset first. The switch will only try to complete one call, to extension 84148, instead of trying to rapidly call all of the following numbers in sequence:

- 84148
- 84144
- 84143
- 84145
- 84147

Example

Consider an example that occurs when the switch is part of a DCS or QSIG private network and the private network emulates one large switch. For example, suppose that Gary calls John at extension 81126, but John and his coverage path are busy. Gary hears reset shift dial tone, but decides he really needs to talk to John. Gary waits 254 seconds while listening to reset shift dial tone, and then hits 6 again to try to reach John. This time, instead of reset shift dial tone, Gary hears busy tone.

Why the difference? Well, Gary didn't know it, but a few days earlier John had received an offer from his coach to keep his current job but work from a newly opened office in Hawaii. John's coach even agreed to use the DEFINITY® system Extension Number Portability feature so that John could keep his same extension number after he moved to Hawaii. Gary's first attempt to reach John was routed via AAR over a DCS tie trunk to Hawaii, and the DCS trunk there signaled that John was busy. When Gary tried a second time 254 seconds later, the DCS tie trunk to Hawaii happened to be busy, and AAR routed the call over the public network. The public network long distance carrier that the routing pattern selected for this call happened to use in-band busy tone instead of out-of-band busy signaling for this call.

Administration

Initial Administration

To administer the reset shift call feature on a DEFINITY® system where it was not previously used, the following procedure should be utilized:

1. In order to fully use the reset shift call feature, station extensions should be assigned with contiguous numbers for groups of users. Thus, users with similar job functions should have extensions that differ by only the last digit.
2. Set the Reset Shift Timer (seconds): field on the system parameters form to a value other than 0. The value entered in the Reset Shift Timer (seconds): field is the number of seconds that reset shift dial tone will be audible before busy tone is heard.

Removing Administration

To disable the reset shift call feature on a DEFINITY® system where it is active, set the Reset Shift Timer (seconds): field in the system parameters form to 0.

Timer administration

The system parameters features form has a new field for setting the reset shift call timer. The new field is called Reset Shift Timer (seconds). The timer will have a range between 0-255.

On an upgrade from a previous release to R8, the Reset Shift Timer field defaults to 0, disabling the feature.

The Reset Shift Timer (seconds): field is on the feature related system parameters form. It specifies the number of seconds that a station user can listen to reset shift dial tone and have the opportunity to launch a new call by pressing a single digit.

```

change system-parameters features                                     Page 5 of 10
                        FEATURE-RELATED SYSTEM PARAMETERS

Public Network Trunks on Conference Call: 5                      Auto Start? n
Conference Parties with Public Network Trunks: 6                Auto Hold? n
Conference Parties without Public Network Trunks: 6             Attendant Tone? y
Night Service Disconnect Timer (seconds): 180                 Bridging Tone? n
Short Interdigit Timer (seconds): 3                           Conference Tone? n
Unanswered DID Call Timer (seconds): _____              Intrusion Tone? n
Line Intercept Tone Timer (seconds): 30                       Special Dial Tone? n
Long Hold Recall Timer (seconds): 160
Reset Shift Timer (seconds): 0
Station Call Transfer Recall Timer (seconds): 0
DID Busy Treatment: tone
Allow AAR/ARS Access from DID/DIOD? _
Allow ANI Restriction on AAR/ARS? _ Transfer Upon Hang-Up? n
Abort Conference Upon Hang-Up? n Abort Transfer? n
7405ND Numeric Terminal Display? n 7434ND? n

DISTINCTIVE AUDIBLE ALERTING
Internal: 1 External: 2 Priority: 3
Attendant originated Calls: _ _____
DTMF Tone Feedback Signal to VRU - Connection: _ Disconnection: _

```

**NOTE:**

Japan does not have national regulations covering the cadence, frequency, or level of the reset shift dial tone. However, the de-facto standard is to mimic Japanese PBX operations.

Reset shift dial tone frequency

The reset shift dial tone has a frequency of 400 Hz $\pm \pm \pm 20$ Hz. This requirement is based on the Fujitsu switch documentation for center frequency, and the acceptable range is based on the NTT ranges 3 specified for the public network.

Reset shift dial tone cadence

The reset shift dial tone has a repetitive cadence of 100 ($\pm \pm \pm 20\%$) milliseconds of silence, followed by 150 ($\pm \pm \pm 20\%$) milliseconds of tone, followed by 100 ($\pm \pm \pm 20\%$) milliseconds of silence, followed by 650 ($\pm \pm \pm 20\%$) milliseconds of tone.

This requirement is based on the Fujitsu switch documentation for cadence, and the acceptable range is based on NTT specification for the public network.

Reset shift dial tone level

The reset shift dial tone has the same level as the currently implemented Japanese dial tone $\pm \pm \pm 2$ dBm. The range for this requirement is also obtained from the NTT Tone board support.

The reset shift dial tone is provided by systems equipped with either the TN780 or the TN2182B circuit packs.

Feature Interactions

Actions by other stations

While a station is receiving reset shift dial tone, a second endpoint may attempt to carry out an action directed at that station, such as Intrusion, use of Busy Status lamps, Busy Verification, or Russian Intrusion, that is normally allowed while the first station is listening to busy tone. Without any exceptions, all such actions result in the switch treating the both stations the same way that the switch would treat them if the first station were listening to busy tone.

Abbreviated and Automatic Dialing

If a user hits an Abbreviated Dial or Automatic Dial button while listening to reset shift dial tone the switch ignores the button press.

Attendant Console

Release

The reset shift call feature applies to attendant consoles in the same way that it does for other sets. In particular, if an attendant is listening to reset shift dial tone and the attendant presses the Release button, the same thing happens as would happen if the attendant attempted to transfer an outside caller to busy tone: the Release button press is denied.

VIP Wakeup

If an attendant-to-guest VIP wakeup call reaches a busy guest, the flashing Vip-Retry button can be pushed to reschedule the VIP wakeup call even if the switch is returning reset shift call dial tone instead of busy tone to the attendant. If the attendant chooses to use the reset shift call feature by pressing a keypad digit, the resulting call is an ordinary call, not a VIP wakeup call.

Authorization Codes

If a user dials an extension followed by authorization code and gets reset shift tone, the system will redial only the modified extension. If an authorization code is required for the caller to reach the modified destination, the caller will again be prompted to dial an authorization code.

Automatic Callback on Busy

If a station user is listening to reset shift dial tone, that station user may activate Automatic Callback on Busy or DCS Automatic Callback on Busy or QSIG Automatic Callback on Busy (also known as QSIG Call Completion) in the same way that the station user could if they were listening to busy tone.

Bridged Call Appearance

If set A has a bridged appearance on set B, and both users A and B are offhook on that bridged appearance, and set A calls set C, and set C is busy, both A and B hear reset shift dial tone. If set B then presses a single digit, the switch will route the call per the new digit.

Data calls & Terminal Dialing

The reset shift call feature does not apply to data calls, because a data module or other data endpoint will not understand special dial tone.

Dial Plan

It is possible, although unlikely, for the dial plan to be administered so that an extension number and some other type of valid digit string differ by only the last digit. If a switch is set up that way, a station set user may find that using the reset shift call feature will do something other than dial a station. For example, one can administer the dial plan to allow 1-digit extensions. If this situation occurs, and the digit that the user dials after hearing reset shift dial tone happens to equal the ARS access code, a station set user will hear ARS second dial tone instead of ring back tone from a called set.

DCS

Reset Shift Call will work in a DCS network over trunks capable of out of band busy signaling. DCS+ and QSIG networks will always support reset shift calls.

Forwarding

Since call forwarding cannot be chained (that is, a call terminated on station A forwarded to station B may not be forwarded to another station, including forwarding back to station A), there are no issues with looped forwarding. If the called destination is forwarded to station A and station A is busy, the switch should apply reset shift dial tone. If a user dials to a forwarded set and then gets reset shift dial tone, and enters a digit the number dialed by the reset shift call feature is 1 digit off from the original user-dialed number— not the forwarded-to number.

Hot Line Service

There are no extra destinations for Hot Line service if a station set user with Hot Line Service reaches a busy endpoint; the station set user hears busy tone.

Internal Automatic Answer (IAA)

A digital set with internal automatic answer (IAA) active can receive internal calls while off-hook listening to reset shift dial tone. Analog sets can't have an IAA button.

Intercom

Dial

If a station user lifts the handset, presses the Dial Intercom button, dials the 1-digit or 2-digit intercom code assigned to another station set, and reaches a busy set the switch will play busy tone.

Automatic

If a station user lifts the handset, presses the Automatic Intercom button, and reaches a busy set, the switch should play busy tone.

Last Number dialed

If a user hits a Last Number Dialed button while listening to reset shift dial tone, the switch will reattempt the previous special-dialed call.

Line Lockout

An analog station user listening to reset shift dial tone is not subject to the line intercept tone timer.

Line Side DS1

A call originated from a line side DS1 station (ds1fd, ds1sa, ops, vrufd, vrusa) is considered a station originated call for the purposes of reset shift dialing.

Multimedia Call Handling (MMCH)

If a user at a multimedia complex presses the mm-call button or dials the multimedia-origination feature access code after receiving dial tone, and then reaches a busy set and uses the reset shift call feature, the resulting new call attempt will be a MMCH call attempt.



NOTE:

A MMCH endpoint that is originating a data call will not be able to use reset shift call.

Off-Hook Alert (Emergency Access to the Attendant)

There is no interaction between Time Before Off-Hook Alert timer and the reset shift call timer.

Priority Calling

If a user dials the priority calling feature access code, dials a busy station, and then uses the reset shift call feature, the switch makes a priority call to the substituted destination.

QSIG

Reset Shift Call works in a QSIG network, if the QSIG network consists solely of switches using trunks that always provide out of band busy signaling. If a customer's QSIG private network consists of a mixture of switches, the condition "The destination uses out-of-band signaling" may not be satisfied by other vendor's equipment. In particular, Siemens Hicom PBXs do not return the QSIG "busy" cause value when the called endpoint is busy, as the DEFINITY® ECS does. Instead, Siemens Hicom PBXs returns busy tone.

The same kind of interaction can occur in a private network consisting solely of DEFINITY® ECSs, if some of the tie trunks that connect the network together are routed through other vendor's COs. Some models of CO will accept the "busy" QSIG cause value from the called DEFINITY® ECS, and then instead of passing it on, generate in-band busy tone towards the calling DEFINITY® ECS. Thus, in a QSIG network, reset shift call will work as long as the trunks used for QSIG provide out of band busy signaling.

Remote Access

A call originated from a remote access extension will not receive reset shift dial tone.

Station Tone forward disconnect

The station tone forward disconnect treatment as administered on the Feature-Related System Parameters form does not interact with reset shift call.

Terminals

This feature applies to all sets with the following exception: multi-function analog terminal (MFAT) sets can not receive reset shift dial tone, although they can be the targets of a reset shift call from another terminal type. 7303S, 7305S, 7303H01A, 7305H01A, 7305H02A, 7309H, 7313H, 7314H, 7315H, 7316H, 7317H, MDC9000, and MDW9000 are MFAT sets.

Adjunct Switch Applications Interface (ASAI)

ASAI station monitoring considers a call handled via this feature as a call redirection, because it would see a "dialed number" cause value, followed by a "busy" cause value, followed by a "connected number" cause value. If a user is slow to dial a digit after the user hears reset shift dial tone; some adjunct software may give up on the call before receiving the last of those cause values, and improperly record the call.

Call Detail Recording (CDR)

If the following CDR SYSTEM PARAMETERS fields, Record Outgoing Calls Only? and Suppress CDR for Ineffective Call Attempts?, are both set to n, each call attempt made by the reset shift call feature will be recorded in CDR as a separate record containing the full number — not just the last digit.

Call Center (R8 only)

Overview

The enhancements listed in this section apply to Offer A only.

- ASAI/CTI Enhancements
 - Capacity Increases for ASAI Multiple CTI Application Control Support
 - Active Route Requests – from 126 to 4,000
 - Split/Skill Third Party Domain Controls – from 300 to 2,000
 - ASAI Pending Work Mode Changes
 - ASAI/CTI Regression Testing
 - ASAI DEFINITY® Switch Software Version Query
 - ASAI Trunk Group Identification Information in Event Reports
 - CentreVu Computer Telephony on MAPD - NT (co-resident with DEFINITY® LAN Gateway)
- Advocate Related Enhancements
 - Logged-In Advocate Agent Counting
 - Standard Advocate Reports
- ASCII Agent Administration Support
- ATM Support
 - Increased Call Center capacities
 - Measured VDNs – from 8,000 to 20,000
 - Hunt Groups – from 600 to 999
 - Members/group – from 999 to 1,500
 - Queue Slots – from 15,000 to 25,000
 - Vectors – from 512 to 999
 - Recorded Announcements/Audio sources – from 256 to 1,000
 - Site Stats for ATM Connected Remote EPNs
 - CMS Measurement of ATM Trunks
- Call Center Release Control
- CALLMASTER V (CC 6416D+) Native Support
- DEFINITY® DoLAN IP Trunking Testing
- PASTE Update

1 New Switch and Adjunct Support
Call Center (R8 only)

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- Support for CMS High Availability (Dual CMS Links)
- CMS High Availability
 - Dual CMS systems
 - Manual alarm clears
 - Historical log
 - Non-disruptive cmsadm backups
 - Reasonable restores
 - Non-disruptive maintenance backups
 - External Call History alarms
- R3V8 CMS not a bug fix for R3V6
- R3V8 CMS does not support G2.2 or G3V1
- V8 Visual Vectors not a bug-fix for V1
- DEFINITY® ACD becomes “general PBX” call preserving
- Migration from R2 CMS to R3V8 supported
- ASCII agent admin interface restored in R3V6
- Windows 98 supported
- Simplified Chinese translations will be available after other languages
- Solaris version 2.7 nomenclature becomes “Solaris 7”
- MAPD hardware for NT Computer Telephony will be TN801C

Call Center - ASAI DEFINITY Software Version Query

- Provides ASAI applications with the capability to obtain the DEFINITY software version running on the system and the administered field version.
- Applications previously had no way of obtaining this information.
- Starting with R8, the new Value Query, the DEFINITY Software Version Query is supported.

**NOTE:**

There is no new administration required. For R8, Administered Field Version and DEFINITY Software Version will always be present.

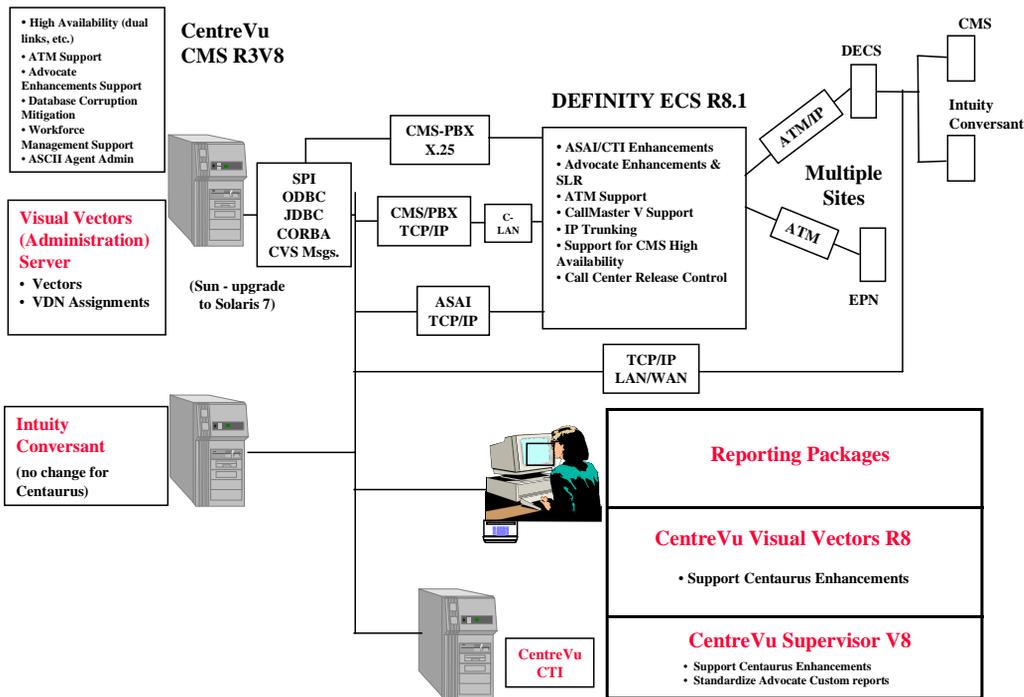
CallVisor

- CallVisor PC API supports the switch version query so that the G3PD can access it.

CentreVu

- CentreVu Telephony Server API supports the software version query and the G3PD uses it to obtain the software version.

Call Center Design Graphic



Call Center Release Control

- This is a field provided on the Customer Options form to set the Call Center release purchased by the customer.
- The release is indicated in this field using DEFINITY® release nomenclature down to the dot release setting (R8.1).

NOTE:

The field can not be set to a release greater than the software installed.

- Release field is used by new call center enhancements and feature software (except ASAI) to control whether the enhancement/feature is to be made available to the customer.

- The requirements for the enhancement/feature specifies which release settings the enhancement/feature will be available with.
- Some enhancements/features also require a Customer Option field to be active.

Call Center - ASAI Trunk Group Identification

- Provides the application with the capability to obtain Trunk Group information regardless of whether Calling Party Number is reported.
- Prior to this release, trunk group information (which includes trunk group number and trunk member number) was provided in ASAI event reports for inbound calls, but only if calling party number was not known.
 - If the network did not provide ANI, then ASAI reported trunk group information.



NOTE:

Refer to *DEFINITY ECS CallVisor ASAI Technical Reference, 555-230-220* for a complete list of terms and acronyms relating to ASAI.

Usability

- Useful to recording applications that record at the trunk side of the connection rather than at the station side.
- These applications will be able to associate a particular call with a specific trunk member of a trunk group to trigger the recording device.
- Examples of such applications are those provided by NICE Systems and Dictaphone.

Applicable Messages

- Trunk group information passed in the following messages: Call Offered, Alerting, Connected, Conference and Transfer events.
- Trunk group information also passed in the Adjunct Route Request.
- If there are trunks involved with the call, then Conference and Transfer events will contain trunk_ids for the trunks.
- The events will contain as many trunk_id parameters as there are trunks on the call. There will be a one-to-one correspondence between a Connected Number IE containing ##### and a Trunk ID IE.

PCOL Trunk

- The trunk group information provided for a PCOL trunk corresponds to a PCOL group administered on the system.
- The PCOL group number could be the same as another, existing trunk group on the model.
- To be able to distinguish between the two groups, a new number (other than the numbers already administered for the Trunk Groups on the switch) is used for the PCOL trunk group.

Call Center – ASAI/CTI Pending Work Mode Changes

- This feature provides ASAI applications with the capability to change the current work mode of an agent while the agent is busy on a call by making it a pending change, which takes effect as soon as all current calls are cleared.
- Previously, ASAI did not allow an application to change the work mode of an agent.
 - Applications got a negative acknowledgment indicating that the agent was busy.
 - If the request was to change the work mode of the agent from any other mode into a different work mode, including AI and MI, the DEFINITY® NAKs the Request Feature message with cause value “user busy”.
- Feature addresses the needs of customers/applications that need to allow changing the agents’ work mode while they are busy on calls.
- The type of applications that benefit from this ASAI capability are those that function in an ICM-OCM call blending environment.
 - Call Blending Applications by Davox and EasyPhone, are examples of this type of applications.
- Feature will allow call blending applications to “reserve” an inbound agent by requesting to change the work mode of that agent from the AI work mode to the AUX or ACW work modes while the agent is on a call.
 - Prevents additional calls to be delivered to the agent upon processing a current call.
 - As soon as the agent finishes processing a current call, the Agent Work Mode Feature Request message
- Ensures that existing customer applications will work correctly in the R8 software environment and, in turn, protects the customer’s application investment.
- Modified to allow the adjunct application to specify that it can support pending work mode changes.

CallVisor PC

- CallVisor PC, both Unix and NT versions support Pending Agent Work Mode Changes within the response to Agent Status Query, as well as an indication of a pending reason code, as appropriate.
- CV LAN interfaces (client and server) provide identical support.

Cross-Product Compatibility/Commonality

Terminals

Feature Buttons

- If there are feature buttons on an agent's phone for AUX, AI, MI and ACW work modes and an ASAI Change of Work Mode request is received by DEFINITY[®] for an agent with active calls, the lamp for the current work mode button will stay lit while the lamp for the pending work mode will flash.
- If there is a pending work mode change at an agent's phone previously triggered by ASAI, then a button press for a different work mode will override that particular pending change and the work mode pertaining to the button will be pending.
- If the agent decides to go to the AUX work mode and presses the AUX button, and then the switch will process the button press and have the agent's pending work mode change become AUX instead of ACW.
- Any Agent Status Value Query received by the switch after the AUX button was pushed will show the AUX work mode as a pending change.

CALLMASTER V (Call Center 6416D+) Native Support

- Adds the CALLMASTER V as a supported terminal type with a specific administration screen.
- This terminal is the Call Center edition of the global 6416D+ DCP terminal
 - Headset jacks replace the handset
 - Removes speakerphone microphone
 - Adds recorder interface
 - Meets European requirements.

The native support includes voice path enabling/disabling (muting while agent is waiting for a call) in the same manner as the previous CALLMASTER terminals.

Call Center - ASAI Capacity Increases for Multiple Application Support

- Capacities increased in DEFINITY® R8 for Third Party Domain Control of ACD Split/Skill domains and the number of Adjunct Route Requests that can be outstanding (active) at any point in time.
- Capacity increases allow more ASAI applications to better perform ACD Split/Skill monitoring and adjunct routing tasks with the DEFINITY® system.
- Increases for these capability groups are:
 - Third Party Domain Control of ACD Split/Skill extension domains
 - Number of associations - per extension domain from: 1 per domain in R7 to 4/8 per domain in R8csi/R8r
 - Number of associations - system-wide limit increase from: 99/600 in R7csi, R7si/R7r to 300/2000 in R8csi/R8r
 - Adjunct Route Requests
 - Number of active associations - system-wide limit: In R8csi, the system-wide limit will be set to 500 active associations at any one time. The R8r system-wide limit of 4000 active associations at any one time.
 - Number of active associations - per ASAI link: limit per link increases for R8csi up to 500 active associations per link while the R8r will support up to 4000 active associations per link.
 - As a result of the increase in the system limit for Adjunct Route Requests, the system limit for Adjunct Control Associations (Feature Requests, Value Queries, and Third Party Call Control) changes.
 - Active Adjunct Control Associations increases to 600/6000 in R8csi/ R8r.

**NOTE:**

These associations are shared with the Adjunct Route Request capability.

**NOTE:**

Customers are strongly encouraged to transition out of BRI and/or the DEFINITY LAN Gateway (DLG) running on the Multi Function Board (MFB) and into the DLG running on the MAPD board to avoid ASAI link congestion due to the system packet bus overflow.

- In order to reach the maximum number of outstanding Adjunct Route associations per link (4000); the CRV length must be administered for two bytes.

Administration

- The new capacities are available only if the system is administered as an R8 (V8).
- Adjunct Route new capabilities require the ASAI link version to be version 4.

Display Internal Data Hunt Group Command

- Updated for capacity increases for split/skill domain control.
- The User Ids for the controlling links added

Display internal-data hunt

```
display internal-data hunt-group 1 Page 1 of 3

      HNT_GRP hnt_tbl[ 1] for 00820001
grp_typ:ucd-mia num_memb:0 mbr_min:1000 mbr_max:0 anncl:00000000 delay1:-1
annc2:00000000 delay2:-1 max_q_leng:1 ncalls_qwarn:-1 uid_ncalls:00000000
cid_ncalls:00000000 uid_time:00000000 cid_time:00000000 ns_ext:0
ns_uid[0]:00000000 ns_uid[1]:00000000 ns_uid[2]:00000000 noans_uid[0]:00000000
time_qwarn:-1 inthresh:999 supv:00000000
asai_linkst:n meas_by:none mch_type:none changed:n eanswer:n
data_group:n sls_option:n sls_state:0 isdn_dis:null
free_h:-1 free_t:-1 used_h:-1 used_t:-1 mbr_h:-1 mbr_t:-1
ctrl_uid_asai:00000000 adj_link:0 adj_idx:00 dom_asai_uid[0]:00000001
dom_asai_uid[1]:00000000 dom_asai_uid[2]:00000000 dom_asai_uid[3]:00000000
dom_asai_uid[4]:00000000 dom_asai_uid[5]:00000000 dom_asai_uid[6]:00000000
dom_asai_uid[7]:00000000
notf_asai_uid[0]:00000000 notf_asai_uid[1]:00000000 notf_asai_uid[2]:00000000
notf_asai_uid[3]:00000000 notf_asai_uid[4]:00000000 notf_asai_uid[5]:00000000
wat[low]:737280 wat[med]:737280 wat[high]:737280 wat[top]:737280
watinit:180 ewt_flags:00
asa:0 wrk_agnts:0 noans_intvl:0 noans_dest:00000000
rona_agent:00000000
cf_dest: srvc_lvl:0 tacw:0 sls_1_thresh:0 sls_2_thresh:0
```

List Hunt Group Command

- Updated to support the R8 capacity increases for split/skill domain control.

List Hunt Group

```
list hunt-group
Grp Grp
No. Name/      Grp ACD/      Que No. Cov  Notif/  Dom  Message
Ext           Type MEAS  Vec  MCH  Siz  Mem  Path  Ctg  Adj  Ctrl  Center
1   Sales New
    1500          ucd-mia y/N    y  none 1   0          C 1011  1000 n
                                1001
                                1002
                                1003
2   Customer Service
    1501          ucd-mia y/N    y  none 1   0          n      1004 n
```

Feature Interactions

The increase of the system-wide limit of active Adjunct Route Requests does not impact other features

Call Center-Logged in Advocate Agent Counting

- Modified in the CentreVu Advocate R 8.1 DEFINITY.
- The “Logged-In Advocate Agents” customer option that was added in DEFINITY R7.1 modified to only count agents towards the Advocate agent limit if:
 - Percentage Allocation or a Reserved Skill is assigned to the agent’s Login ID
 - Or
 - One of the agent’s skills is assigned LOA or Service Level Supervisor. Checking whether the agent login ID is assigned as AAS (Auto Available Skill/Split) or AUDIX does not need to be done.

Feature Interactions

- Interactions with the Add and Remove Skill features.
 - If a skill is added or removed using the Add and Remove Skill features, and this change causes a CentreVu Advocate agent to no longer be a CentreVu Advocate agent, or vice versa, the count of Logged-In CentreVu Advocate agents is adjusted accordingly.
- CentreVu Advocate and Best Service Routing Reports have no Feature interactions.

Installation

- Requires the installer to set logged in Advocate Agent limit field to the value that the client has purchased.
- The CentreVu Advocate and Best Service Routing Reports of this feature do not impose any special requirements upon the CentreVu CMS or CentreVu Supervisor for installation.
- The new and modified reports are included in the installation software CD.

ATM_CMS

Background

- ATM trunks support the emulation of T1/E1 ISDN-PRI.
 - Can be used as access, tandem or tie trunks
 - Cannot be used to interface with the public network
- ATM trunking uses the ATM Trunk Interface which is supported by the TN2305 multi-mode fiber pack and the TN2306 single mode fiber pack.
- The advantage to a call center of using ATM trunks is that this type of trunk can be a cheaper alternative to the existing T1/E1 option.
- ATM WAN PNC provides the ability to interconnect port networks using an Asynchronous Transfer Mode (ATM) wide-area network (WAN).
- Each distinct DEFINITY[®] ACD can be converted to one or more EPNs and interconnected across the ATM WAN to make a single, large DEFINITY[®] ACD.
- EPNs can be dispersed across the country. A single DEFINITY[®] system can span different time zones and/or dial plans.
- Locations/location numbers are provided through an optional DEFINITY[®] Multiple Locations feature.
- DEFINITY[®] can support up to 44 locations/port networks (1 through 44).
- No enhancements are added to BCMS to support the added capacities and site specific reporting.

**NOTE:**

Changed capacities are bolded.

1 New Switch and Adjunct Support
Call Center (R8 only)

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	DEFINITY® R7.1r Category A (ECS & ProLogix)	DEFINITY® R7.1r Category B (BCS & GuestWorks)	R3V6 CMS	DEFINITY® R8.1r Category A (ECS & ProLogix)	DEFINITY® R8.1r Category B (BCS & GuestWorks)	R3V8 CMS
Total Assignable VDNs on Switch	20,000	20	NA	20,000	20	NA
CMS Measured VDNs (external or both)	8,000	Not Applicable (CMS not available)	8,000	20,000	Not Applicable (CMS not available)	20,000
Announcements (extensions)	256	256	256	1000	1000	NA
Hunt Groups (splits/skills)	600	600	1000	999	999	1000
Max. Members per Hunt Group	999	999	NA	1,500	1,500	NA
Hunt Group Queue Slots	15,000	15,000	NA	25,000	25,000	NA
Max. Queue Slots for a Hunt Group	999	999	NA	999	999	NA
Vectors	512	20	4,096	999	20	7,992

- The changes to support ATM Trunk Measurements make R3V8 CMS incompatible with G2.2 and G3V1.
- R3V8 CMS is backward compatible with G3V2 onward.
- R3V8 can not be a bug-fix load for R3V6 due to the Solaris Operating System upgrade.

CMS measurement of ATM trunks

- Prior to R8, ATM trunks could not be measured externally by CMS due to ATM trunks' use of an expanded equipment location format (circuit number increased to 3 digits from 2 to support up to 256 circuits).
- DEFINITY[®] system
 - When an ATM trunk group is externally measured, the DEFINITY[®] system passes to CMS the expanded equipment location (pnn or cabinet, carrier, slot, circuit) for each ATM trunk in that group.
 - Fields that make up the equipment location number in XTRUNK6 and ARTRUNK6 messages between the DEFINITY[®] system and CMS change to support measurement of ATM trunks:
 - The circuit field expand to 9 bits to support circuit numbers of up to 256
 - The module field is removed
 - The cabinet field expand to 7 bits for future use
 - The location ID field is added
- CentreVu[®] CMS
 - ATM trunks use a revised equipment location format that was not previously supported by CMS.
 - R3V8 CentreVu[®] CMS converts all trunk equipment locations to an 8 character format.
 - Supports sending the revised trunk equipment location format in the Call Data Unit.
 - CentreVu[®] Explorer
 - Supports the revised trunk equipment location format in the call record.
- ATM trunks are supported through new circuit packs that use a different equipment location format than trunks currently supported by CMS
 - ATM trunks require a circuit number of 3 digits to be supported (up from 2 digits).
 - CMS supports a revised trunk equipment location number with the expanded circuit number.
 - This includes messaging, reporting and storing in the call record.
- The capability to measure ATM trunks on CMS is not controlled by the DEFINITY[®] Call Center Release field.
 - Available when R8.1 is used as a bug-fix for R7.1 (DEFINITY[®] version field set to V7) and CMS is upgraded to a R3V8.

ATM Trunking and ATM WAN Port Network Connectivity (PNC)

- ATM trunking provides call centers with an alternative to T1/E1 facilities for various private networking configurations.
- ATM WAN PNC enables merging together into a single DEFINITY® ACD what are separate, geographically-dispersed DEFINITY® ACDs.
- Interconnecting port networks over an ATM WAN merges together separate, geographically-dispersed DEFINITY® ACDs.



NOTE:

Traffic handling related capacities (maximum number of agents, trunks or BHCC capacity) are not enhanced. Permissions continue to be deactivated when more than 2,000 VDNs are measured.

CentreVu® CMS

- Capacity increases provided at one site do not require other ACDs connected to the same CMS to be upgraded to the same release.
- Supports the ability to measure 999 vectors for a single ACD and the expanded vector range for the goto vector ... commands.
- Permissions checking is supported for the increase in vectors.
 - CMS can support up to 8 ACDs.
 - The total multi-ACD capacity for vectors is 7,992.
 - The per CMS limit on measured hunt groups not increased.

Dictionary

- CentreVu® CMS provides dictionary support for the capacity increase.

CentreVu® Visual Vectors

- Provides support for 20,000 VDNs
- Provides support for 999 vectors
- Supports the changes to the vector commands affected by the increase in members per hunt group
- Supports the changes to the vector commands affected by the increase in hunt groups

CentreVu® Supervisor

- CentreVu® Supervisor supports capacity increases for VDNs, vectors and hunt groups.
- Dictionary support for the capacity increases is provided.

Agent Site Tracking

- This enables a customer who uses the Multiple Locations feature to associate each agent with a particular location ID upon login to the ACD and to be able to run reports that provide data on agent activity at a particular location.
- Support for Agent Site Tracking begins with DEFINITY[®] system.
 - The smaller DEFINITY[®] platforms, R8si and R8csi, only send location ID 0 to CMS.
 - Beginning in R8, the DEFINITY[®] system passes to CMS, for each agent that logs in to the ACD, the location ID associated with the equipment location of the agent's voice terminal.
 - With DEFINITY[®] Multiple Locations option enabled, the value of the location ID passed to CMS ranges between 1 and 44.
 - The sending of the location ID is supported for both EAS and non-EAS environments.
 - DEFINITY[®] passes to CMS the location ID associated with an agent when any of the following occurs:
 - Upon agent login to the ACD
 - At pump-up for each agent already logged in to the ACD
- The location ID of an agent can be changed at any time without the agent having to log out of the ACD.
 - This is done through the use of the change cabinet x form where x is the cabinet that contains the port network(s) to which the agent's voice terminal belongs.

Capacity constraints and feature limitations

- While the capacity limits on certain ACD application related resources increased in support of ATM WAN PNC connectivity, there are no subsequent increases in the number of busy hour ACD calls or other traffic related capacities.
- Agent and trunk capacities remain unchanged.
- Support for ATM trunking does not increase the total number of trunks supported by DEFINITY[®] nor does it increase the total number of trunks that can be measured by CMS.

1 New Switch and Adjunct Support Call Center (R8 only)

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- Although the total number of queue slots per system (R8r only) and the number of members per hunt group are increased, there are no corresponding increase in the number of queue slots per hunt group.
 - Because of this, the ratio of one call in queue for each agent staffed in the hunt group will no longer be maintained.
 - The queue size limit per hunt group remains at 999 while the maximum number of members per hunt group is increased to 1,500.
- User permissions on VDNs are not changed; permissions checking are continued to be turned off when the number of measured VDNs exceeds 2,000.

Usability

- The increase in administrable announcements is accompanied by a change in the way an announcement can be accessed.
- Changes make it easier to access a particular announcement from the list of administered announcements.
- New dictionary forms for location ID adhere to the guidelines used for existing forms.
- Time used for displaying reports are the switch PPN time in the same manner as the existing Multi-ACD capability. Conversion to local time may be required.
- The trunk equipment location number format is revised to support ATM trunk measurements, however, the report formats and help do not change.

Reliability

- The use of the DEFINITY[®] ATM WAN capabilities may result in a less reliable system than a DEFINITY[®] system using the Center Stage Switch or direct configuration for port network connectivity.
- ATM interconnected remote EPNs off of a single switch may not be suitable for mission critical call center applications.

Performance

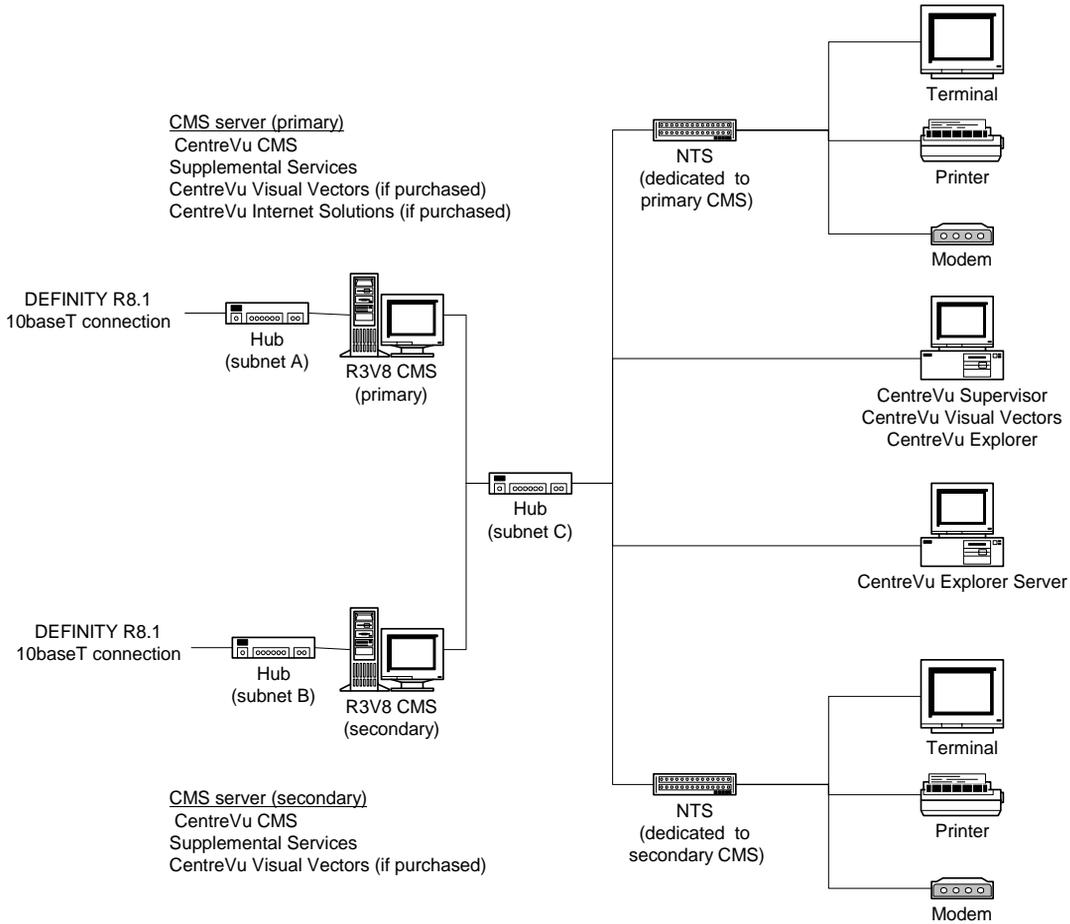
- Degradation is proportional to the increase in capacity.
 - CMS pump up due to increased number of VDNs, vectors and hunt groups.
 - CentreVu[®] Visual Vectors – VDN searches may take longer.
 - CentreVu[®] Exchange downloads an increased number of VDNs.

CMS High Availability

CMS High Availability applies to all standard R3V8 CMS platforms (SPARC 5, SPARC 20, Ultra 5, Ultra Enterprise 3000, and Ultra Enterprise 3500), and provides for the following:

- Non-disruptive cmsadm backup.
 - Ability to perform a cmsadm backup with data collection turned on during the entire cmsadm backup process.
- Non-disruptive maintenance backup.
 - Ability to perform any of the maintenance backups with data collection turned on during the entire maintenance backup process.
 - Exists today, but the maintenance backups are slightly modified to support backing up data from one CMS server and restoring the data on another CMS server.
- Non-disruptive maintenance restores.
 - Ability to perform any of the maintenance restores with data collection turned on during the entire maintenance restore process.
- Non-disruptive R3 migration.
 - Ability to perform any of the R3 migrations with data collection turned on during the entire migration process.
 - R3 migration is critical to synchronizing data during the upgrade process (either R3V6 to R3V8 or R3V8.1 to R3V8.2 when database schema changes are required).
- Capability to turn ECH on and off.
 - ECH is critical data to a large set of customers, especially Service Bureaus.
 - The capability to turn ECH on and off allows the ability to minimize the amount of ECH data loss.
 - ECH can be authorized and installed on both CMS servers. ECH data can be turned on only one CMS server. If that CMS server fails, then ECH can be turned off on the failed CMS server and ECH can be turned on the other CMS server.
- Manual alarm clears.
 - Enhancement to the Alarm Origination Manager.
 - Manual alarm clears is the ability to list the current active alarms and to change the alarm status to resolved.
- New call history alarms.
 - Allows alarms to be sent to a remote system used by either the Technical Service Center (TSC) or the Centers of Excellence (COE).
 - The ECH alarms are sent when the call record data is nearing or exceeding the ECH buffer capacity.

CMS High Availability Configuration



Dual ACD links

- The dual ACD links feature allows the customer to eliminate data loss during an ACD link failure when combined with the CMS High Availability offer.
- The enhancements for the standard R3V8 CMS includes increasing CMS system availability and providing additional alarming support required for the High Availability configuration.
- The configuration significantly reduces the amount of data loss by eliminating single points of failure. This relies heavily on manual data synchronization and manual administration synchronization.

Reliability

- The CMS data collection process is improved by duplicating the ACD links.
- The customer only loses ACD data associated with an ACD link failure under these circumstances:
 - ACD software failure
 - Simultaneous C-LAN card failures
 - Simultaneous network failures across both ACD links
 - Combinations of failures on both ACD links.
- If one C-LAN card fails or a network failure occurs on one ACD link, then the customer would be vulnerable to data loss as only one CMS server would be receiving data.
- The CMSs are not operating in a high availability mode but no data loss occurs as the second CMS still collects data.

Serviceability

- The MST (Message Sequence Trace) and TCM tracing capability are enhanced to support both ACD links.
- Adds alarm clear support so that the TSC can fully provision AOM.
- R3V8 CMS sends alarms for all critical data collection failures.
 - Acd link
 - Disk
 - Archiving
 - ECH

Capacity Constraints and Feature Limitations

Dual ACD Links

- The dual ACD links feature does not support X.25 communications between the DEFINITY[®] system and CMS.
- DEFINITY[®] R8.1 only supports two ACD links.

1	New Switch and Adjunct Support <i>Call Center (R8 only)</i>	120
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PC Application Software Translation Exchange (PASTE) Update

- This adds new button types and other new feature data implemented in R8 to the PASTE application.
- The PC Application Software Translation Exchange feature allows some system and terminal administration parameters to be passed to a PC application attached to a DCP display terminal.
- This development was required to provide continued support for CentreVu Agent.

Networking Enhancements

2

C-LAN Connectivity Changes and Enhancements

C-LAN Hardware Changes (TN799B)

The TN799B Control LAN Interface, which replaces the TN799 C-LAN Interface, simplifies the connections between adjunct equipment and DEFINITY. It provides TCP/IP connectivity over Ethernet or PPP (Point to Point Protocol) connections to applications, such as CMS Call Center, INTUITY™ AUDIX®, and DCS. The TN799B is required to support ATM interfaces and WAN PNC on DEFINITY R8 or later.

On the R8si and R8r platforms, TN765 Processor Interface (si) and TN577 Packet Gateway (r) circuit packs continue to provide BX.25 connectivity for existing customers. BX.25 connectivity on the R8csi platform is not supported.

The TN799B C-LAN pack provides connectionless UDP sockets for IP solutions support, variable length PING and Traceroute. The pack will also support 500 remote sockets, while the TN799 current pack supports 220.

IP Interfaces screen

- Inter-region IP connectivity allowed?: specifies whether media processor (TN802B) resources can be shared between regions.
- Enabled: enable/disable this IP Interface
- Type: type of circuit pack (C-LAN or MedPro) for this IP Interface
- Slot: slot location of the circuit pack
- Code: board code for the circuit pack (TN799 or TN802)
- Sfx: suffix letter for the board code (B)
- Node Name: moved from the ethernet Data Module screen
- Subnet Mask: moved from the ethernet Data Module screen
- Gateway Addr: IP address of the default gateway for this IP Interface
- Net Rgn: the network region this IP Interface is assigned to

Screen Changes

The data module screen has changed for both ethernet and ppp connections.
The IP Routing screen has also changed.

Data Module Screen (Ethernet)

```

add data-module next
                                                    Page 1 of X
                                DATA MODULE

Data Extension: 2377                Name: ethernet on link 2
Type: ethernet
Port: 01c0817
Link: 2

Network uses 1's for broadcast addresses? y

```

Data Module (Ethernet) screen

- Fields moved to the IP Interfaces screen:
 - Nodes Names
 - Subnet Mask
- Fields that have been removed and are not needed:
 - Broadcast Address
 - Automatic Subnet Routing?

2 Networking Enhancements*C-LAN Connectivity Changes and Enhancements*

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- New fields:

- Network uses all 1's for broadcast addresses?: allows you to specify whether the DEFINITY system is to use all 1's or all 0's in the host ID to form broadcast addresses sent on the network by this C-LAN board; similarly, it specifies whether the DEFINITY system recognizes all 1's or all 0's in the host ID as broadcast addresses received.

Data Module Screen (PPP)

```

add data-module next
                                                    Page 1 of x

                                DATA MODULE

Data Extension:                               Name: _____ BCC: 2
  Type: ppp                                   COS: 1
  Port: _____                             COR: 1
  Link: _____                             TN: 1
Enable Link? n

  Node Name: _____
  Subnet Mask: 255.255.255.0

Establish Connection: _

DESTINATION
  Digits: _____
  Node Name: _____
  CHAP? y
  Chap Secret: _____

```

Data Module (Ethernet) screen

- New field:

- Subnet Mask: R7 did not allow subnetting of IP addresses of nodes in a ppp connection. The addition of the Subnet Mask Field on the ppp Data Module screen, enables the specification of subnets for these addresses.

IP Routing Screen

```

add ip-route next
                                                    Page 1 of 1

                                IP ROUTING

Route Number: 2
Destination Node: node-1
Gateway: node-4
C-LAN Board: 1c05
Metric: 0
Route Type: host

```

2 Networking Enhancements*C-LAN Connectivity Changes and Enhancements*

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IP Routing screen

- New field:
 - Route Type: specifies whether the route defined on this screen is a network or host route.

Serviceability Tools for C-LAN (R8 only)

- The C-LAN feature of the DEFINITY[®] system provides TCP/IP connectivity over Ethernet or PPP (Point to Point Protocol) to adjuncts such as CMS Call Center, INTUITY[™] AUDIX[®] and for DCS connectivity.
- TCP/IP connectivity over the customer's LAN represents a significant change from BX.25 protocol employed for connectivity prior to C-LAN.

Commands

- These commands are accessible through local and remote SAT access.
 - Traceroute Command
 - Variable Length Ping - Customer option for Packet size (64 or 1.5k bytes)
 - Packet Error History
 - list measurements clan

Trace route

- Provides the ability to trace the route of C-LAN originated packets through the LAN.
- Output shows the IP address of each router or host (hop) that the packets encounter.
- The time elapsed between each hop is also displayed.
- If C-LAN has trouble communicating with a far-end device, trace route can be used to determine how far packets get toward the destination.

Trace Route IP Address

```
trace-route ip-address 192.11.128.111 board 01C07
```

TRACE ROUTE RESULTS

Hop	Time(ms)	IP Address
1	5	135.60.129.1
2	2	135.60.109.4
3	10	135.60.119.5

2 Networking Enhancements*C-LAN Connectivity Changes and Enhancements*

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Trace-route

```
trace-route ip-address 106.245.27.205 board lc11
```

TRACE ROUTE RESULTS

Hop	Time(ms)	IP Address
1	10, 12, 11	124. 9. 5.103
2	15, 15, 12	124. 9. 14. 23
3	23, 26, 26	122.245. 15.111
4	23, 25, 25	122.245. 27.205

Traceroute screens

- Authorization: init, inads, customer and craft logins
- Syntax: traceroute ip-address
- Help: Enter IP address, 'board' 'board location' where IP address is (0-255), (0-255), (0-255), (0-255)
- Errors:
- Hop - The node number as it is sequentially found
- Time(ms) - The time from the board to each intermediate destination
- IP Address - This field is the 32-bit network address.

Variable length ping

- The standard ping implementation issues a packet that is 64 bytes in length.
- Ethernet frames can be as large as 1500 bytes in length.
- Using ping with a packet size of up to 1500 bytes provides a more complete indication of the link status.
- The objective of C-LAN troubleshooting efforts is to quickly and unambiguously determine if the fault lies within the Lucent provided equipment or if the fault is with the LAN or LAN administration to which the DEFINITY® system is connected.
- Provides an enhancement to the ping command.
- Specifying a longer packet to be sent by ping can show if a router or host has a problem fragmenting or integrating transferred packets.

2 Networking Enhancements*C-LAN Connectivity Changes and Enhancements*

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Ping IP Address

```
ping ip-address 192.68.9.26 board 1B07
```

PING RESULTS

End-pt	Port	Port Type	Result	Time(ms)	Error Code
192.68.9.26	1b0701	MED-PT	PASS	205	

Variable Length Ping

```
ping ip-address 192.11.128.111 packet-length 1500
```

PING RESULTS

End-pt IP	Port	Port Type	Result	Time(ms)	Error Code
192.11.128.111	01A0917	ETH-PT	PASS	10	

Variable Length Ping

- Authorization: init, inads, customer and craft logins
- Syntax: ping ip-address xxx.xxx.xxx.xxx [board UUCSS] [packet-length <64-1500>] [repeat <1-100>]
- Help: ping ip-address xxx.xxx.xxx.xxx [board UUCSS] [packet-length <64-1500>] [repeat <1-100>] where IP address is (0-255), (0-255), (0-255), (0-255)
- Errors: 'x' entry out of range, please press help
- End-pt IP - This field is the destination IP address that is being pinged.
- Port - Fixed field giving board and port location for the port that will provide the interface for the route
- Port Type - This field can be either PPP-PT for PPP ports (ports 1-16) or ETH-PT.
- Result - This field is the outcomes of either 'pass', 'fail' or 'abort'
- Time(ms) - This field describes the time in milliseconds.
- Error Code - This field describes the failed attempt codes.

**NOTE:**

The Result will support all the abort and failure codes from R7.

Packet Error History

- In C-LAN Release 7, the capability of checking packet error was provided, but was simply displayed on the board counters.
- Now there is the capability of having a historical view of packet errors. Packet error history provides a 24-hour history of important packet level statistics that indirectly indicate some LAN performance characteristics.
- Show the current 15-minute intervals (for the last 24 hours) for CRC errors and Collision counts for Ethernet connections.
- High collision counts indicate high traffic on the LAN segment.
- High CRC errors indicate that the LAN connection may be noisy.
 - It could indicate that a wire connection is loose or a wire is frayed or broken.
- Checks are for Invalid Frame errors (error count for invalid frame errors) and Chap Failures (the number of failed attempts for PPP authentication) for PPP connections.
- If the data cannot be retrieved for any 15-minute interval, a N/A will be returned in that field. These error checks will be provided for Ethernet and PPP.

List Measurements - PPP

- The counter value can be up to 7 digits long because of its 16-bit counter on the board.
- The delta and the total will be provided for each error count.
- After the occurrence of an N/A, the delta equals the total

2 Networking Enhancements*C-LAN Connectivity Changes and Enhancements*

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List Measurements CLAN PPPlist measurements clan ppp 1a0901 Page 1Switch Name: Date: 3:50 pm TUE NOV 16, 1999

C-LAN PPP PERFORMANCE MEASUREMENTS DETAILED REPORT

Date	Time	CRC CHECK		Invalid Frame		CHAP Failures	
		Total	Delta	Total	Delta	Total	Delta
7/03	1535	89	0	8011	5	0	0
7/03	1520	89	0	8006	7	0	0
7/03	1505	89	0	7999	7	0	0
7/03	1450	89	0	7992	6	0	0
7/03	1435	89	0	7986	3	0	0
7/03	1420	89	0	7983	8	0	0
7/03	1405	89	0	7975	8	0	0
7/03	1350	89	0	7967	10	0	0
7/03	1335	89	0	7957	3	0	0
7/03	1320	89	0	7954	4	0	0
7/03	1305	89	0	7950	6	0	0
7/03	1250	89	0	7944	5	0	0

List Measurements - PPP**list measurements clan ppp screen**

- Authorization: init, inads, customer and craft logins
- Syntax: list measurements clan ppp [cabinet(1-%d)]; carrier(A-E); slot(00-%d); circuit(01-16)
- Help: Enter ['number' 'x'] ['to-number' 'x'] ['count' 'n']
- Date - This field sets the current date that the action was done.
- Time - This field sets the current 15-minute interval the action was performed.
- CRC Check - This field displays the error count for CRC errors.
- Total - The total value of the counter on the board
- Delta - The difference between the current and the previous sample
- Invalid Frame - This is the error count for invalid frame errors.
- CHAP Failures - This field describes the number of failed attempts for PPP authentication.

⇒ NOTE:

The counter value can be up to 7 digits long because it is a 316-bit counter on the board. After the occurrence of a N/A, the delta will equal the total. Busy out /release; board/port; reset board; and reseating the board would clear firmware counters.

2 Networking Enhancements*C-LAN Connectivity Changes and Enhancements*

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List Measurements - Ethernet

- Packet error history is a list measurements 24-hour history of error statistics for Ethernet connections.
- The data is retrieved for 15-minute intervals for 24 hours for CRC and Collisions for Ethernet connections.
 - If the data cannot be retrieved for the 15-minute interval, a N/A will be returned in the field.
- The counter value can be up to 11 digits long because of its 32-bit counter on the board.
- The delta and the total are provided for each error count.
- After the occurrence of a N/A, the delta will equal the total.

List Measurement CLAN Ethernet

```
list measurements clan ethernet 1C1017                                Page 1 of x
Switch Name:                                                         Date:02/02/1999

      C-LAN ETHERNET PERFORMANCE MEASUREMENT DETAILED REPORT

Date      Time      CRC Check      Collision Count
          total      delta          total      delta
02/01     03:08         650          50          650          250
02/01     02:53         600          600          400          400
02/01     02:38          N/A          N/A          N/A          N/A
02/01     02:23 1000000570         20 10000000570         20
02/01     02:08 10000000550 10000000550 10000000550 10000000550
```

List measurements clan ethernet screen

- Authorizations: init, inads, customer and craft logins
- Syntax: list measurements clan ethernet [cabinet(1-%d)]; carrier(A-E); slot(00-%d); ['print' or 'schedule']
- Help: Enter ['number' x] [to-number 'x'] [count 'n']
- Errors: 'x' invalid location for clan board
- Date - This field sets the current date that the action was done.
- Time - This field sets the current 15-minute interval the action was performed.
- CRC Check - This field displays the error count for CRC errors.
- Total - The total value of the counter on the board

- Delta - The difference between the current and the previous sample
- Collision Count - This is the error count for collisions on the Ethernet.

**NOTE:**

The counter value can be up to 11 digits long because of its 32-bit counter on the board. After the occurrence of a N/A, the delta will equal the total. Busy out /release; board/port; reset board; and reseating the board would clear firmware counters.

Upgrades

- Customers that decide to upgrade to the C-LAN solutions in R8 for each of the models (r, and si) may choose to change all, some or none of the existing interfaces for DCS, AUDIX[®], or CMS from BX.25 to TCP/IP.

Networking - International

Continuous and Pulsed E&M Signaling (Brazil) (R8 only)

This feature provides the user with the capability to make and receive calls over Brazil pulsed or continuous E&M signaling trunks and to administer the signaling bit on all CAS DS1 trunk types.

Also addressed is Hungarian pulsed E&M. Hungarian Discontinuous signaling differs from Brazil Pulsed E&M only by the signaling bit and inversion used. This can be accomplished by administering a country code of 23 and the trunk signaling type to discontinuous.

Capacity Constraints and Feature Limitations

- These signaling protocols do not support Brazil's BCC (Blocked Collect Call) feature.
- These signaling protocols are not available on Personal Central Office (PCOL) trunks.
- These signaling protocols are not available on TN767 boards. Although the TN767E vintage 19-board firmware can support the protocols, the administration software on the switch, which supports the TN767, can not handle the protocols. We understand that this is not a problem because the TN767 is not currently used in either Brazil or Hungary.

This feature requires the TN464F vintage 19, or TN2464 vintage 19, or a later suffix or vintage.

Feature Administration

To administer this feature for use in Brazil, one administers the forms for DS1 Circuit pack and Trunk Group. In particular, the fields shown in bold print in those sections should have one of the values listed.

This feature provides only trunk line signaling; and in Brazil the COs that use these protocols expect R2-MFC line signaling. In order to use the feature in Brazil, R2-MFC register signaling must also be administered for these trunks. We don't have information on the register signaling methods used in Hungary. In every case, the outgoing dial type and the incoming dial type must be set to tone or MF

Firmware on the DEFINITY[®] ECS digital circuit packs will not allow these protocols to be used with rotary signaling.

The Pulsed E&M signaling protocol has been tried at one site in Brazil, and at that site the following trunk parameter values were found to work. We recommend using these values in Brazil, although it is possible that slightly different values would also work:

- Incoming Disconnect(msec): 600
- Outgoing End of Dial(sec): 40
- Outgoing Disconnect(msec): 600
- Outgoing Seizure Response(sec): 255

To administer this feature for use in Hungary, set the Trunk Signaling Type field to **discont**.

Brazil Block Collect Call

In both continuous and pulsed E&M signaling, the Brazil's BCC (Blocked Collect Call) feature will not be included.

Personal Central Office Line (PCOL)

Personal Central Office Line (PCOL) trunks can not use continuous nor pulsed nor discontinuous E&M signaling.

When the Trunk Signaling Type field on the CO, FX, WATS, DID, and DIOD forms is administered to either cont-E&M or pulsed-E&M, that will cause Receive Release Ack, Send Release Ack and Send Answer Supervision fields to appear too.

Administer E&M signaling per trunk group

The line signaling protocols cont (for Brazil continuous E&M), pulsed (for Brazil pulsed E&M), discont (for Hungary discontinuous E&M), and blank (for standard R2) will be administrable per trunk group 4 for public network trunk groups. This requirement applies to trunk group type DIOD.

Seize when maintenance busy per network trunk group

This requirement is administrable per public network trunk group, and applies to trunk group type DIOD. The administration is via the existing field called Seize When Maintenance Busy being ported from the tie trunk screen to the above trunk group type screen.

Administration steps

1. Administer the basic system.
2. Administer trunks with the trunk group field values Trunk Group.
3. Administer R2-MFC signaling.
4. Administer the DS1 form as DS1 Circuit packs.

The following forms have to be administered when Brazil continuous E&M, Brazil pulsed E&M, or Hungary discontinuous E&M is necessary.

DS1 Circuit pack

add ds1 xxxxxx		Page 1 of 2
DS1 CIRCUIT PACK		
Location: _____	Name: _____	
Bit Rate: _____	Line Coding: _____	
Signaling Mode: CAS _____		
Interconnect: CO__	Country Protocol: ____23_	
Interface Companding: _____		
Idle Code: _____		
Received Digital Metering Pulse Minimum (ms):		
Received Digital Metering Pulse Maximum (ms):		
Received Digital Metering Pulse Value:		
Slip Detection: __	Near-end CSU Type: _____	

Trunk Group DIOD

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TRUNK GROUP

```

Group Number:                Group Type: diod                CDR Reports: y
Group Name:                  COR: 1                TN: 1                TAC:
Direction: two-way          Outgoing Display? n          Trunk Signaling Type: cont

Dial Access? n                Busy Threshold: 99
Queue Length: 0                Country: 16

Prefix-1? y                    Auth Code? n                Digit Absorption List:
                                Trunk Flash? n                Toll Restricted? y

```

TRUNK PARAMETERS

```

Trunk Type: immed-start
Outgoing Dial Type: tone                Incoming Dial Type: tone
Trunk Termination: rc
Digit Treatment:                        Digits:
Expected Digits:                        Sig Bit Inversion: none
Terminal Balanced? n                    RA Trunk Loss: 0db
Trunk Gain: high                        Drop Treatment: silence

Disconnect Supervision - In? y Out? n
Answer Supervision Timeout: 10          Receive Answer Supervision? n

```

Trunk Signaling Type field

The Trunk Signaling Type field is new to the DIOD form, although it already exists on tie trunk forms. On the DIOD form:

- It is visible only if both the trunk types are set to immed-start and the country is set to 23.
- It defaults to blank.
- It takes on only 3 new values: pulsed, cont, and discont. It does not accept the values it takes on the tie trunk forms, except for blank. Administering blank will result in current DS1 board operation.
- It has new end validations: if it is set to one of the values pulsed, cont, or discont, then:
 - All ports in the trunk group must be on a TN464F vintage 19 or higher, or a TN2464 vintage 19 or higher.
 - The outgoing dial type and incoming dial type must be set to tone.or MF

TRUNK FEATURES

```

                                     TRUNK FEATURES
                                     Page 2 of X

ACA Assignment? n Measured: none
Maintenance tests? y
Data Restriction? n
Seize When Maintenance Busy: both-ends
Suppress # Outpulsing? n
Incoming Tone (DTMF) ANI? y

```

Seize When Maintenance Busy field

The Seize When Maintenance Busy field is new to trunk group type DIOD, but is the same field with the same definition, values, help and error messages as the Seize When Maintenance Busy field currently shown for tie trunk groups. On the DIOD form it displays only when the group type is diod and the Trunk Signaling Type field is set to one of the values pulsed, cont, or discont.

The Seize When Maintenance Busy field is now available for trunk group type DIOD when the country field is set to 23 and the trunk signaling type is one of pulsed, cont, or discont. This is in addition to the tie trunk types that used this field in earlier releases.

```

                                     ADMINISTRABLE TIMERS
                                     Page 3 of X

Outgoing Dial Guard (msec) : 1600
Incoming Glare Guard (msec) : 1500 Outgoing Glare Guard (msec) : 1500
Outgoing Seizure Response (sec) : 5
Programmed Dial Pause (msec) : 1500 Disconnect Signal Errors (sec) : 240
Flash Length(msec) : 540 Incoming Incomplete Dial Alarm (sec) : 255
Outgoing Last Digit(sec) : 10 Normal Outgoing Seize Send (msec) : 150
Release Ack Send(msec) : 600 Seize Ack Delay (msec) : 100
Answer Send(msec) : 150 Outgoing Disconnect Send (msec) : 600
Seize Ack Send(msec) : 150 Incoming Disconnect Send (msec) : 600
OUTPULSING INFORMATION
PPS: 10 Make (msec) : 40 Break (msec) : 60

```

 NOTE:

The value in these fields also affect which timers will appear in the Administrable Timer Page.

Recommend values for Brazil

- Receive Release Ack? Y (y or n).
- Send Answer Supervision? Y (y or n).
- Send Release Ack? Y (y or n).
- Trunk Signaling Type: pulsed-E&M.
- Trunk Type (in/out): discont/discont (many options).
- Answer Send (ms): 150 (10 - 2550).
- Incoming Disconnect Send (ms): 600 (500 - 1200).
- Normal Outgoing Seize send (ms): 150 (10 - 990).
- Outgoing Disconnect Send (ms): 600 (100 - 9900).
- Outgoing Last Digit (sec): 40 (10 - 40).
- Outgoing Seizure Response (sec): 255 (1 - 255).
- Release Ack Send (ms): 600 (500 - 1200).
- Seize Ack Delay (ms): 120 (40 - 120).
- Seize Ack send (ms): 150 (10 - 990).

China Howler After Busy & Disconnect on No Answer

Disconnect on No Answer feature drops outgoing trunk calls that users leave unanswered too long.

Howler after Busy feature plays howler tone when users leave their set off hook too long.

When an outgoing trunk call or call attempt is not answered, the PBX will disconnect the trunk and play busy tone to the caller, next play howler tone, then go to high-and-dry state. Whether this feature applies to any particular call at all, and the amount of time each of these states last, depends on switch administration and the call type: local, toll, or international.

When any of the following timers expire during an outgoing call attempt, the PBX will apply busy tone for 40 seconds followed by howler tone for 60 seconds.

- Pre-dialing timer
- Inter-digit timer
- Outgoing seizure acknowledge timer
- 60-, 90-, and 120-second no answer disconnect timers, based on ARS call type
- 120-second timer used for calls without a call type, such as TAC calls

The tones will last for the duration set by these timers:

- Busy tone timer: 40 seconds
- Howler tone timer: 60 seconds

Capacity Constraints and Feature Limitations

Chinese regulations call for inter-digit time supervision of 20 seconds. An alternative 10 seconds was proposed, which equals the pre-dialing time supervision requested by Chinese regulations. The Chinese regulations call for howler tone to increase from 0 dBm0 to +25 dBm0 in 5 steps over a period of 20seconds.

China Howler After Busy & Disconnect on No Answer features provides three no-answer limits based on call type only for calls whose digits are analyzed by ARS.

- Outgoing trunk calls that are not analyzed by digit analysis have a fixed no-answer time limit of 120 seconds.
- Outgoing trunk calls that are analyzed by AAR digit analysis do not have a no-answer time limit at all.

This feature does not cover outgoing calls that are automatically generated by the switch and have no human involved in the call. Examples of such calls include outgoing alarm calls from the INADS port, and transmission test calls from the ATMS feature.

This feature does not apply to an attendant console, or an Outgoing Call Management (OCM) agent, or a BRI set.

The Disconnect on No Answer portion of this feature applies only to outgoing trunk calls, not to station-to-station calls. There is an exception to this rule for any station-to-station calls that are carried over a trunk, for example, CCRON calls.

This feature requires a TN2182 tone clock. If the howler tone feature is enabled on a system without a TN2182 tone clock, the station set users will hear silence instead of howler tone.

This feature does not use the ARS toll tables (for example, the items administered via the command change ars toll), nor the non-ARS toll tables (for example, the items administered via the command change toll), to help determine whether a call is a local call versus a toll call.

User interface is designed to comply with the PRC government regulations. Outside China the ECS will by default use the previous user interface, but can be administered to use the new interface if customers prefer to do so.

The Howler After Busy portion of this feature is most useful for customers who have a high percentage of analog sets. The main purpose of howler tone is to remind users to place sets back onhook, but digital sets can receive calls even while the handset is offhook.

Howler After Busy

If the Station Tone Forward Disconnect field on the Feature Related System Parameters form is set to anything other than busy, the user receives the treatment specified by that field instead of busy tone followed by howler tone.

Administration

- The system administrator is able to administer whether Howler after Busy and Disconnect on No Answer applies.

Steps to administer these features

For the Howler after Busy feature to work, the following must be administered:

1. The Station Tone Forward Disconnect field on the Feature Related System Parameters form is set to busy.
2. The Howler after Busy field on the System Parameters Country Options form is set to yes.

For the Disconnect on No Answer feature to work, the following must be administered:

1. The Disconnect on No Answer by Call Type field on the System Parameters Country Options form is set to yes.

Loop start trunks do not provide answer supervision.

For such trunks, many sites use the answer supervision timeout, which is not useful with the Disconnect on No Answer feature.

If an administrator were to simply disable the timeout, then the call will drop during the speech phase.

1. Administer answer supervision by classifier.

The field used for that is receive answer supervision on the trunk group form

1. Defaults to no.

FEATURE-RELATED SYSTEM PARAMETERS

```

change system-parameters features                               Page 5 of 10
      FEATURE-RELATED SYSTEM PARAMETERS

      Public Network Trunks on Conference Call: 5             Auto Start? n
      Conference Parties with Public Network Trunks: 6         Auto Hold? n
      Conference Parties without Public Network Trunks: 6       Attendant Tone? y
      Night Service Disconnect Timer (seconds): 180           Bridging Tone? n
      Short Interdigit Timer (seconds): 3                     Conference Tone? n
      Unanswered DID Call Timer (seconds):                    Intrusion Tone? n
      Line Intercept Tone Timer (seconds): 30                 Special Dial Tone? n
      Long Hold Recall Timer (seconds): 0
      Reset Shift Timer (seconds): 0
      Station Call Transfer Recall Timer (seconds): 0
      DID Busy Treatment: tone
      Allow AAR/ARS Access from DID/DIOD? n
      Allow ANI Restriction on AAR/ARS? n
      Transfer Upon Hang-Up? n                               Abort Transfer? n
      7405ND Numeric Terminal Display? n                     7434ND? n
DISTINCTIVE AUDIBLE ALERTING
      Internal: 1 External: 2 Priority: 3
      Attendant Originated Calls: external

```

System Parameters Country Options

```

change system-parameters country-options                       Page 1 of 7
      SYSTEM PARAMETERS COUNTRY-OPTIONS

      Companding Mode: Mu-Law                                Base Tone Generation Set: 1
      440Hz PBX-dial Tone? n                                440Hz Secondary-dial Tone? n
      Analog Ringing Cadence: 1 Set Layer 1 timer T1 to 30 seconds? n
      Analog Line Transmission: 1
      64/84xx Display Character Set? Roman
      Howler After Busy: y Disconnect on No Answer by Call Type: y

TONE DETECTION PARAMETERS
      Tone Detection Mode: 5                                Dial Tone Validation Timer:
      Interdigit Pause: short

```

Time Supervision & Force Release (China)

Time Supervision & Force Release (China) provides three no-answer limits based on call type only for calls in which digits are analyzed by ARS. Outgoing trunk calls that are not analyzed by digit analysis have a fixed no-answer time limit of 120 seconds. Outgoing trunk calls that are analyzed by AAR digit analysis do not have a no-answer time limit.

When any of the following timers expire during an outgoing call attempt, the PBX will apply busy tone for 40 seconds followed by howler tone for 60 seconds.

- pre-dialing timer
- inter-digit timer
- outgoing seizure acknowledge timer
- 60-, 90-, and 120-second no answer disconnect timers, based on ARS call type
- 120-second timer, used for calls without a call type, such as TAC calls

The tones will last for the duration set by these timers:

- busy tone timer: 40 seconds
- howler tone timer: 60 seconds

Capacity Constraints and Feature Limitations

This feature does not cover outgoing calls that are automatically generated by the switch and have no human involved in the call. Examples of such calls include outgoing alarm calls from the INADS port and transmission test calls from the ATMS feature. This feature does not apply to an attendant console, or an Outgoing Call Management (OCM) agent, or a BRI set.

The Disconnect on No Answer portion of this feature applies only to outgoing trunk calls, not to station-to-station calls. There is an exception to this rule for any station-to-station calls that are carried over a trunk, for example CCRON calls.

This feature does not use the ARS toll tables, for example, the items administered via the command change ars toll, nor the non-ARS toll tables, for example, the items administered via the command change toll, to help determine whether a call is a local call versus a toll call.

This feature requires a TN2182 tone clock. If the howler tone feature is enabled on a system without a TN2182 tone clock, the station set users hear silence instead of howler tone.

Call Processing

Alternate treatment for seizure failure

If the switch is administered and the Outgoing Seizure Response timer expires, the switch will drop the trunk and treat the calling set. The Outgoing Seizure Response timer will typically be set to 2 seconds in China.

Alternate treatment for offhook after a call

If the switch is administered and any station set is the last party remaining offhook on a call, the switch will play tones to offhook sets if the calling set is not an analog set.

Alternate treatment for unanswered outgoing ARS calls

If the switch is administered and an outgoing ARS call from any station set has remained unanswered for:

- 60 seconds on local or service calls, for example, calls with call type: alrt, emer, hnpa, locl, lpvt, op, pubu, svcl, svfl, svct, and svft
- 90 seconds on toll calls, for example, calls with call type: fnpa, natl, npvt, and nsvc
- 120 seconds on international calls, for example, calls with call type: intl, iop

Timers for the above amounts of time start immediately after the last digit was sent or the TTR was removed on an outgoing call,.



NOTE:

R7 operation allows the call ring forever unless it is over MF signaling trunks. The timing values match 5ESS, and except for the 120 second value, are in the 60- to 90-second range allowed for PBXs in China.

Alternate treatment for unanswered outgoing non-ARS calls

If the switch is administered and an outgoing trunk call from any station set remains unanswered for 120 seconds, the switch will drop the trunk. This does not apply to ARS, or AAR calls.

Play tones to offhook sets

If the calling set is not an analog set and when any of the timers expire, the switch will play busy tone to the set for 40 seconds. After that, the switch will play howler tone to the set for 60 seconds. After that, the line appearance LED will turn off or the set will be placed in line lockout state.

Disconnect on No Answer by Call Type

A call is considered unanswered as long as none of the following events have happened:

- The network tells the PBX that the call has been answered, for example via an answer supervision line signal or an ISDN connect message.
- The call classifier classifies the call as answered.
- The Answer Supervision Timeout timer expires.
- The Outgoing End of Dial Timer expires.

Other ARS call types

Howler After Busy

If the Station Tone Forward Disconnect field on the Feature Related System Parameters form is set to anything other than busy, the user receives the treatment specified by that field instead of busy tone followed by howler tone.

Administration

Any entry in the version field is always usable no matter what the version field is set to on the system parameters customer options form.

Steps to administer these features

For the Howler After Busy feature to work, the following must be administered:

1. The Station Tone Forward Disconnect field on the Feature Related System Parameters form is set to busy.
2. The Howler After Busy field on the System Parameters Country Options form is set to yes.

For the Disconnect on No Answer feature to work, the following must be administered:

1. The Disconnect on No Answer by Call Type field on the System Parameters Country Options form is set to yes.

Although the Disconnect on No Answer feature will work when set as a non-zero value to the answer supervision timeout or the outgoing end of dial timer, it is better to set these timers to 0 to disable them. If the timers are set to more than the China values, then the trunk will always drop before the timers time out. Someone reading the administration screens later could be misled by the fact that they are set to something.

Loop start trunks do not provide answer supervision. For such trunks, many sites use the answer supervision timeout, but it is best to administer answer supervision by classifier. The field used for that is receive answer supervision on the trunk group form. It defaults to no.

TRUNK GROUP

```

add trunk-group next                                     Page 3 of x
                                                    TRUNK GROUP

ADMINISTRABLE TIMERS
  Incoming Disconnect(msec): ____      Outgoing Disconnect(msec): ____
  Incoming Dial Guard(msec): 70        Outgoing Dial Guard(msec): ____
  Incoming Glare Guard(msec): ____     Outgoing Glare Guard(msec): ____
  Incoming Partial Dial(sec): 18
                                     Outgoing Rotary Dial Interdigit (msec): ____
  Ringing Monitor(msec): ____          Incoming Seizure(msec): ____
  Outgoing End of Dial(sec): ____      Outgoing Seizure Response(sec): ____
  Programmed Dial Pause(msec): ____    Disconnect Signal Error(sec): ____
  Flash Length(msec): ____
Incoming Incomplete Dial Alarm(sec): 255

END TO END SIGNALING
  Tone (msec): ____      Pause (msec): 150

OUTPULSING INFORMATION
  PPS: 10      Make(msec): 40      Break(msec): 60  PPM? y  Frequency: 50/12k

```

```

add trunk-group next                                     Page 1 of x
                                                    TRUNK GROUP

Group Number: ____      Group Type: _____      CDR Reports: _
Group Name: _____      COR: ____      TN: ____      TAC: ____
Direction: _____      Outgoing Display? _      Trunk Signaling Type: ____
Dial Access? _      Busy Threshold: ____      Night Service: ____
Queue Length: ____      Incoming Destination: ____
Comm Type: _____      Auth Code? _
                                     Trunk Flash? _
                                     ITC? ____
BCC: _

TRUNK PARAMETERS
Trunk Type (in/out): _____      Incoming Rotary Timeout(sec): __
Outgoing Dial Type: _____      Incoming Dial Type: _____
                                     Disconnect Timing(msec): ____
Digit Treatment: _____      Digits: ____
                                     Sig Bit Inversion: none
Analog Loss Group: ____      Digital Loss Group: ____
Incoming Dial Tone? _
Bit Rate: _____      Synchronization: ____      Duplex: ____
Disconnect Supervision - In? _ Out? _
Answer Supervision Timeout: ____      Receive Answer Supervision? _

```

Feature Related System Parameters

```

change system-parameters features                               Page 7 of 10
                    FEATURE-RELATED SYSTEM PARAMETERS

                Pull Transfer: n                Update Transferred Ring Pattern? n
                Outpulse Without Tone? y        Wait Answer Supervision Timer? n
                Misoperation Alerting? n        Repetitive Call Waiting Tone? y
                Allow Conference via Flash? y    Repetitive Call Waiting Interval (sec): _
                Vector Disconnect Timer (min): _ Network Feedback During Tone Detection? y
                Hear Zip Tone Following VOA ? y  System Updates Time On Station Displays? n
                Intercept Treatment On Failed Trunk Transfers? n
                    Station Tone Forward Disconnect: silence
                    Level Of Tone Detection: precise
                Charge Display Update Frequency (seconds): 30
                Date Format on 6400/8400 Terminals: mm/dd/yy
                On-hook Dialing on 6400/8400 Terminals? n

RECALL TIMING
                Flashhook Interval? y                Upper Bound (msec): 1000
                                                    Lower Bound (msec): 200
                                                    Forward Disconnect Timer (msec): 600

ITALIAN DCS PROTOCOL
                Italian Protocol Enabled? y
                Apply Intercept Locally? _          Enforce PNT-to-PNT Restrictions? _

```

Feature Related System Parameters

```

change system-parameters country-options                       Page 1 of 7
                    SYSTEM PARAMETERS COUNTRY-OPTIONS

                Companding Mode: Mu-Law          Base Tone Generation Set: 1
                440Hz PBX-dial Tone? n          440Hz Secondary-dial Tone? n
                Analog Ringing Cadence: 1 Set Layer 1 timer T1 to 30 seconds? n
                Analog Line Transmission: 1
                64/84xx Display Character Set? Roman
                Howler After Busy: y            Disconnect on No Answer by Call Type: y

TONE DETECTION PARAMETERS
                Tone Detection Mode: 5          Dial Tone Validation Timer:
                Interdigit Pause: short

```

Howler tone is moderately loud

The howler tone played by this feature is:

- 941 Hz at -8 dBm0 for 4 seconds, then
- 950 Hz at -5 dBm0 for 4 seconds, then
- 950 Hz at -2 dBm0 for 4 seconds, then
- 1000 Hz at 0 dBm0 for 4 seconds, then
- 1000 Hz square wave at 0 dBm0 until the set goes into line lockout mode for analog sets or no call appearance active for digital sets.



NOTE:

A 0 dBm0 square wave is roughly equivalent in power to a +1.6 dBm0 sine wave.

Networking - ISDN Private

QSIG Call Independent Signaling Connection (CISC) Enhancements

- Available for Offer A only.
- Provides the user with the capability to transport QSIG operation information independent of an active call, between two QSIG compliant nodes.
- QSIG CISCs are similar to the DEFINITY NCA TSCs (Non Call Associated Temporary Signaling Connections) except that QSIG CISCs is established on demand, not via a permanent administered connection interface.
 - QSIG PRI and BRI Trunk interfaces.
- QSIG Call Independent Signaling Connections (CISCs) are defined in ISO/IEC 11582
 - Call Completion
 - Message Waiting
- The per system maximum of NCA TSCs.
 - On a per Signaling Group basis, administrable maximum of NCA TSCs that can be established so no one signaling group may use up all of the NCA TSCs.

Administration

Feature-Related System Parameters Form

- To facilitate processing of a CISC, a global extension is applicable to all CISCs.
 - Unrestricted COR and the highest level of COS
 - Not a "real" extension that can be called or dialed.

NOTE:

The administration for this extension is not tied to "Basic Supplementary Services?" enabled on the system-parameters customer-options form. The extension may be administered, prior to any intended CISC transport.

- Support field "QSIG TSC Extension:" in the "ISDN PARAMETERS" section.
- Values according to the Dial Plan.

- The Unrestricted COR and COS are associated with the extension so a CISC can be routed at a Transit or Terminating PBX without requiring authorization.
- Users get Intercept treatment if this extension is called directly.

Feature-Related System Parameters form

```

change system-parameters features Page 5 of 8
      FEATURE-RELATED SYSTEM PARAMETERS

      Public Network Trunks on Conference Call: 5          Auto Start? n
      Conference Parties with Public Network Trunks: 6      Auto Hold? y
      Conference Parties without Public Network Trunks: 6    Attendant Tone? y
      Night Service Disconnect Timer (seconds): 180_        Bridging Tone? n
      Short Interdigit Timer (seconds): 3                  Conference Tone? n
      Unanswered DID Call Timer (seconds): _____      Intrusion Tone? n
      Line Intercept Tone Timer (seconds): 30
      DID Busy Treatment: tone_____
      Allow AAR/ARS Access from DID/DIOD? n

ISDN PARAMETERS
Send Non-ISDN Trunk Group Name as Connected Name? n      QSIG TSC Extension: _____
Display Connected Name/Number for ISDN DCS Calls? n

DISTINCTIVE AUDIBLE ALERTING
      Internal: 1 External: 2 Priority: 3
      Attendant Originated Calls: external

```

Signaling Group Form

- All existing fields on page 1 apply to CISCs.
- The signaling group form page 1 has a field "Supplementary Service Protocol:" which may be set to "a" (national protocol, including AT&T) or "b" (QSIG).
 - Field determines whether AT&T NCA TSCs or QSIG CISCs are sent over the interface.
 - Because CISCs are on demand only, pages 2-5 of the form for administered connections do not apply to CISCs.
- BRI Trunk CISC administration via the BRI Trunk Board form.
 - AT&T TSCs not supported over BRI Trunk D-Channels.
- "Max NCA TSC" column controls the maximum number of CISCs that a particular BRI Trunk D-channel may carry.
- If a signaling group's SS Protocol field is changed from "a" to "b", the ISDN TSC Gateway Channel Assignment form must be checked first to make sure no NCA TSC on the signaling group form is administered as a Gateway Channel.
 - Users must remove the NCA TSC Gateway assignment first before the signaling group's SS Protocol field may be changed to "b".

- If a signaling group's "Supplementary Service Protocol:" is set to "b", it is an implementation option to either block administration for pages 2 through 5 or to not show pages 2 through 5.
- If pages 2 through 5 are administered and the "Supplementary Service Protocol:" is changed from "a" to "b", there is a warning message that those pages are blanked when the form is submitted.
- If a signaling group's "Supplementary Service Protocol:" is set to "b", the ISDN TSC Gateway form is checked.
- If the Gateway form uses an existing NCA TSC that would be removed by setting "Supplementary Service Protocol:" to "b", the signaling group change is blocked

Signaling Group form (page 1)

```

add signaling-group next Page 1 of 1
                        SIGNALING GROUP

Group Number: 1 Associated Signaling? n           Max number of NCA TSC: 0__
                Primary D-Channel: _____   Max number of CA TSC: 0__
                Secondary D-Channel: _____   Trunk Group for NCA TSC: __
Trunk Group for Channel Selection: __
Supplementary Service Protocol: b

Trunk Brd Interface ID Trunk Brd Interface ID
1: _____ 11: _____
2: _____ 12: _____
3: _____ 13: _____
4: _____ 14: _____
5: _____ 15: _____
6: _____ 16: _____
7: _____ 17: _____
8: _____ 18: _____
9: _____ 19: _____
10: _____ 20: _____

```

Route Pattern Form

- Existing "TSC" field is consulted to find a preference that can route a tandemed CISC (the field must be set to "y").

Trunk Group Form

- "NCA-TSC Signaling Group:" field points to the Signaling Group over which a tandem NCA TSC is routed on.
 - BRI Trunks are not administered with Signaling Groups, this field is changed to accommodate both PRI and BRI CISC routing.
 - There must be at least one member in the Trunk Group in order to use it to route tandem NCA TSC.

2 Networking Enhancements
Networking - ISDN Private

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- The Trunk Group Form field "NCA-TSC Signaling Group" is changed to "NCA-TSC Trunk Member" so that the signaling interface associated with the administered Trunk Member is used to route a tandem NCA TSC.
 - DEFINITY verifies that this field is administered to a valid trunk group member.

Trunk Group form

```

add trunk-group next                                     Page 2 of x
TRUNK FEATURES
  ACA Assignment? n                               Measured: none___ Wideband Support? n
Long Holding Time (hours): _                     Internal Alert? _   Maintenance Tests? y
Short Holding Time (sec): _                     Data Restriction? n   NCA-TSC Trunk Member: 7
  Short Holding Threshold: ___                 Send Name: n       Send Calling Number: n
  Used for DCS? n                             Hop Dgt: n
  Suppress # Outpulsing? n                     Numbering Format: ___ DCS Signaling: ___
Outgoing Channel ID Encoding: _____       UII IE Treatment: shared
  Maximum Size of UII IE Contents: 128
  Replace Restricted Numbers? n
  Replace Unavailable Numbers? n
  Send Connected Number: y

  Send UCID? n
Send Codeset 6/7 LAI IE? y

Path Replacement Method: better-route           US NI Delayed Calling Name Update? n

```

System Capacity Form

- The title Fixed TSCs on page 6 of the System Capacity form is changed to Administered TSCs.

System Capacity form (page 6)

```

display capacity Page 6 of 7
SYSTEM CAPACITY

System
Used Available Limit
-----

Recorded Announcement Analog Queue Slots: * * 150

TEMPORARY SIGNALING CONNECTIONS (TSC)
Administered TSCs: * * 128
NCA-TSC Calls: * * 256

TRUNKS
DSL Circuit Packs: * * 30
ICHT For ISDN PRI Trunks: * * 288
ISDN CBC Service Selection Trunks: * * 10
Trunk Groups: * * 99
Trunk Ports: 25 375 400

```

QSIG VALU Call Coverage (R8 only)

- QSIG-VALU is a term that describes DCS features that are ported to work in a QSIG network consisting of DEFINITY[®] ECS systems.
 - The messaging needed to implement the feature transparency is sent using the Manufacturer Specific Information (MSI) encoding provided by the QSIG standards.
- The encoding allows QSIG-VALU features to work between DEFINITY[®] systems in a QSIG network, even if the connection between the DEFINITY[®] systems includes non-DEFINITY[®] systems.
- QSIG-VALU Call Coverage feature extends the Call Coverage feature transparency when a coverage point is located on a remote DEFINITY[®] system connected via a QSIG network.
 - The Principal and coverage point users, located on DEFINITY[®] systems, see similar operational and display behavior for this feature as DCS Call Coverage.
- The signaling for this feature is built on top of the existing QSIG Call Diversion/Forwarding supplementary service.
- QSIG-VALU Distinctive Ringing feature extends the Distinctive Ringing feature transparency when a call is routed to a remote DEFINITY[®] system connected via a QSIG network.
- QSIG-VALU features require the administration of two fields:
 - QSIG-VALU on Customer Options form.
 - Trunk Group form.

Configuration/Environment

- To enable QSIG-VALU, the following customer options must also be enabled:
 - Offer Category "A"
 - ISDN-PRI or ISDN-BRI Trunks or Asynch. Transfer Mode (ATM) Trunking
 - QSIG Basic Supplementary Services
 - Software Version must be R8 or later.

Feature Description

Distinctive Ringing

- The DEFINITY[®] system provides distinctive ringing to the remote called party when the call is routed over a DCS network.
- It also provides two kinds of ringing pattern to the terminal based on the administration and origination of the call before routed over the network.
 - Internal
 - External
- There is no QSIG supplementary service (SS) or additional network feature (ANF) that provides equivalent capability so the called party can be provided with distinctive ringing when the call is routed over QSIG network.
- In DEFINITY[®] ECS R8 calls that are routed over QSIG network have the capability to provide distinctive ringing.
- When a user on the DEFINITY[®] system makes a call that is routed as a QSIG-VALU, the DEFINITY[®] system will send a MSI_DALERT in a Facility IE in a SETUP message.
 - The Ring_Type is encoded as internal or external based on the station type of the calling user.
- When a DEFINITY[®] system acts as a Transit PBX (for example, incoming QSIG-SSB trunk and outgoing QSIG-SSB trunk), the DEFINITY[®] system forwards the incoming MSI_DALERT towards the outgoing trunk.
- When a DEFINITY[®] system acts as an Incoming Gateway PBX and the call is routed as a QSIG-VALU call, the DEFINITY[®] system sends a MSI_DALERT in a Facility IE in a SETUP message.
 - The Ring_Type is encoded as internal or external based on either Call Type or Trunk Type.
 -
- When a DEFINITY[®] system acts as an Incoming Gateway PBX and the incoming call came over a QSIG SS-B trunk and the call is routed as a QSIG-VALU call, the DEFINITY[®] system sends a MSI_DALERT in a Facility IE in a SETUP message.
 - The Ring_Type is encoded as internal.
- The terminating DEFINITY[®] switch provides the appropriate ring pattern.
- Calls originated from attendants have a ring type element encoded based on the administration of field Attendant Originated.
- Incoming trunk calls routed out a QSIG-VALU trunk have a ring type element of the MSI_DALERT encoded

- The terminating PBX, upon receipt of a setup message including an MSI_DALERT facility IE, process the message to ensure that either internal or external ringing is applied as specified in the MSI_DALERT's ring type element.
- When there are gateway switches between the originating and terminating PBXs, functionality depends on the trunks connecting the PBXs.

Receiving MSI_DALERT at the Terminating PBX

- When a Terminating PBX receives a SETUP message containing MSI_DALERT in a Facility IE, the Terminating PBX provides the distinctive ring pattern to the Terminating station based on the ring pattern administered on the Feature Related System Parameters form.
- The receipt of MSI_DALERT overrides the incoming trunk administration for providing internal/external alerting based on field Internal Alert.

Mapping of Station Type to Ring Type

Station Type	Ring Type
Analog	Internal
MET or Digital	Internal
Data Terminal	Internal
Attendant or Attendant Group	based on field "Attendant Originated Calls" on Feature- Related System Parameters form. if "internal" --> Internal if "external" or "priority" --> External

Mapping of Trunk Type to Ring Type

Incoming Trunk Type	Ring Type
TIE with Field "Internal Alert =Yes (y)"	Internal
APLT with Field "Internal Alert =Yes (y)"	Internal
ISDN with Internal Alert = Yes (y)"	Internal
Remote Access Trunk	Internal
Other	External

Distinctive Ringing Administration

1. Option Value-Added Lucent (VALU) is Enabled on System-parameters customer-options form
2. The field QSIG Value-Added Lucent is selected as y and Supplementary Service Protocol Option shall be selected as B on a Trunk Group form to send QSIG-VALU Call Coverage MSI information to a remote switch in association with a call routing on that trunk group.



NOTE:

The administration to govern the ringing pattern at the called user's terminal is the same as the Distinctive Ringing feature.

Call Coverage

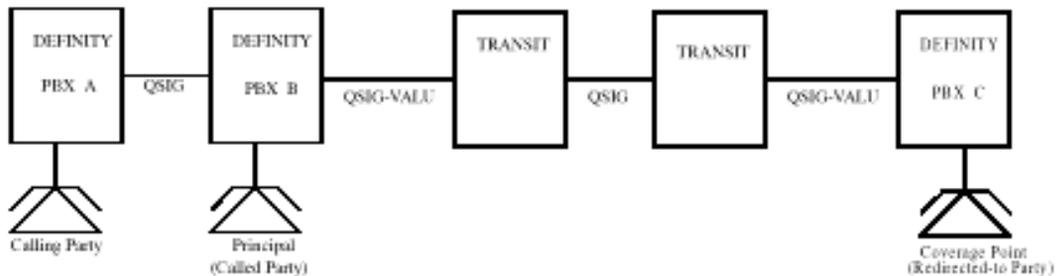
- The reasons for a call going to coverage can be that the Principal is active, busy, don't answer, cover all calls or activates/has activated send all calls, or the calling party activates go to cover while the call is alerting at the Principal.

History of Call Coverage

Call Coverage	Initially DEFINITY [®] allows Call Coverage points to be only on the local system.
Remote AUDIX [®]	DEFINITY [®] permits the last coverage point to be on a remote DEFINITY [®] system connected via a DCS environment to support centralized AUDIX [®] voicemail systems. Once the call is redirected to AUDIX [®] , the Principal loses control of the call.
Call Coverage Off-premises/ Remote Call Coverage	After the call is directed to a remote point, DEFINITY [®] permits the last coverage point to be an off-premises (public or private) Number.
DCS Call Coverage	DEFINITY [®] permits any of the coverage points to be on a remote DEFINITY [®] system connected via a DCS environment. The call retains the Principal's call coverage path similar to Call Coverage feature operating on a local system.
Coverage of Calls Redirected Off Net (CCRON)	DEFINITY [®] permits any of the coverage points to be an off-premises number. With this feature, a Call Classifier board is generally needed at the Principal's switch to determine the status of the call at the remote end. The call retains the Principal's call coverage path similar to the Call Coverage feature operating on a local system.

QSIG-VALU Call Coverage

- This encoding allows QSIG-VALU features to work between DEFINITY[®] systems in a QSIG network, even if the intervening connection includes non-DEFINITY[®] systems, as long as the intervening connection supports QSIG protocol.
- The signaling for this feature is built on top of the existing QSIG Call Diversion/ Forwarding supplementary service.



Basic QSIG-VALU Call Coverage Scenario

- QSIG-VALU Call Coverage enhances the operations for the users, similar to DCS Call Coverage, in the following ways:
 - Principal's coverage path and criteria are used to re-direct the call to QSIG-VALU coverage points.
 - If the QSIG-VALU coverage point is not available, and the call can be redirected to the subsequent coverage point based on the Principal's coverage path, the call to the coverage point is disconnected and the subsequent coverage point is alerted.
 - Coverage Point is alerted with distinctive ringing.
- Feature interactions for QSIG-VALU Coverage are in most cases the same as DCS Call Coverage.
- The DCS Call Coverage feature refers to Call Coverage feature for interactions.

QSIG-VALU Call Coverage

- Display equipped Coverage point sees the display as:

a= <Calling Party's Name OR >	<to>	<Principal's Name OR >	<flag>
Calling Party's Number		Principal's Number OR	
		Incoming Trunk Group's Name	

OR

(When Calling Party's Name and Number not available)

a= <Incoming Trunk Group's Name> <flag>
--

- Principal user is able to bridge on to the call while the call is routed to QSIG-VALU coverage points and after the call is answered by the coverage point.
- Calling party hears a coverage redirection tone before the call is routed to the 1st coverage point if the caller is on the same DEFINITY® PBX as the Principal, or if the incoming call received over a DCS or QSIG network provides an indication that the caller is provided with a ring pattern "internal".
- Calling party's display sees the reason code "Cover" (for Coverage).
- After the call is answered by the covering user, QSIG Path Replacement is initiated if the Principal user's Simulated Bridge Appearance (SBA) is not maintained, to provide path optimization.
- When the DEFINITY® switch at the Principal user determines that a call is routed as a QSIG-VALU coverage call, it sends a SETUP message with MSI_COV in a DL2 APDU in a Facility IE.
- The local Calling user to the Principal user hears "coverage redirection" tone, when the call is routed to the first coverage point.
- If the incoming trunk call terminates to the Principal user, and if MSI_DALERT was received with Ring_Type as internal, then when a call is redirected to coverage.
- The coverage redirection tone is sent towards the originating calling user from the Principal user's PBX.
- If QSIG-VALU is enabled, CCRON is enabled and the call is routed over QSIG-VALU trunk, the QSIG-VALU Coverage has a higher precedence than CCRON.

- If the call is interworked, the Principal user's PBX may receive PROGRESS message with progress indicator value.
 - Principal user's PBX treats the call as a G3V4 style Remote Coverage Call and drops Simulated Bridge Appearance (SBA) at the Principal. QSIG-VALU Coverage is no longer maintained.
- After the QSIG-VALU coverage call is redirected to the coverage point, the Principal user's switch attempts to redirect the call to the subsequent coverage point.
 - If the subsequent coverage point is unavailable, the call stays at the previous coverage point.
 - If the QSIG-VALU coverage call fails to find any available coverage point, the call stays at the Principal user.

Scenarios

QSIG-VALU Call Coverage Scenario

- Calling user on PBX A calls the Principal user B on PBX B.
- Call is redirected to a coverage point (User C) on PBX C.
- All switches connected by QSIG-SSB trunk with QSIG-VALU are enabled on all switches.

Coverage point is QDN or VDN Scenario

- The Calling user (for example, User A) on PBX A calls the Principal user (for example, User B) on PBX B.
- The call is redirected to a coverage point (for example, User C) on PBX C.
- All switches connected by QSIG-SSB trunk with QSIG-VALU enabled on all switches.
- The coverage point is a QDN (Queue Directory Number) or VDN (Vector Directory Number).

Coverage call to Unavailable Covering User Scenario

- The Calling user (User A) on PBX A calls the Principal user (User B) on PBX B.
- Call is redirected to a coverage point (User C) on PBX C.
- The second coverage point is a User D on the same switch as the Principal user.

Covering User Activates Send All Calls (SAC) while Ringing Scenario

- Calling user on PBX A calls the Principal user on PBX B.
- The call is redirected to a coverage point on PBX C. All switches connected by QSIG-SSB trunk with QSIG-VALU enabled on all switches.
- While the covering User C is alerted, the covering user activates Send All Calls (SAC).
- The second coverage point is User D on the same switch as the Principal user.

QSIG-VALU Coverage Administration

1. Option Value-Added Lucent (VALU) is Enabled on System-parameters customer-options form
2. The field QSIG Value-Added Lucent is selected as y and Supplementary Service Protocol Option is selected as B on a Trunk Group form to send QSIG-VALU Call Coverage MSI information to a remote switch in association with a call routing on that trunk group.
3. Field Immediate Redirection on receipt of PROGRESS inband information on the System Parameters -Call Coverage / Call Forwarding Form. The default value is n (no).
4. Field QSIG VALU Coverage Overrides QSIG Diversion with Rerouting on the System Parameters - Call Coverage / Call Forwarding is administered. The default value is n (no).
5. Field Maintain SBA at Principal on the System Parameters - Call Coverage / Call Forwarding form is administered. The default value is y (yes).

Remote Call Coverage Table

- The QSIG-VALU Call Coverage in R8 only works with covering users in the Remote Call Coverage Table.

New Administration for QSIG-VALU Coverage

1. Field Immediate Redirection on receipt of PROGRESS inband information on the System Parameters - Call Coverage / Call Forwarding form is administered.

The default value is n (no).

2. Field QSIG VALU Coverage Overrides QSIG Diversion with Rerouting on the System Parameters -Call Coverage / Call Forwarding has been added.

The default value is n.

This field is visible only if the customer purchased both of the following optional features and they are enabled:

- a. a.Option Value-Added Lucent (VALU)" (enabled on System-parameters customer-options form).
 - b. b.Option Supplementary Services With Rerouting (enabled on System-parameters customer-options form).
3. The field Maintain SBA at Principal on the System Parameters - Call Coverage / Call Forwarding form is visible.

Feature Interaction

Covered-to station unavailable

- A coverage point is considered unavailable if it:
 - Is not a valid extension (QDN or VDN)
 - Is not busy with no hunting or forwarding
 - has no staffed agents or an invalid vector

QSIG Call Forwarding/Diversion

- Upon receipt of call Rerouting invoke APDU from the Principal user's PBX, the Calling user's PBX acts as a Rerouting PBX.
- If the DEFINITY[®] system is capable to serve as a Rerouting PBX, then the DEFINITY[®] system sends MSI_DALERT to the forwarded to user, if the call is routed as a QSIG-VALU call.
- The Ring_type value is based on the calling user's terminal type or derived from the MSI_DALERT sent to the Principal user in a SETUP message.

Display Update to the Covering user

- This is same as Name and Number Identification Service.
- When a Principal user bridges on the call, its display is updated with the word "CONFERENCE" and counts for the number of parties on the call.
- The remote covering user and calling user display is not updated with the word "CONFERENCE".

QSIG Call Forwarding/Diversion

- Call forwarding has a higher priority than Call Coverage with QSIG-VALU Coverage.

Coverage of Calls Redirected Off-Net (CCRON)

- If both QSIG-VALU coverage is enabled and CCRON is enable, the QSIG-VALU coverage has a higher precedence then CCRON.

Privacy - Manual Exclusion

- With Call Coverage feature, when the Principal user bridges onto a call that goes to coverage and has been answered at the coverage point, the user is not dropped when Privacy - Manual Exclusion is activated by the Covering user.

Simulated Bridge Appearance (SBA)

- With QSIG-VALU, maintaining SBA for Principal user is based on the administration of the field Maintain SBA at Principal on the System Parameters - Call Coverage / Call Forwarding form.

QSIG Path Replacement

- The Principal user loses SBA if:
 - A call goes through A QSIG VALU Call Coverage
 - Principal user has a Simulated Bridge Appearance (SBA)
 - A call goes through a QSIG Path Replacement successfully

QSIG Call Transfer

- The Principal user will lose the SBA if a call that is transferred using QSIG Call Transfer transfer-by-join to a secondary and:
 - The call is routed to a covering user by QSIG VALU Call Coverage
 - The Principal user has a Simulated Bridge Appearance (SBA)
 - A call goes through a QSIG Path Replacement successfully



NOTE:

A principal SBA will be lost if a call is transferred to a user then goes to coverage and the QSIG VALU coverage point answers with a Path Replacement being successful. This will occur even if the field maintain SBA at Principal on the System-Parameters Call Coverage form is set to yes.

Adjunct Switch Applications Interface (ASAI)

- Inbound Call Management for ASAI controlled is done through VDN (Vector Directory Number).
- For QDN or VDN interactions with QSIG-VALU Call Coverage, Outbound Call Management for ASAI is controlled through a 3rd party call controlled procedures.
- The DEFINITY[®] system provides QSIG-VALU Call Coverage, Distinctive Ringing and Priority Calling based on the administrative knowledge on the DEFINITY[®] system.

Networking - ISDN Public

BellCore Calling Name ID

Bellcore Format with V.23 FSK

- The 24-Port Analog Line with CID feature supports the option to send Bellcore specification messages using V.23 modem protocol.
- Bellcore Format with V.23 FSK differs from the standard Bellcore format only in the frequencies used for the FSK signaling in the Physical Layer.
- Encompasses some Middle East countries such as Bahrain.

Bellcore National ISDN Calling Name Supplementary Service for PRI

- Provides the user with the capability on incoming calls, to receive Network provided Calling Name information, along with name presentation indication.
- Provides the user with the capability on outgoing calls, based on trunk group administration, for DEFINITY to provide the calling name and its presentation status to the network.
- Enables DEFINITY to provide users the same Calling Name capability provided by Central Office to residential customers.

**NOTE:**

DEFINITY only supports the Bellcore National ISDN Calling Name feature for PRI, and does not support the Bellcore National Calling Name feature for BRI.

There is no support for original called name information when a call has been forwarded or redirected.

- The Bellcore National ISDN Calling Name feature supports:
 - Calling Name Delivery: the Network delivers to a subscribed terminating PRI interface the name information at the time of call setup or just after the call setup.
 - The name information may include name characters, a private indication, or an unavailable indication. If the name is marked "presentation restricted" or not available, the Network delivers the private/unavailable indication in the SETUP message.
 - When name characters are to be delivered, the information is delivered either in the SETUP message, or in a FACILITY message after the SETUP message has been delivered.

- Origination of Calling Name: based on trunk group administration, an originating DEFINITY may send the Calling Name information and its presentation status to be presented to the terminating user.

 NOTE:

Bellcore Calling Name is a public network feature and its feature operation is very much dependent on how the National ISDN trunk interfaces are provisioned at the CO switch (whether to accept CPE originated Calling name, how to deliver Calling Name with or without Privacy Override).

Capacity Constraints and Feature Limitations

- DEFINITY will be capable of receiving up to 50 characters of Bellcore National ISDN Calling Name information but display a maximum of 15 characters.
 - Truncation behaviors will truncate names longer than 15 characters to the first 15 characters to be displayed.

 NOTE:

DEFINITY does not support optional capabilities to interpret/display the original called name information when a call has been forwarded or redirected.

- If the Bellcore Calling Name information is received during Call Setup time, this feature presents the same end user interface when displaying calling name information.
- Based on user administration for this feature, if Calling Name is received later in a FACILITY message, there may be a display update to include Calling Name in the “calling” part of an incoming call display.
 - This display update may erase any Call Center collected/prompted/ CINFO/II digits being displayed on agent CallMaster sets but agents can redisplay the digits via a feature button.

Call Processing

- When the network decides a name database query is needed to retrieve the name information, the incoming call's SETUP message does not include the name data and is coded with an operation “informationFollowing”.
 - The actual name characters are delivered in a later FACILITY message with a Facility IE coded with an operation “calling-Name”.

Calling Name Coded "Presentation Allowed" in SETUP Message

- If Calling Number is included in the SETUP message as well, the Terminating Party station display looks like:
a= CALLING-NAME CALLING-NUMBER MISCID
- If no Calling Number is included in the SETUP message, the Terminating Party station display looks like:
a= CALLING-NAME MISCID

Calling Name Coded "Presentation Restricted" or "Not Available" in SETUP Message

- If Calling Number is included in the SETUP message, the Terminating Party station display looks like:
a= CALL FROM CALLING-NUMBER MISCID
- If no Calling Number is included in the SETUP message, the Terminating Party station display looks like:
a= TRUNK NAME TAC

"Information Following" Coded in SETUP Message

- DEFINITY delivers the call immediately using any Calling Number information in the SETUP message for initial display information.
- After the call has been delivered, if Bellcore Calling Name information is received in a FACILITY message, DEFINITY checks the "Bellcore Calling Name Display Update?" field administration to determine if a display update should be provided using the Calling Name information.
 - If the field is set to "n", there will be no display update.
 - If the field is set to "y":
 - If Calling Number was included in the SETUP message, the Terminating Party station display update looks like:
a= CALLING-NAME CALLING-NUMBER MISCID
 - If no Calling Number was included in the SETUP message, the Terminating Party station display update looks like:
a= CALLING-NAME MISCID

Feature Administration

- Available if "ISDN-PRI" is administered on the system-parameters customer option form.
- Following the DEFINITY administration scheme, the Bellcore Calling Name feature for PRI is selected for ISDN PRI or ATM trunk groups as follows:
 - The DS-1 interface for PRI or the signaling group for ATM Trunk is administered with country protocol "1b" for Bellcore.
 - The ISDN Trunk Group SS option (Supplementary Service option) is administered "A" for National Supplementary Service protocol .
 - The ISDN Trunk Group "Send Name:" field is administered to either "y" or "r" in order to originate Calling Name information for outgoing calls.

Calling Name Display Update

- Before DEFINITY release 8.1 calling number and/or calling name display to the called station was provided when the SETUP message was received, except in the case of Call-by-Call subscription of ANI delivery by the AT&T PRI network.
- The 5ESS network database query timer is set to one to six seconds (three seconds is the default).
 - The aim of DEFINITY support of the Bellcore Calling Name is to present as similar a user interface as the LEC Caller-ID service. Caller-ID usually delivers the Caller ID information on the 2nd ring cycle with each ring-silence cycle defined as 6 seconds.
- Given the Caller-ID information delivery timing, the LEC network switch should be delivering the Calling name information to DEFINITY within 2 rings as the call is being alerted and therefore there is no need to delay any call alerting on DEFINITY.
 - Customers can select whether to get a display update with name information if name was not initially displayed when the call was first alerting at the Called station.

Bellcore National ISDN Calling Name Update

- A new administration parameter added to the ISDN Trunk Group form if the "SS option" field is set to "A":
- The new field "US NI Delayed Calling Name Update?" is a "y/n" field and defaults to "n"(o).
 - If it is set to "n" and Calling Name information is received after the incoming call has been delivered to the Called station, there will be no display update to the terminating station with the Calling name information.
 - If the field is set to "y" and Calling Name information is received after the incoming call has been delivered to the terminating station, there will a display update with the Calling Name information in the "calling" portion of the display.
 - This field can only be set to "y" for ISDN PRI or ATM trunk group types with corresponding trunk interface that selected "1b" as the Country Protocol (on DS-1 form for PRI trunk or on signaling group form for ATM trunk).
 - If this field is set to "y" for other ISDN trunk group types, at form submission time the SAT cursor will placed on this field and the following error message displays "BRI trunks do not support this value".

Option A Change

- With the support of Bellcore Calling Name under SS Protocol "A" (National SS), the "r" choice is allowed.
- DEFINITY Call Processing code enforce a check if "Send Name: r" is administered for an SS Option A trunk group not associated with a Country Protocol "1b" PRI interface results in no Calling name being sent (as if the "Send Name:" field is set to "n").

SS Option A Choices

- The "Send Name:" field on page 2 of ISDN Trunk Group form allows the "r"(estricted) choice when the "Supplementary Service Protocol" is set to "A" (National SS protocol). Standard error and help messages apply.

Trunk Group Page 2 screen with the new field choice and new field.

```

change trunk-group 1                                     Page 2 of 10
TRUNK FEATURES

      ACA Assignment? n           Measured: none           Wideband Support: n
                                Internal Alert? n           Maintenance Tests? y
                                Data Restriction? n          NCA-TSC Trunk Member:
                                Send Name: r                 Send Calling Number: y
      Used for DCS? n
      Suppress # Outpulsing? n  Numbering Format: public
      Outgoing Channel ID Encoding: preferred UUI IE Treatment: service-provider

                                Replace Restricted Numbers? n
                                Replace Unavailable Numbers? n
                                Send Connected Number: y

      Send UCID? n
      Send Codeset 6/7 LAI IE? y

                                US NI Delayed Calling Name Update? n

```

**NOTE:**

For the Bellcore National ISDN Calling Name feature for PRI, DEFINITY supports the callingName, NAME, NamePresentationAllowed, NamePresentationRestricted, NameNotAvailable, NameData, NameSet, and CharacterSet.

Messaging

- Basic call message SETUP and the FACILITY message are used to convey the FACILITY IEs used for Bellcore National ISDN Calling Name service.

Interworking

- DEFINITY supports Calling Name for the following types of ISDN networks:
 - QSIG private network (multi-vendor networks)
 - DCS/DCS+ private network (DEFINITY only networks)
 - AT&T Custom PRI private network (DEFINITY only networks)
 - AT&T Custom PRI public network (4ESS networks)
 - Green Feature only: Nortel SL1 and DMS250/100 networks
- Calling Name information interworking is supported between any two of these networks
 - QSIG
 - DCS/DCS+
 - AT&T Custom PRI private or public network.

- With the addition of Bellcore National ISDN Calling Name feature, interworking of Calling Name in the Bellcore National ISDN network will also be fully supported if the Bellcore Calling Name information is available in the SETUP message.
 - There is no interworking of the Bellcore Calling Name with other PRI networks if the Bellcore Calling Name is not in the SETUP message.

Calling Name Delivery

Originating PBX Procedures

- DEFINITY may originate Calling Name information for Bellcore National ISDN calls, based on outgoing trunk group administration.
- The new administration allows the "Send Name:" field to be set to the "r(estricted)" choice when a trunk group is administered for the SS A option (National Supplementary Service).
 - If the trunk group interface is not "1b" (National ISDN for North America), Name information does not include Presentation indication information and thus it is not possible to send Presentation Restricted Name information.
 - DEFINITY will not send any name information and act as if the "Send Name:" field is set to the "n(o)" choice.

Terminating PBX Procedures - Name Information Available, or Restricted or Not Available

- When the egress Network switch determines that the name information can not be obtained for the call, the switch sends name information in a Facility IE in the SETUP message, coded with an indication of either "presentation restricted name" or "unavailable name".
- When DEFINITY receives such a Facility IE, DEFINITY will follow existing procedures for calls received without Calling Name or a Restricted Calling Name.
- In addition, in the case if the Originating CPE had sent Calling Name information, and if the Network switch is optioned to deliver Calling name in a SETUP message, the network switch will deliver the Calling name in the SETUP message directly and DEFINITY current incoming Calling Name procedure for that case applies.

Terminating PBX Procedures - Name Information to Follow

- When the egress Network switch determines that a database query will be launched to retrieve name information, the switch sends an indication of "information following" in a Facility IE in the SETUP message.
- The actual name information is provided in a subsequent FACILITY message. DEFINITY will deliver the call as in current behavior without any delay to wait for FACILITY message with Calling name information.

Calling Name Available

- After the incoming call has been delivered to the Called station, if a FACILITY message is received in Call State Incoming call proceeding, or Call received, or Connect request, or Active, and if the message contains a valid "callingName" operation, DEFINITY will check the incoming trunk administration as follows:
 - If the "Bellcore Calling Name Display Update?" field is set to "y", DEFINITY will prepare the incoming call display again to include the Calling Name information received and will display it to the Called station.
 - The Calling Name information is saved and be included for any subsequent display should the call be transferred/forwarded/covered to another station on switch.
 - If the "Bellcore Calling Name Display Update?" field is set to "n", DEFINITY will not send any display update to the Called station but will save the received Calling Name information for subsequent use.

Feature to Feature Interactions

Incoming Call Identification

- Users may select through administration option to receive a display update if Calling Name information is delivered by the Bellcore National ISDN PRI network after the call has been alerting at the Terminating station.

Automatic Call Distribution - Display Agent Terminal

- Users may select through administration option to receive a display update if Calling Name information is delivered by the Bellcore National ISDN PRI network after the call has been alerting at the Terminating station.

ISDN - DCS over ISDN PRI D-Channel

- The Bellcore Calling Name information will be interworked with DCS+ (DCS Over ISDN) network, if the Calling Name information was received in the initial Bellcore National ISDN PRI SETUP message.

ISDN - Multi-vendor Feature Transparency QSIG Calling Name Identification

- Bellcore Calling Name information will be interworked with QSIG network, if the Calling Name information was received in the initial Bellcore National ISDN PRI SETUP message.

Bridging

- Users can choose to receive a display update when Bellcore Calling Name information is received after the call has been delivered to the Terminating station. If there is a bridged appearance for the Terminating station, then the display update will apply to the bridged appearance station as well.

Call Coverage

- When Call Coverage All or Coverage Busy is in effect and the call coverage path directs the call off switch to another type of network (non-Bellcore ISDN PRI), the redirected call will not contain any Calling Name information.

Call Forwarding

- When Call Forwarding is in effect and the call is forwarded off switch to another type of network (non-Bellcore ISDN PRI), the redirected call will not contain any Calling Name information.

Send All Calls

- When Send All Call is active for the Called station and the call is sent off switch to another type of network (non-Bellcore ISDN PRI), the redirected call will not contain any Calling Name information.

Feature Plus – Non-DID Calling via UDP (R8 only)

Administration

- Available to Offer A only.
- The number of digits to send in the Calling Party Subaddress IE must be administered.
- In order to allow the most flexibility for routing alternatives, the administration was added to the route pattern form.
- New field only administered if the software is version 8 or above and ISDN Feature Plus is enabled.
- Sending Feature Plus information is only valid on trunk groups administered with Supplementary Service Protocol.
- A new numeric field No. Dgts Subaddress added to the Route Pattern form.
 - Default is blank.
 - Field can not be administered unless the switch is administered as version 8 or later.
 - Field can not be administered unless ISDN Feature Plus is enabled.

Feature Interactions

Abbreviated Dialing

- Pseudo DID extensions may be assigned to abbreviated dial buttons.

Automatic Alternate Routing (AAR)

- Whether straight AAR or Shortcut AAR is used, any digit collection on the associated route pattern preference applies.

Automatic Route Selection (ARS)

- Whether straight ARS or Shortcut ARS is used, any digit collection on the associated route pattern preference applies.

Call Coverage

- Pseudo DID allows the DID extension to be used as the Covered-to extension.

Call Forwarding

- Pseudo DID allows the DID extension to be entered as the forwarded-to extension.
- The interaction is shared Calling Party Subaddress IE encoding.

Hunt Groups

- Pseudo DID extensions can be hunt group extensions.

Last Number Dialed

- The dialed Pseudo DID extension applies.
- Once the call has been routed to the DID extension, the call is treated as though it was received directly.

Terminating Extension Group

- Pseudo DID extensions can be TEG group extensions.

Vectoring

- Pseudo DID extensions can be VDN extensions and can be used in vector routing steps.

World Class BRI

- When route patterns are administered for sending the Pseudo-DID extension, the DID extension must take precedence over a subaddress received from a BRI terminal.

DID Subaddress and WCBRI Subaddress

- The DID subaddress extension take precedences over any pre-existing Calling Party Subaddress.

AUDIX[®]

- A Pseudo-DID extension can be used when transferring out of AUDIX[®] so long as the dialed extension adheres to the AUDIX[®] limitations (maximum extension length of 5).

Call Detail Recording (CDR)

- CDR records do not print the attendant access code (not routing Pseudo-DID calls to the attendant).

Pseudo-DID CDR Records

- When a Pseudo-DID call is received at an LDN, the CDR record prints the Pseudo-DID extension received in the Calling Party Subaddress IE rather than the attendant access code.

Alerting Ring Pattern

- If the incoming trunk group, which terminates to the LDN, is administered as tie, the ring pattern administered on the trunk for incoming calls apply.
 - If Internal Alert? is yes, the system ring pattern administered for internal calls apply.
 - If Internal Alert? is no, the system ring pattern for external calls apply.
 - If the trunk group is not tie, the system ring pattern administered for external calls applies.
- When calls are received for LDNs and the switch is in night service, the calls are redirected to the administered night service extension.
 - The night service extension are ignored for Pseudo-DID calls and routed to the received extension regardless of night service status.

Signaling

For Phase 2 Feature Plus, information is transported in the Calling Party Subaddress IE using the existing Feature Plus platform.

- The IE was chosen to allow flexibility on networks supporting less than the standard 23 octet IE.
- For networks that do support the standard IE, both calling name and pseudo DID are fully functional when transported in the Calling Party Subaddress IE.

- Interactions with calling name do not allow both features over networks supporting Subaddress IEs with a maximum of 8 octets.
 - The only confirmed networks with this limitation are France's VN4 and P1020.
 - BT may also have the 8-octet restriction on some of its older equipment.
 - If pseudo DID is the chosen feature, coverage/forward information is not available, which also means that centralized AUDIX[®] is not available.

**NOTE:**

Since the digit collection is done via the route pattern, this function can be applied to all dial plans (UDP, AAR, AAR Shortcut, ARS, and ARS Shortcut).

Originating DID Subaddress

- For routing preferences indicating non-blank subaddress digits, the number of digits indicated by administration are extracted from right to left.
 - For example, a user dialing 94010 and 4 digits administered to be sent as the subaddress, results in extracting 4010 as the subaddress.
- If the trunk group associated with the routing preference is administered as SSF, a Calling Party Subaddress IE is sent in the resulting SETUP message.
- The Subaddress IE contains a DID identifier followed by the extracted subaddress digits encoded using the digit compression algorithm of 2 digits per byte. 1
- For Pseudo DID extensions not dialed directly, no additional procedures are required.
- The maximum information size is the full standard 20 octets (15 characters name plus identifier and 5 digits packed into 3 octets for Pseudo DID plus identifier).
 - Three octets are required for standard Subaddress IE header encoding.

Originating Pseudo DID

- Used to transport the DID extension in the Calling Party Subaddress IE.
- The IE is not transported over any supplementary service protocol.
- The administered number of subaddress digits are extracted right to left.
 - If the route pattern indicates 4 digits and the user dialed 94010, 4010 is transported as the subaddress.

Terminating Pseudo DID

- When a call is received for an LDN extension on a SSF interface, the Calling Party Subaddress IE is checked for a DID extension.
 - If present, the call is routed to the extension rather than the attendant.
- Once the call has been routed to the DID extension, all existing procedures for direct incoming calls apply.
 - If the DID extension is restricted for incoming calls, existing procedures apply.

DID Subaddress and Night Service

- If the switch is in night service and a DID Subaddress is received at a LDN, the Night Service Extension is ignored and the call routed to the extension received in the Calling Party Subaddress IE.

**NOTE:**

Applies only on failure to route.

If termination is not possible for reasons such as a restricted or busy user, existing failure procedures will apply.

Once the call has been routed to the specified extension, the call will be treated as though it was received directly.

Route to Attendant on Failure

- If routing to the DID subaddress fails, the call is routed to the attendant group as is done for all LDN calls.
- Lay out of the calling party subaddress IE content if both pseudo DID number and calling name information needs to be sent at the same time.

**NOTE:**

Information is terminated by NULL and there is no length information in the content.

If the calling name is 15 characters long then the NULL character is omitted.

Shared Calling Party Subaddress IE Contents

- When a Pseudo DID extension is assigned in conjunction with calling name (trunk group Send Name? y), both the calling user's name and the DID extension are transported in the Calling Party Subaddress IE.
- By default, for networks supporting less than the standard 23 octet IE, calling name information is discarded.

Terminating DID Subaddress

- When a call is received over an SSF interface for an LDN extension, the Calling Party Subaddress IE is checked for a DID extension.
- If present, the call is routed to the DID extension rather than the attendant.
- Once the call has been routed to the DID extension, all procedures for a direct incoming call apply.
- Since a DID extension received as a subaddress can be the result of AAR, ARS or UDP dialing on the originating side, ringing applies based on the administered ring pattern for external calls unless the trunk group is administered with Internal Alert? yes (applies only to tie trunks).

ISDN Feature Plus Phase 2

- Provides users without Direct Inward Dialing (DID) the capability of direct dialing (via the public network) users on a remote PBX.
- Available according to the following parameters:
 - ISDN Feature Plus is a set of features using non-standard ISDN signaling to give users feature transparency over public networks.
 - A non-blank subaddress entry on the route pattern form causes routing digits to be sent to the terminating end.
 - When these digits are received, the call will route based on the received routing digits.
 - Must only be used for route preferences destined for public LDNs.
 - For networks supporting less than the standard 23 octet Subaddress IE, either calling name or Pseudo DID information can be transported, but not both.
 - Recommended to turn off calling name since it will be truncated to only 6 characters.
 - For users without DID, remote extensions can only be reached over public networks by dialing the Listed Directory Number (LDN) of the remote location and having the remote attendant redirect the call to the appropriate extension.
 - Using the Feature Plus platform to provide Pseudo DID, a remote user's extension is transported across a public network in a Subaddress IE.
 - The remote user is accessed by their assigned extension and any other routing digits required, such as an AAR access code.
 - Utilizing existing DEFINITY[®] system digit manipulation, the remote user's extension is converted to the correct public LDN.

2 Networking Enhancements

Networking - ISDN Public

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- When a LDN call is received, the incoming SETUP message is checked for a Calling Party Subaddress IE containing a DID extension.
- If the extension is present, the call will not be sent to the attendant, as is currently the case. The call will, instead, be routed to the indicated extension.
- Feature Plus Pseudo DID will only work over trunk groups assigned Supplementary Service Protocol Option f.
- Requires the originating and terminating nodes in a network to be DEFINITY® ECS release 8 or later.
- Tandem nodes in the network may be other vendor's so long as they support transmitting the Calling Party Subaddress IE in SETUP.
- A pre-release 8 DEFINITY® ECS can also be included in the network as a tandem node.
- Applicable offer category is B.

Multiple Pubnet Calling/Connect Numbers/ System (Italy)

Multiple public-network calling/connected numbers per system

- Provides the user with the capability to send out different "main" numbers for trunks associated with different network providers.
- In Tenant Partitioning where each tenant is using specific trunks, this can also ensure that proper calling/connected numbers are sent out based on the trunks used.

Description

- The WCBRI Platform is enhanced to support new messages and IEs for supporting the tandeming of AOC information.
- The new message type to be supported is the FACILITY message.
- INFORMATION message containing AOC is now tandemed to WCBRI.
- New IEs to be supported include the FACILITY IE, the Display IE, and the various AOC IEs.

Enhancements

- Multiple public-network calling/connected numbers per system
 - Provides the user with the capability to send out different “main” numbers for trunks associated with different network providers.
 - In Tenant Partitioning where each tenant is using specific trunks, this can ensure that proper calling/connected numbers are sent out based on the trunks used.
 - Public networks may check the accuracy of the Calling Line Identification number information sent by a CPE.
 - The number is checked to make sure it is within a provisioned range.
 - If the number is not accurate based on the trunk group used, the DEFINITY[®]-provided Calling Number would be deleted and a network-provided “main billing” number would be used instead.
 - This creates a situation in which the caller's extension information is lost, adversely impacting the caller identification in both emergency and normal situations.
 - In outbound call management applications for third party companies, multiple trunks and numbers would be used and accurate Calling Number information is provided by DEFINITY[®] system on call originations.
- Pass network Advice of Charge (AOC) information to all protocol WCBRI endpoints provides the user with the capability to tandem transparently network provided AOC information to all WCBRI endpoints.
 - The AOC information can be used by WCBRI stations for local station display purposes. Network AOC information to be passed include: ETSI, CEPT Italy, and NTT INS-NET 1500 Japan.

**NOTE:**

DEFINITY[®] Global Offer Management has decided it is not necessary to support Spain CEPT AOC based on an ETSI AOC deployment date in Spain.

The Australian TPH 2001 AOC standards have not been widely implemented by BRI endpoint vendors in Australia, and there are plans for the Australian network to switch to ETSI AOC.

Capacity Constraints and Feature Limitations

- When a switch is administered for the multiple public network numbering enhancement, the number of administered entries in the ISDN public-unknown number form could increase by n fold with “n” being the number of distinct main numbers that the switch needs to originate for outgoing calls.
 - The maximum form entries (8 pages of 30 entries each) was considered sufficient, and therefore not increased.
- Maximum number of number digits displayed including any national/international prefix remains at 15 digits.
 - Numbers longer than 15 digits will be truncated to the first 15 digits of number information (this is consistent with the current DEFINITY[®] system number/name truncation behaviors).
- Maximum national or international prefix length is 5 digits.
- Network provided AOC information is tandemed transparently to WCBRI endpoints.
- Display of the AOC information at end user stations is dependent on the station capability.
- DEFINITY[®] system does not control WCBRI station display functions.
- There is no mapping or conversion of Network side (PRI) AOC protocol to Line side (WCBRI) AOC protocol.

Configuration/Environment

- These enhancements are available regardless of the administered software version on a DEFINITY[®] switch.
- The ISDN enhancements are considered as basic networking requirements for many international countries, and thus are available in both Offer A (ECS, including a full DEFINITY[®] with expensive circuit packs) and Offer B (BCS and GuestWorks[®]) categories.

Feature Interactions

Call Coverage Remote Off-Net (CCRON)

- When a remote coverage call is brought back into the DEFINITY[®] system to follow the called party's original coverage path, the call is subject to prefixing if the prefixing feature is administered.

Calling Line Identification (CLI) Prefix

- Can apply a prefixing treatment (digit deletion, digit insertion, new PI encoding) to outgoing tandem calls (an updated CPN IE is sent out) and to locally terminated calls (an updated CPN number information is displayed).
- If CLI Prefix is administered on a trunk group, any incoming Calling Party Number IE is modified first by the CLI Prefix feature, then any International/National prefix is applied to the modified CPN IE.
- If CLI Prefix is administered for a Trunk Group, any incoming Calling Party Number IE is first modified by the CLI Prefix feature.
- If the call is to be tandemmed out, the CLI Prefix modified CPN IE is sent in the outgoing SETUP message per existing DEFINITY® system behavior.
- If the call terminates locally, the CLI Prefix modified CPN IE is checked to see if any International/National prefix should be applied.

Display

- If the International/national prefix feature is administered, features that would display any number information (Calling, Connected, QSIG-VALU Called, QSIG-VALU Busy) display any resulting prefix-appended national/international number to user stations.

ISDN – Basic Rate Interface

- The Calling Party Number IE tandemmed to BRI interface remains the originally received CPN IE from PRI, without any prefixing applied.

ISDN – WCBRI

- The Calling Party Number IE tandemmed to WCBRI interface remains the originally received CPN IE from PRI, without any prefixing applied.

ISDN – DCS over ISDN PRI D-Channel (DCS+)

- DCS+ may be administered to display the ISDN Connected number information, which will be subject to the prefixing enhancement.

Adjunct Switch Applications Interface (ASAI)

- For many customers over the ASAI interface, the received Calling/Connected Party Number IE will be sent, without any International/National prefix.
- In certain CTI applications, there is a need to receive prefixed Calling/Connected Number information so the correct call-back applications may be launched using the prefixed number information.

Passing Prefix to ASAI

- If the Pass Prefixed CPN to ASAI? field on the system-parameters features form isdn page is set to y, and if a Calling Number or a Connected Number received a prefixing treatment, the prefixed Calling/Connected Number information is used in the CPN IE digit string in Octet 4 and beyond sent out over any ASAI BRI link.

Transmission Interface

- The ISDN enhancements only affects D-channel information signaling and end user displays, and have no impact on the B-Channel connection used for each call.
- The new IEs include Codeset 0 Facility IE (ETSI), Codeset 0 Display IE (Australia), Codeset 6 (CEPT Italy) Charging Information IE, and Codeset 6 AOC IE(Japan).

Administration

- Enhancements to provide multiple public network numbers and to display national/international prefix all require new administration.



NOTE:

The AOC enhancement does not require new administration.

Multiple Public Numbering Admin for Trunk Groups

- Add a new field, Trk Grp(s), for each CPN isdn public-unknown-numbering form.
- Field can be set to any valid administered "isdn" type trunk group's number, or to any range of valid administered "isdn" type trunk group numbers.
- Field defaults to blank and can have valid values of 1 to the maximum number of trunk groups supported on the system.
- If this field is blank, the identification numbers (Calling, Connected, QSIG-VALU Called, or QSIG-VALU Busy) originated will not be dependent on which trunk group the call is carried on.
- If an individual trunk group number is entered and if the number is outside of the valid trunk group number range, or if the trunk group number is unadministered, or if the trunk group is not an isdn trunk group, the respective error message "Group number out of range" or "Group not assigned" or "Group is not an isdn trunk-group" is returned.
- If an unadministered group number is entered in a Trunk Group number range, the DEFINITY® system returns an error message "At least 1 group in the indicated range is not assigned".

- If an administered group number is entered in a Trunk Group number range, but the group type is not "isdn", the DEFINITY® system returns an error message "At least 1 group in the indicated range is not an isdn trunk-group".
- If a trunk group number range is entered, the first number must be less than or equal to the second number; if not, the DEFINITY® system returns an error message "Second trunk-group number cannot be smaller than the first".
- If the user enters a range where the first number equals the second number, the entry is shown with only a single number the next time the form is brought up.
- With the addition of the Trk Grp(s) field, multiple entries with a given Ext Len/Ext Code combination (whether the Ext Code is set to attd or numeric extensions) is allowed as long as they do not share or overlap the same Trk Grp(s) value.
- If a Trk Grp(s) value is duplicated/overlapped within an Ext Len/Ext Code combination, the DEFINITY® system returns an error message "At least 1 Trk Grp(s) value already in use for this Ext Len/Ext Code combination".
- If a trunk group number is entered in at least one Trk Grp(s) field in the isdn public-unknown-numbering form, and if any administration command is entered to either change the group type to non-isdn, or to delete the trunk group, the DEFINITY® system returns an error message "Remove trunk group from `isdn public- unknown-numbering' form first".

National and International Prefix Administration

- The ISDN parameters section of the system-parameters features form (which only appears if the administered software version is V5 or later) new administrable number/text fields for the prefixing feature.
- The fields entitled National CPN Prefix: and International CPN Prefix: have a field length of 5.
- The default for these fields are blank, to be interpreted that no national or international prefix is appended to identification numbers displayed.
- Valid entries for these fields include any digit 0-9, *, and #.
- Any digit or * or # may be entered in any position within the prefix and may be repeated within the prefix.
- This field does not allow any leading or embedded blanks, and trailing blanks shall be ignored.
- The help message for these two new fields shall be "Enter up to 5 characters (0-9, *, #), or blank".

- The ISDN parameters section of the system-parameters features form new field Pass Prefixed CPN to ASAI?.
- Valid values of n (no) and y (yes) and shall default to n (no).
- Can be administered regardless if ASAI has been selected on the system-parameters customer-options form.

**NOTE:**

The ISDN parameters page of the system-parameters features form does not appear unless the administered software version is V5 or later.

Numbering Form Administration

Example

- User extensions range from 300 to 900 and these extensions can make outgoing calls and receive incoming calls.
- The customer currently has 5 total entries for these extensions in the isdn public-unknown numbering form administered to send a single main number "672987" followed by the extension number.
- ACD agents extensions range from 2000 to 2999 and these extensions can receive incoming calls only and are not allowed to make external calls.
- There are no isdn public-unknown numbering form entries for these extensions.
- There are 59 ISDN PRI trunk groups, 24 trunk groups are bidirectional, 29 trunk groups are used for incoming calls only, and 6 trunk groups have no members and are used for testing only.
 - 24 trunk groups for which the switch may send Calling/Connected/QSIG-VALU Called/QSIG-VALU Busy numbers, and 29 trunk groups for which the switch may send Connected/QSIG-VALU Called/QSIG-VALU Busy numbers.
- 29 physical E1 PRI trunk interfaces representing actually 8 different main numbers.
- If the customer decides to administer to send different main numbers based on trunk groups used, and assuming that:
 - Stations with 3 digits extensions can send Calling Number when using a single trunk group numbered 1; stations with 3 digits extensions can send Connected/QSIG-VALU Called/QSIG-Valu Busy Numbers when using trunk group 1.
 - If one numbering form entry is used for each set of extensions (300-900), a total of 7 entries would be entered.

- Stations 2000 to 2999 can send Calling Number information when using the 24 bidirectional trunk groups numbered 2-25; stations 2000 to 2999 can send Connected/QSIG-VALU Called/QSIG-VALU Busy Number information when using the 29 incoming-only trunk groups numbered 26-54.
 - If one numbering form entry is used for the entire group of 2000-2999 extensions, a maximum of 53 entries may be entered (if no trunk group number range is used, but each individual trunk group number is entered).
 - But if some trunk group ranges are used, the number of entries could be significantly less.

Pass Prefixed CPN to ASAI? field

- Default: n
- Help: n (no) y (yes)
- Error(s): x is an invalid entry; please press HELP

Administering the CPN Prefix feature

- Select an ISDN networking option on the system-parameters customer-options form either ISDN or ISDN-BRI Trunks.
- If a national prefix is desired, administer the National CPN Prefix field on the system-parameters features form.
 - If an international prefix is desired, administer the International CPN Prefix field.
 - The appropriate prefix is then applied to all incoming ISDN calls with the corresponding type of national or international Calling Number encoding.
- Administer the Pass Prefixed CPN to ASAI? field to y if desiring the non-default value, then any Calling Number for inbound calls passed to ASAI will include prefix if the call should get prefix treatment, or any Connected Number for outbound calls passed to ASAI will include prefix if the call should get prefix treatment.

Administration Procedures

Step by step

- Select an ISDN networking option on the system-parameters customer-options form: either ISDN or ISDN-BRI Trunks.
- Administer two or more ISDN type trunk group with trunk group number 11 and 22.
- Administer entries in the isdn public-unknown- numbering form
 - For each Ext Len/Ext Code combination desired, one entry may be entered with 11 as the Trk Grp(s) value, another entry may be entered with 22 as the Trk Grp(s) value.
 - Enter the appropriate CPN Prefix and Total CPN Length values for each entry.
 - For calls originated in Trunk Group 11, a CPN number is generated for outgoing calls using the Ext Code/CPN Prefix/Total CPN length values for the Trk Grp(s) 11 entry in the numbering table.
 - For calls originated in Trunk Group 22, a different CPN number is generated by using the Ext Code/CPN Prefix/ Total CPN Length values for the Trk Grp(s) 22 entry.
- If trunk groups numbered from 11 to 22 should all use the same CPN Prefix (for the same public trunk's main number), one entry in the isdn public-unknown numbering form can be administered with 11-22 in the Trk Grp(s) field.

Call Processing

- Originating Calling/Connected Number Based on Trunk Group Numbers
 - For ISDN calls, if a specific Identification Number (Calling/Connected) is to be originated by the DEFINITY[®] system (if the Trunk Group form Page 2's Numbering Format field is public), DEFINITY[®] use of the ISDN Number-Public/Unknown table to determine the number sent is enhanced to check the new Trk Grp(s) field.
 - If there is an Ext Code entry for the station in question and if the Trk Grp(s) field is administered to the Trunk Group number that the call is carried on, or if the Trk Grp(s) field is administered to a Trunk Group number range which contains the Trunk Group number that the call is carried on, the station's Identification number is generated using this entry's administration.
 - Otherwise, an entry with Ext Code that matches the station extension and with a blank Trk Grp(s) field is used to generate the station's Identification number.
 - DEFINITY[®] system implements QSIG-VALU Called and Busy Number procedures.
 - Any prefixing also applies to these types of identification numbers received.
- Originating QSIG-VALU Called/Busy Number based on Trunk Group Numbers
 - For ISDN calls, if a specific QSIG-VALU Number (Called/Busy) is originated by the DEFINITY[®] system using the ISDN Number-Public/Unknown table to determine the number sent is enhanced to check the Trk Grp(s) field.
 - If there is an Ext Code entry for the station in question, and if the Trk Grp(s) field is administered to the Trunk Group number that the call is carried on, or if the Trk Grp(s) field is administered to a Trunk Group number range which contains the Trunk Group number that the call is carried on, the station's Identification number is generated using this entry's administration.
 - Otherwise, an entry with Ext Code that matches the station extension and with a blank Trk Grp(s) field is used to generate the station's Identification number.

Example

- Any prefixed Calling/Connected/QSIG-VALU Called/QSIG-VALU Busy number that's longer than 15 digits is truncated from the least significant digits.
- The prefixing feature does not change any DEFINITY[®] system display format and any prefixed CPN/Called/Busy numbers continues to be displayed.

Upgrades

- New administration fields for these ISDN enhancements default to blank or n.
- Upon upgrading to R8, customers who do not care about enabling these features are not required to perform any additional administration.

Pass network Advice of Charge (AOC) information to all protocol WCBRI endpoints

- Provides the user with the capability to tandem transparently network provided AOC information to WCBRI endpoints.
- The AOC may be used by WCBRI endpoints for local station display purpose.
- Network AOC information to be passed include: ETSI, CEPT Italy, and NTT INS-NET 1500 Japan.

Performance Impact

- The multiple public network numbering enhancement can be administered with a trunk group number range on the isdn public-unknown numbering form.
- The trunk group number is not duplicated in any other entry within the numbering form and a perceptible delay could occur if a large trunk group number range is entered.

Memory Impact of Capacity Changes

- To provide multiple Calling/Connected/QSIG-VALU called/QSIG-VALU busy number requires the isdn public-unknown numbering form enhancement with an extra trunk group field.
- This enhancement also allows multiple attd entries to be entered into the table.
- The form has a moderate memory impact.

Serviceability Considerations

- If customers want to originate Identification number information (Calling, Connected, QSIG-VALU Called, and QSIG-VALU Busy), the system administrator must administer the isdn public-unknown numbering form correctly.
 - For each attendant or group of extension code values, an entry for each trunk group or range of trunk groups with distinct main number (as the CPN Prefix value) must be entered into the form.
 - If users find that incorrect Identification numbers are being sent for certain public network calls, the isdn public-unknown numbering form entries should be carefully checked.
- If a switch is administered to pass prefixed Calling Numbers to ASAI, adjunct applications relying on having unprefixed Calling Number information will not work properly.

System Resets

- When a call-preserving restart (for example, a warm restart) occurs, non-stable calls would be dropped and their displays would be lost.

Advice of Charge

- The WCBRI Platform supports these line-side country protocols
 - Bellcore National ISDN-1
 - Australia
 - ETSI
 - Japan
 - Singapore
- Network provided AOC is tandemed to WCBRI regardless of the administered WCBRI country protocol.

NOTE:

If the far end hangs up on a call, AOC may be passed to WCBRI.

If the local WCBRI endpoint hangs up first, any AOC received from the network side will not be passed to the WCBRI endpoint if a WCBRI endpoint is administered for "1-step clearing" procedures.

Otherwise the network provided AOC will be passed to WCBRI in a RELEASE message.

Duplication Interactions

- When a call-preserving system interchange occurs, non-stable calls are dropped and their displays would be lost.

Multiple Public Network Numbering

- The Identification Numbers selected are sent out in outgoing ISDN messages according to DEFINITY® ISDN signaling procedures.

National or International Prefix

- The administered national or international prefix is appended for display purpose mainly.
- These prefixes are not used when a call is transferred/forwarded/covered off switch.
- The original received Calling/Connected/Called/Busy number is sent on as is in DEFINITY® system behavior without any national/international prefixing.

Pass AOC to WCBRI

- If network provided Advice of Charge information is received for a call connected to a WCBRI endpoint, the AOC information is tandemmed transparently to WCBRI.

Network protocol AOC tandemmed:

- ETSI AOC: for SS option C (etsi) trunk calls the DEFINITY® system passes any FACILITY message containing Codeset 0 Facility IEs to WCBRI.
- DEFINITY® system passes any Codeset 0 Facility IE within the first call clearing message (DISCONNECT, RELEASE, or RELEASE COMPLETE) to WCBRI.
- Italy CEPT AOC: the DEFINITY® system passes the Shift to Codeset 6 IE and codeset 6 Charging Information IE received in CONNECT, INFORMATION, DISCONNECT, and RELEASE messages to WCBRI.
- Japan AOC: the DEFINITY® system passes the Shift to Codeset 6 IE and the INS-Net 1500 codeset 6 Advice of Charge IE received in DISCONNECT, RELEASE, and RELEASE COMPLETE messages to WCBRI.
- If a local WCBRI endpoint disconnects first, and if the WCBRI endpoint is administered for 1-step clearing? procedure, any network provided AOC received in RELEASE/RELEASE COMPLETE message is not sent to the WCBRI endpoint.

NOTE:

Network provided INFORMATION messages are normally not tandemmed to WCBRI. However if an INFORMATION message is received with IE containing AOC information, the message is tandemmed to WCBRI.

Platforms

- Platforms are csi, si, r, contry.
- No Platform difference for this ISDN enhancement.

Terminals

- Display of any prefixed Identification numbers applies to all types of display-capable terminal equipment
 - DCP
 - BRI
 - ATL
 - attendant.
- WCBRI station display is under local station control and is not controlled by the DEFINITY[®] system.

Usability

- The feature to pass AOC information to WCBRI endpoints allows customers behind a DEFINITY[®] system to receive the same AOC information as if the customer were directly connected to a network carrier.

MCU Meet-Me Conference

- The Multi-point Control Unit for video conference provides the Meet-Me Conference application.
- When there is a dial-out Meet-Me Conference, the DEFINITY[®] system generates an event report and needs to determine the Calling Number information for the call by using the isdn public-unknown form without knowing what trunk group the call is carried.
- For an individual dial out Meet-Me Conference, there may be several related calls carried on different trunks and they have the same Calling Number regardless of the Trunk Groups used for the calls.
- For switch supporting the Meet-Me Conference application, the isdn public-unknown form is properly administered with blank Trk Grp(s) entries for generating Calling Numbers for Meet-Me Conference calls.

Voice Mail adjuncts (AUDIX[®], Intuity[™], Octel[®])

- The CPN to Intuity[™] feature continues to pass unprefixed CPN information to Intuity[™].
- The ISDN Calling Party Number information is not passed to voice messaging systems such as AUDIX[®] so the International/National Prefix feature does not impact voice mail adjuncts.

Pass Advice of Charge (AOC) to BRI Endpoints

- Provides the capability to tandem transparently the network provided AOC information to WCBRI endpoints.
- The AOC may be used by WCBRI endpoints for local station display purpose. Network AOC information to be passed include the ETSI, CEPT Italy, and NTT INS-NET 1500 Japan.

Description

- The AOC information can be used by WCBRI stations for local station display purpose.



NOTE:

Spain has switched from CEPT AOC to ETSI AOC, and it is not necessary to support Spain CEPT AOC based on the ETSI AOC deployment date in Spain.

The Australian TPH 2001 AOC standards have not been implemented and therefore the DEFINITY® system does not support tandeming TPH 2001 AOC information.

Administration

CPN Prefix

- Select an ISDN networking option on the system-parameters customer-options form: either ISDN or ISDN-BRI Trunks.
- If a national prefix is desired, administer the National CPN Prefix field on the system-parameters features form.
 - If an international prefix is desired, administer the International CPN Prefix field.
 - The appropriate prefix is then applied to all incoming ISDN calls with the corresponding type of national or international Calling Number encoding.
- Administer the Pass Prefixed CPN to ASAI? field to y if desiring the non-default value, then any Calling Number for inbound calls passed to ASAI will include prefix if the call should get prefix treatment, or any Connected Number for outbound calls passed to ASAI will include prefix if the call should get prefix treatment.

- Administer entries in the isdn public-unknown-numbering form: for each Ext Len/Ext Code combination desired, one entry may be entered with 11 as the Trk Grp(s) value, another entry may be entered with 22 as the Trk Grp(s) value.
 - Enter the appropriate CPN Prefix and Total CPN Length values for each entry.
 - For calls originated in Trunk Group 11, a CPN number will be generated for outgoing calls using the Ext Code/CPN Prefix/Total CPN length values for the Trk Grp(s) 11 entry in the numbering table.
 - For calls originated in Trunk Group 22, a different CPN number is generated by using the Ext Code/CPN Prefix/Total CPN Length values for the Trk Grp(s) 22 entry.
- If trunk groups numbered from 11 to 22 should all use the same CPN Prefix (for the same public trunk's main number), one entry in the isdn public-unknown numbering form can be administered with 11-22 in the Trk Grp(s) field.

Call Processing

Multiple Public Network Numbers

- For ISDN calls, if a specific Identification Number (Calling/ Connected) is originated by the DEFINITY[®] system (based on switch administration) and the Trunk Group form Page 2's Numbering Format field is administered to public.
- If there is an Ext Code entry for the station and if the Trk Grp(s) field is administered to the Trunk Group number that the call is carried on, or if the Trk Grp(s) field is administered to a Trunk Group number range, the station's Identification number is generated using this entry's administration.
- An entry with Ext Code that matches the station extension and with a blank Trk Grp(s) field is used to generate the station's Identification number.

Originating QSIG-VALU Called/Busy Number based on Trunk Group Numbers

- Any prefixed Calling/Connected/QSIG-VALU Called/QSIG-VALU Busy number that's longer than 15 digits is truncated from the least significant digits according to the current DEFINITY[®] system behavior.
- The prefixing feature does not change any DEFINITY[®] system display format and any prefixed CPN/Called/Busy numbers continues to be displayed.

Capacity Constraints and Feature Limitations

- When a switch is administered for the multiple public network numbering enhancement, the number of administered entries in the isdn public unknown number form can increase by n-fold.
- The n could be the number of distinct main numbers that the switch needs to originate for outgoing calls (number of public network trunks with distinct main numbers).
- Maximum form entries (8 pages of 30 entries each) is sufficient.
- Maximum number of number digits displayed including any national/international prefix remains at 15 digits.
- Numbers longer than 15 digits are truncated to the first 15 digits of number information.
- The maximum national or international prefix length is 5 digits.
- Network provided AOC information is tandemed transparently to WCBRI endpoints.
- Display of the AOC information at end user stations is dependent on the station capability.
- The DEFINITY® system does not control WCBRI station display functions.
- If the network and line protocols are different (for example, ETSI PRI - WCBRI Australia country protocol), there is no mapping or conversion of Network side (PRI) AOC protocol to Line side (WCBRI) AOC protocol.

Memory Impact of Capacity Changes

- This enhancement allows multiple attd entries to be entered into the table.
- This change has a moderate memory impact.

National or International Prefix

- These prefixes are not used when a call is transferred/forwarded/ covered off switch.
- The original received Calling/Connected/ Called/Busy number is sent on without any national/international prefixing.

Advice of Charge

- The WCBRI Platform supports the line-side country protocols of Bellcore National ISDN-1, Australia, ETSI, Japan, and Singapore.
- Network provided AOC is tandemed to WCBRI regardless of the administered WCBRI country protocol.
- Bellcore National ISDN and Singapore networks are not known to support AOC services.

Pass AOC to WCBRI

- If network provided Advice of Charge information is received for a call connected to a WCBRI endpoint, the AOC information is tandemed transparently to WCBRI.
- Tandemed AOC's
 - ETSI AOC.
 - For SS option C (etsi) trunk calls, the DEFINITY[®] system passes any FACILITY message containing Codeset 0 Facility IEs to WCBRI .
 - The DEFINITY[®] system passes any Codeset 0 Facility IE within the first call clearing message (DISCONNECT, RELEASE, or RELEASE COMPLETE) to WCBRI.
- Italy CEPT AOC.
 - The DEFINITY[®] system passes the Shift to Codeset 6 IE and codeset 6 Charging Information IE received in CONNECT, INFORMATION, DISCONNECT, and RELEASE messages to WCBRI.
- Japan AOC.
 - The DEFINITY[®] system passes the Shift to Codeset 6 IE and the INS-Net 1500 codeset 6 Advice of Charge IE received in DISCONNECT, RELEASE, and RELEASE COMPLETE messages to WCBRI .

Performance

- This can be administered with a trunk group number range on the isdn public unknown numbering form.
- Every trunk group number in the range must be validated against several potential errors at form submittal time and a perceptible delay could occur if a large trunk group number range is entered.

Serviceability

- If customers want to originate Identification number information (Calling, Connected, QSIG-VALU Called, and QSIG-VALU Busy), the system administrator must administer the isdn public-unknown numbering form correctly by doing the following:
- For each attendant or group of extension code values, an entry for each trunk group or range of trunk groups with distinct main number (as the CPN Prefix value) must be entered into the form.
- If a switch is administered to pass prefixed Calling Numbers to ASAI, adjunct applications relying on having unprefixd Calling Number information will not work properly.

System Resets

- When a call-preserving restart occurs, non-stable calls are dropped and their displays are lost.

Terminals

- Display of any prefixed Identification numbers applies to all types of display-capable terminal equipment (DCP, BRI, ATL, and attendant).
- WCBRI station display is under local station control and is not controlled by the DEFINITY[®] system.

Transmission Interface

- The ISDN enhancements only affect D-channel information signaling and end-user displays.
- No impact on the B-Channel connection used for each call.
- The IEs include Codeset 0 Facility IE (ETSI), Codeset 0 Display IE (Australia), Codeset 6 (CEPT Italy) Charging Information IE, and Codeset 6 AOC IE (Japan).

Call Coverage Remote Off-Net (CCRON)

- When a remote coverage call is brought back into the DEFINITY[®] system to follow the called party's original coverage path, the call is subject to prefixing if the prefixing feature is administered.

Calling Line Identification (CLI) Prefix

- Can apply a prefixing treatment (digit deletion, digit insertion, new PI encoding) to outgoing tandem calls (an updated CPN IE is sent out) and to locally terminated calls (an updated CPN number information is displayed).
- If CLI Prefix is administered on a trunk group, any incoming Calling Party Number IE is modified first by the CLI Prefix feature, then any International/National prefix is applied to the modified CPN IE.

Display

- If the International/national prefix feature is administered, features that display any number information (Calling, Connected, QSIG-VALU Called, QSIG-VALU Busy) display any resulting prefix-appended national/international number to user stations.

ISDN – Basic Rate Interface

- The Calling Party Number IE tandemed to BRI interface remains the originally received CPN IE from PRI, without any prefixing applied.

ISDN – WCBRI

- The Calling Party Number IE tandemed to WCBRI interface remains the originally received CPN IE from PRI, without any prefixing applied.

ISDN – DCS over ISDN PRI D-Channel (DCS+)

- DCS+ may be administered to display the ISDN Connected number information.

Malicious Call Trace (MCT)

- The MCT feature displays prefixed Calling Number information for consistent local displays.

Message Sequence Tracer (MST)

- The MST records the CPNs and other identification numbers as received on the link.
- The MST is enhanced to record new message types and IEs containing AOC information tandemed over WCBRI signaling links.

Multi-point Control Unit (MCU) Meet-Me Conference

- The Multi-point Control Unit for video conference provides the Meet-Me Conference application.
- When there is a dial-out Meet-Me Conference, the DEFINITY[®] system generates an event report and determines the Calling Number information for the call by using the isdn public-unknown form.
- For an individual dial out Meet-Me Conference, there can be several related calls carried on different trunks and they will have the same Calling Number regardless of the Trunk Groups used for the calls.
- The isdn public-unknown form needs to be properly administered with blank Trk Grp(s) entries for generating Calling Numbers for Meet-Me Conference calls.

Usability

- Allows customers behind a DEFINITY[®] system to receive the same AOC information as if the customer were directly connected to a network carrier.

Adjunct Switch Applications Interface (ASAI)

- For many customers over the ASAI interface, the received Calling/Connected Party Number IE will be sent, without any International/National prefix.
- In certain CTI applications, there could be a need to receive prefixed Calling/Connected Number information so the correct call-back applications may be launched using the prefixed number information.

Restricted Presentation

R8.1 Feature

- Provides new administration options to control whether a “Presentation Restricted” Calling Party Number is replaced by an administrable display string or the number will be displayed as received.
- If a Calling Party Number is received encoded as “Number Not Available Due to Interworking” or if a Calling Party Number IE is not received, a new administration option controls whether an administrable display string is displayed.
- Can be administered to append a special character to restricted Calling Numbers passed to ASAI adjuncts (to allow special handling by ASAI applications).
 - Will not pass Restricted numbers to AUDIX, CMS, and PMS adjuncts.
- The ISDN Presentation Restriction feature corrects the pre-R8 DEFINITY's specification non-conforming behavior of displaying all received Calling Party Numbers, regardless of the Presentation Indicator encoding as follows:
 - Presentation restricted
 - If the ISDN trunk group is administered to replace Restricted Numbers, the administered replacement string is displayed in place of the Calling/Connected, QSIG VALU Called/Busy number information.
 - Number not available due to interworking
 - If the ISDN trunk group is administered to replace Unavailable Numbers, the administered replacement string will be displayed in place of any Calling/Connected, QSIG VALU Called/Busy number information (some number digits may still be received).
 - Number not received
 - If the ISDN trunk group is administered to replace Unavailable Numbers, the administered replacement string displayed in the number field of user station's display.
 - ASAI Interface
 - ASAI Station form may be administered to identify restricted numbers by appending an “*” to the Calling Party Number string sent to the host adjunct via the ASAI BRI link.
 - Adjunct Interfaces
 - Restricted Calling Numbers are not forwarded to AUDIX, CMS, and PMS.

- Restricted Calling Numbers continue to be sent to CDR.
- Number display applies to Calling/Connected, QSIG VALU Called/Busy Numbers.
- DEFINITY Number Display procedures comply with FCC rulings and QSIG CLIP/CLIR specifications.
 - Allows Type Approvals and multi-vendor testings to proceed without exception.
- Does not affect Name display procedures.
- Any received QSIG Name information that is not "Presentation allowed" is treated as if no name is received, and there is no replacement string for Name display purposes.
- Allows a per trunk group control on whether to display Restricted (or Number not available), or to replace the number information with an administrable string.
- If no Calling/Connected, QSIG-VALU Called and/or QSIG-VALU Busy numbered Number IE is received at all, the same trunk group administration determines whether a replacement string is used as the number field in a display.
- Allows a special character to be appended to Restricted Calling numbers sent over the ASAI link.
- Recommended that the systems-parameters features form be administered first, then the ISDN Trunk Group forms, then any ASAI station form.

Display Enhancement

- Prior to R8.1, DEFINITY displayed maximum 15 digits for any number information (Calling/Connected, QSIG VALU Called/Busy), including any administered national or international prefix .
- Now increases the Calling/Connected, QSIG VALU Called/Busy numbers display to 20 digits plus a prepended prefix.
- The maximum 17-digit number display enhancement applies to Calling and Connected numbers only, there is no requirement to enhance the QSIG VALU number display to 17 digits.
- If Calling/Connected numbers plus any applicable prefix results in a number longer than 17 digits, DEFINITY will follow existing truncation behavior and will truncate from the rightmost digits and display the 17 leftmost digits.

- Display formats will be changed to display 17-digit Calling/Connected numbers only if there are sufficient blank spaces that can be shifted to the number field.
 - Category includes: all direct calls to stations and attendants, redirected calls to stations via transfer/coverage/forward, and redirected calls to attendants with one-character Reason Codes.
- On direct calls to stations or attendants, with 4-character display stations, the 17-digit Calling/Connected number field is position 19-35, the MISCID field is position 37-40.
- On 2x24 display stations, the calling number field is 1-17 on line two.

**NOTE:**

On redirected calls, the Calling number is displayed only if there is no Calling name information, otherwise the Calling Name is displayed in position 3-17.

On redirected calls to stations or attendants with 1-character Reason Codes, with 4-character display stations, the 17-digit Calling number field is position 3-19, and the "to" field at positions 21-22. On 2x24 display stations, the calling number field is 1-17 on line two.

Administration

Trunk Group Form

- Because the ISDN Presentation Restriction feature available when an R8 release is used as a bug fix release, the new Trunk group form fields are not dependent on the software release version being R8 or later.
- Replaced Restricted Number Field on Trunk Group Form
 - Field on page two of the trunk group form, for isdn trunk types, added to indicate whether restricted Calling/ Connected, QSIG VALU Called/Busy numbers are replaced with administrable strings for incoming and outgoing calls assigned to the specified trunk group.
 - "Replace Restricted Numbers?".
 - Field valid values of "(y)es" and "(n)o"
 - default to "(n)o".
 - If this field is set to "y", the display is replaced regardless of the service type of the trunk.
 - Available for both PRI and BRI.
- Replaced Unavailable Number Field on Trunk Group Form

- New field on page two for isdn trunk types added to indicate whether unavailable Calling/Connected, QSIG VALU Called/Busy numbers are to be replaced with administrable strings for incoming and outgoing calls assigned to the specified trunk group.
- New field titled "Replace Unavailable Numbers?".
- default to "(n)o".
- Available for both PRI and BRI

ASAI Station Form

- Station Form ASAI Restricted Number which enables an ASAI station to identify restricted numbers.
 - "Special Character for Restriction Number?" on page 2 of ASAI station type form.
 - Valid values of "(y)es" and "(n)o"
 - Default to "(n)o"

System Parameters Features Form

- Two administrable text fields on page 6 under the ISDN parameters title.
- Fields titled "CPN Replacement for Restricted Calls" and "CPN Replacement for Unavailable Calls".
- Fields enable the user to administer a text string of up to 15 characters used to replace the restricted or unavailable Calling/Connected, QSIG VALU Called/Busy numbers upon display.
- Default is a blank string.
- Help message is the standard string translation help as displayed for the display message fields.
- An error message returned if either the "CPN Replacement for Restricted Calls:" or the "CPN Replacement for Unavailable Calls:" field is set to blank, when there is at least one trunk group form with either "Replace Restricted Numbers?" or "Replace Unavailable Numbers?" field is set to "y".

Trunk Group Form

change trunk-group 6	Page 2 of 10
TRUNK FEATURES	
ACA Assignment?9	Measured:none
	Wideband Support?n
	Maintenance Tests?y
Data Restriction?n	NCA-TSC Signaling Group:1
Send Name:n	Send Calling Number:y
Used for DCS?n	Send Connected Number:y
Suppress # Outpulsing:n	Numbering Format:public
Outgoing Channel ID Encoding:preferred	UUI IE Treatment:service-provider
	Replace Restricted Numbers?n
	Replace Unavailable Numbers?n
Numbers?n Restricted Replace	
lace	
	Send UCID:n
Send Codeset 6/7 LAI IE?y	

- New fields to support ISDN Presentation Restriction

ASAI Station Form

add station 3006	Page 2 of 4
STATION	
FEATURE OPTIONS	
Event Minimization?	
—	
	Per Station CPN - Send Calling Number? ___
	Special Character for Restricted Numbers?n

2 Networking Enhancements

Networking - ISDN Public

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- New field to support ISDN Presentation Restriction

System-parameters Feature Form

```
change system-parameters features
```

Page 6 of 9

```
FEATURE-RELATED SYSTEM PARAMETERS
```

```
ISDN PARAMETERS
```

```
Send Non-ISDN Trunk Group Name as Connected Name?n
```

```
Display Connected Name/Number for ISDN DCS Calls?n
```

```
Send ISDN Trunk Group Name on Tandem Calls?n
```

```
CPN Replacement for Restricted Calls:
```

```
CPN Replacement for Unavailable Calls:
```

```
QSIG TSC Extension:_____
```

```
Path Replacement with Measurements?y
```

- New fields to support ISDN Presentation Restriction

Networking - ATM

DEFINITY ATM Networking uses open standards to integrate DEFINITY functionality with ATM transmission and switching. This allows you to use DEFINITY ECS applications over an ATM infrastructure throughout an enterprise.

This convergence of voice and data networking is made possible by an ATM Services Card and ATM software that integrate into the DEFINITY ECS. The hardware and software allow the DEFINITY ECS to interoperate with any standards-based ATM switch technologies, further maximizing the value of the DEFINITY system and your network infrastructure.

DEFINITY ATM Circuit Emulation Service

The first ATM offer is ATM Circuit Emulation Service (ATM-CES), which offers an alternative to non-ATM tie lines, providing trunking over ATM facilities. The ATM interface will support operation as a tandem or tie trunk, and provides Continuous Bit Rate (CBR) T1 or E1 circuit emulation for ISDN-PRI circuits.

ATM Circuit Emulation Service (ATM-CES):

- Can be administered
 - as an ATM-CES direct connect
 - through an ATM network using PVCs

Both procedures are in [Table 8](#), under [“ATM-CES administration procedure” on page 213](#).

- Uses ATM emulated circuits instead of physical T1/E1 tie-trunks out to the ATM network.
- Uses up to 8 signaling groups per TN2305/TN2306 to create virtual trunking.
- Uses bearer (B) and signaling (D) channels, similar to ISDN facilities but does not support nonfacility associated signaling (NFAS).
- Uses channels inside each signaling group, which appear as if they were ports on the TN2305/TN2306 circuit pack. Hereafter, these are referred to as ports.
- Uses constant bit-rate (CBR) signalling over permanent virtual connections (PVCs).
- Has a transparent DEFINITY feature set to other locations through narrowband QSIG (N-QSIG) or distributed communications system over ISDN-PRI (DCS+)

NOTE:

Because ATM trunks always appear as ISDN-emulated trunks, they do not support DCS, only DCS+.

2 Networking Enhancements
Networking - ATM

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- The TN2305/TN2306 ATM Interfaces must be used with ATM CES, with ATM WAN PNC, and if multiple ATM switches are used.

[Table 2](#) lists the maximum number of TN2305/TN2306 circuit packs allowed in a DEFINITY ECS.

Table 2. Maximum number of ATM interface TN2305/TN2306 circuit packs

Platform	Maximum ATM circuit packs allowed	Description
r	88	2 x 44 port networks (CES)
si, csi, c	6	CES only

The following figure shows an example of the basic ATM connections for Release 8r and Release 8csi system using ATM-PNC (available on a future release) and ATM-CES.

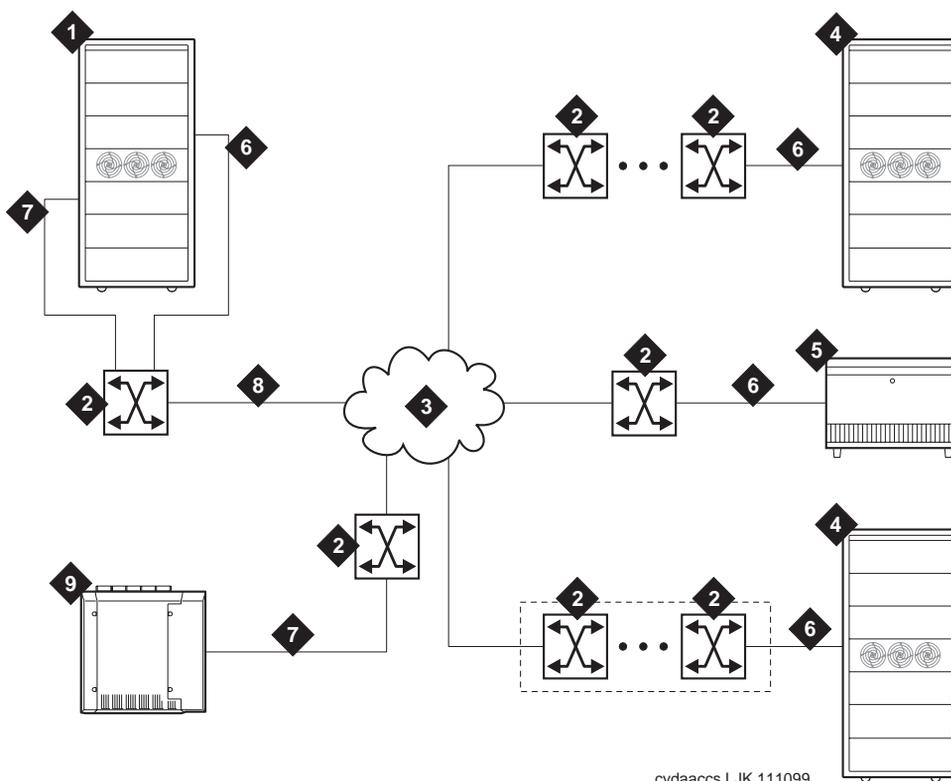


Figure Notes

- | | |
|----------------------------|-----------------------------|
| 1. DEFINITY ECS PPN-1 (r) | 5. DEFINITY ECS EPN in SCC |
| 2. Lucent ATM switch | 6. ATM-PNC |
| 3. ATM network (the cloud) | 7. ATM-CES |
| 4. DEFINITY ECS EPN in MCC | 8. ATM-PNC and ATM-CES |
| | 9. DEFINITY ECS PPN-2 (csi) |

ATM CES Administration

Acquiring ATM Addresses

Equipment that interfaces with an ATM switch must have a unique 40-digit (20-byte) ATM address. These 40 characters are divided into sectors as [Table 3](#) shows:

Table 3. ATM addressing

Hex digit position	Length (hexadecimal)	Description
1-26	26	Network prefix that identifies a particular ATM switch in the network.
27-38	12	End system identifier (ESI) identifies each end-station connected through an ATM switch. ^a
39-40	2	Selector byte is always 0 for DEFINITY ATM

- a. The ESI is usually the IEEE Media Access Control (MAC) address programmed into the end-station device during its manufacture. The MAC address on the TN2305/ TN2306 is located on the MAC address button on the circuit pack.

In Release 7 or later, the address of the EPN is automatically derived by the local ATM switch using the address registration procedure defined in the Integrated Local Management Interface (ILMI). The ATM switch uses its 13-byte network address plus the 6-byte ESI, or MAC address, and the 1-byte selector byte of the corresponding TN2305 or TN2306 board(s) in the EPN to formulate the 20-byte ATM address(es).

ATM switches can use any of the address formats listed in [Table 4](#).

NOTE:

The beginning AFI and the last 2 sectors (ESI, and Selector) in [Table 4](#) are all the same length, making it easier to parse the ATM address, regardless of the format.

Table 4. ATM address formats

Format	Length (hex characters)	Description (high to low order)
Data Country Code (DCC)	2	Address Format Identifier (AFI) (39 for DCC)
	4	Data Country Code
	20	High-Order Domain Specific Part (HO-DSP)
	12	End System Identifier (ESI)
	2	Selector
International Code Designator (ICD)	2	Address Format Identifier (AFI) (47 for ICD)
	4	International Code Designator
	20	High-Order Domain Specific Part (HO-DSP)
	12	End System Identifier (ESI)
	2	Selector
ISDN E.164	2	Address Format Identifier (AFI) (45 for E.164)
	16	E.164 address
	8	High-Order Domain Specific Part (HO-DSP)
	12	End System Identifier (ESI)
	2	Selector

Administering ATM Switch

To administer the ATM switch, refer to your switch's quick reference guide.

DEFINITY ATM-CES rules

[Table 5](#) lists several guidelines for ATM-CES administration.

Table 5. ATM-CES administration rules

Rule	How to administer or confirm
Both ends of the emulated circuit must have the same number of channels	Type change signaling-group siggrpnr and press Enter; go to screen 2
Both ends of the emulated circuit must have the same number of trunks.	Type change trunk-group trkgrpnr and press Enter; go to screen 6.
Both ends of the emulated circuit must use the same channel numbers.	Type change signaling-group siggrpnr and press Enter; go to screen 2. In the port-to-channel mapping, use the same channel numbers for both ends of the trunk.
Each end of the trunk may use different port numbers on the respective ATM circuit packs.	Type change trunk-group trkgrpnr and press Enter; go to screen 6. The same port numbers on the circuit packs need not be used on the two ends of the emulated circuit.
The maximum number of emulated circuits (signaling groups) on a single TN2305 circuit pack is 8.	A circuit pack can have more than one signaling group and more than one D-channel. The D-channel from one emulated circuit cannot signal for the bearer channels of another emulated circuit (no NFAS for virtual circuits).
A minimum of 7 ports must be administered for each emulated circuit (signaling group).	Because this includes the D-channel, at least 6 B-channels and the D channel must be administered in a signaling group.

Continued on next page

Table 5. ATM-CES administration rules — *Continued*

Rule	How to administer or confirm
The D channel must be in a port between 009 and 032.	Type display signaling-group siggrpnr and press Enter; go to screen 2 to verify. The D channel is automatically populated in channel 24 (T1) or in channel 16 (E1).
The TN2305/TN2306 circuit packs provide up to 248 ports for trunking.	A circuit pack has 256 ports, but ports 1 through 8 are reserved for future use. Of the 248 available ports, 8 are for D-channels, and 240 are for B-channels. See Table 6 and Table 7 for details about port and trunk group capacities for the TN2305/TN2306 circuit pack and the DEFINITY ECS switch.
A trunk group may contain either ISDN trunks or ATM trunks, but not both	

Table 6. TN2305/TN2306 CES trunk capacities

Bearer ports per signaling group (B channel)	Signaling groups per TN2305/TN2306 (D-channel)	Total ports used ^a
T1: 23	8	192
E1: 30	8	248

a. The circuit pack provides 256 ports, but ports 1 through 8 are reserved for future use.

Table 7. DEFINITY ECS trunk capacities by model

Capacity	c, csi, si	r
Maximum trunks per trunk group	99	255
Maximum number of trunk groups	99	666
Maximum number of trunks in the system	400	4000

Trunk groups

At least one trunk group is typically created for each remote switch with these attributes (see [Screen 8](#)):

- Group Type field is **isdn**
- Carrier medium field is **atm**
- Dial Access? field is always **n**
- TN2305/TN2306 may have Trunk Access Codes (TAC), but these are for reporting purposes only and cannot be dialed.
- CDR records for ATM trunk calls are maintained.



NOTE:

Release 7 introduced 3-digit port numbers for administering a CES trunk, and CMS cannot read the old 2-digit numbers. Release 8 CMS software can read both the 2- and 3-digit port numbers.

- A trunk group may include ports from more than one of the ATM circuit packs in the system. This enables *same module preference*, the feature that gives preference to outgoing trunks on the same port network as the originator.
- ATM trunk groups can only contain ports on ATM boards, and ports on ATM boards cannot be assigned to non-ATM trunk groups.

ATM-CES trunk board

When administered as a trunk board, the TN2305/TN2306 can have up to 8 ATM signaling groups with up to 30 members per signaling group over an OC-3/STM-1 connection. Although the ATM board does not have physical ports, software makes the ATM board appear as if it does. This concept is depicted in [Figure 7](#). Multiple TN2305/TN2306 circuit packs in a port network could connect to different ATM switches.

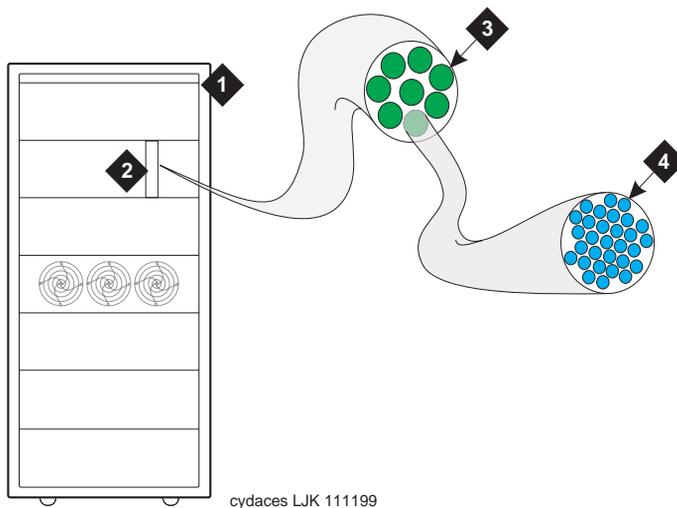


Figure Notes

- | | |
|---|--------------------------------------|
| 1. DEFINITY ECS PPN or EPN | 4. Ports |
| 2. TN2305/TN2306 circuit pack in any port | 24 maximum (T1), including D-channel |
| 3. Signaling groups (maximum 8) | 31 maximum (E1), including D-channel |

Figure 7. DEFINITY signaling groups and members for ATM trunking

- Each of the 248 ports in the ATM trunk group are either B-channels or D-channels.
- Each B-channel has an associated maintenance object with a very simple maintenance strategy. This is done so that any of the virtual ports on a single ATM interface circuit pack can be members of different trunk groups. When a trunk group is busied out, only those ports in that trunk group are taken out of service. Because all ports associated with a single D-channel follow the same PVC, you cannot test them individually.

ATM-CES administration procedure

[Table 8](#) contains ATM-CES administration for

- ATM signaling groups
- ATM-CES direct-connect configurations (two CES circuit packs linked by fiber, with no intervening switches). Observe the note in step 16.



NOTE:

The screens shown are for a Release 8r platform. The screen numbers may differ for Release 8c, Release 8csi, and Release 8si platforms.

Table 8. ATM-CES administration

√	Step	Action	Description
	1.	Set the software version	Type change system-parameters customer-options and press Enter. (init login required) The Customer Options screen (Screen 2) displays.
	2.	Set the version field	Upgrades only: Set the G3 <code>Version</code> field to V8 . Go to screen 2
	3.	Turn on ATM trunking	Set the <code>Async. Transfer Mode (ATM) Trunking?</code> field to y (Screen 2). Go to screen 3.
	4.	Administer as ISDN-PRI	Set the <code>ISDN-PRI</code> field to y (Screen 3). Press Enter to save the changes.
	5.	Log off/on	Log in as craft
	6.	Install the circuit packs	Install the TN2305/TN2306 circuit pack and wait for it to initialize (about 4 minutes)
	7.	Connect the fiber optic cable	Attach the fiber optic cable to the circuit pack and to the ATM switch.
	8.	Look up ATM circuit pack locations	Type list configuration atm and press Enter. The name for this circuit pack appears as ATM INTERFACE (or ATM INTF).
	9.	Administer the circuit pack personality	Type add atm trunk-board UUCSS and press Enter. The ATM Trunk-Board screen (Screen 5) displays.
	10.	Type a name for the ATM board	Type the name of the ATM interface circuit pack (15 alphanumeric characters) in the <code>Name</code> field.

Continued on next page

Table 8. ATM-CES administration — Continued

√	Step	Action	Description
	11.	Set the synchronization	<p>Set the Synchronization Capable field to n (default).</p> <p>⇒ NOTE: Up to 44 boards may be designated synchronization capable on R8r and 3 boards on R8si, R8csi, R8c. If you enter y in this field when the maximum number of boards has been designated, the system returns:</p> <p>Maximum number of Synchronization Capable boards already administered</p> <p>⇒ NOTE: If this ATM trunk circuit pack is a synchronization source, set the field to y. If you change the field to n when the circuit pack is administered as a synchronization source, the system returns:</p> <p>Cannot remove synchronization source.</p>
	12.	Administer the signaling group	<p>Type add signaling-group and press Enter. The Signaling Group screen (Screen 6) displays.</p> <p>Set the following fields (tabbing goes vertically)</p>
	13.	Set the group type	Set the Group Type field to atm .
	14.	Type port address	Type the D-channel (signaling channel) port address for this new signaling group in UUCSSppp screen at (3-digits required for port addresses). This address must match the slot and port number on an ATM-Interface circuit pack.
	15.	Type a name	Type a name in the Name field (15 alpha-numeric characters).
	16.	Set VPI	The Virtual Path Identifier (VPI) field is set to 0 and is not administrable.

Continued on next page

Table 8. ATM-CES administration — *Continued*

√	Step	Action	Description
	17.	Set VCI	Set the <code>Virtual Channel Identifier (VCI)</code> field (32-1023). This number must be unique among signaling groups that share the same ATM circuit pack.  NOTE: For a direct connection (two fiber-connected CES circuit packs), specify the same VCI at both ends of the emulated circuit. When the CES is connected to an ATM switch, the VCI specified here must match the VCI used for the PVC created on the ATM switch, which is typically provided by the ATM switch administrator.  NOTE: The <code>Signaling Mode</code> field is set to <code>isdn-pri</code> and is not administrable.
	18.	Set idle code	Set the <code>Idle Code</code> field (typically 11111111).
	19.	Set interface companding	Set the <code>Interface Companding</code> field (alaw or mulaw). Once administered, busyout the signaling group before changing.
	20.	Set country protocol	Set the <code>Country Protocol</code> field (Table 9).
	21.	Set protocol version	Set the <code>Protocol Version</code> field (Table 9).
	22.	Set circuit type	Set the <code>Circuit Type</code> field (T1 or E1).  NOTE: Both ends must be the same. It is preferable to set it to E1 even in the United States, Canada, or other T1 countries.
	23.	Set connect	Set the <code>Connect</code> field to pbx . Once administered, busyout the signaling group before changing.
	24.	Set interface	Set the <code>Interface</code> field to user at one end of the emulated circuit and to network at the other end.
	25.	Set DCP/analog bearer capability	Set the <code>DCP/Analog Bearer Capability</code> field to 3.1 kHz .
	26.	Set internetworking message	Set <code>internetworking message</code> field to PROGress .

Continued on next page

Table 8. ATM-CES administration — *Continued*

√	Step	Action	Description
	27.	Verify channel settings	<p>Go to screen 2; Screen 7 displays.</p> <p>Depending on the settings in step 18:</p> <ul style="list-style-type: none"> ■ If <code>Circuit Type</code> field is set at T1, then channel 24 is populated. ■ If <code>Circuit Type</code> field is set at E1, then channel 16 is populated. <p>Other details about D-channels:</p> <ul style="list-style-type: none"> ■ All ports for one signaling group must be on the same ATM circuit pack (the same circuit pack that the D channel is on). ■ The D-channel port is never assigned to a trunk group. Because they are all the same, the administrator does not need to type in the circuit pack location for each channel. ■ No port can be assigned to more than one signaling group.
	28.	Type port numbers	<p>Add the port numbers (minimum of 6) from the port-to-channel mapping on signaling group screen 2.</p> <p>See "Changing the port-to-channel mapping" on page 222 if you need to change any administration.</p> <p>When finished, press Enter to save the administration.</p>
	29.	Administer the trunk group	<p>Type add trunk-group <i>trkgrpnbr</i> and press Enter.</p> <p>Screen 8 displays.</p>

Continued on next page

Table 8. ATM-CES administration — Continued

√	Step	Action	Description
	30.	Set final fields	<p>Set the following fields (tabbing goes horizontally):</p> <ul style="list-style-type: none"> ■ Group Type: field to isdn. <p> NOTE: A trunk group can contain either ISDN or ATM trunks, but not both.</p> <ul style="list-style-type: none"> ■ The CDR Reports field defaults to y. ■ The Carrier Medium: field to ATM. ■ The TAC: field to match customer's dial plan. ■ The Dial Access? field defaults to n. ■ The Service Type: field to tie. <p>Go to screen 6 and add the channel-to-port mapping (Screen 10). You must have the same number of entries as port numbers in step 28.</p> <p>Press Enter to save the changes.</p>
	31.	Save translations	Type save translation and press Enter.

ATM-CES administration screens

NOTE:

The screens shown in this section are as they look on a Release 8r platform through a SAT. Your interface and screen page numbers may differ.

```

change system-parameters customer-options                Page 1 of 6
                                OPTIONAL FEATURES

G3 Version: V8                                           Maximum Ports: 300
Location: 1                                              Maximum XMOBILE Stations: 0
                                                         Maximum H.323 Trunks: 0
                                                         Maximum H.323 Stations: 0
                                                         Maximum IP SoftPhones: 0

```

Screen 1. Optional features—screen 1

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```

change system-parameters customer-options                Page 2 of 6
                OPTIONAL FEATURES

Abbreviated Dialing Enhanced List? y                  CAS Branch? y
Access Security Gateway (ASG)? y                      CAS Main? y
Analog Trunk Incoming Call ID? y                     Change COR by FAC? n
A/D Grp/Sys List Dialing Start at 01? y              Cvg Of Calls Redirected Off-net? y
Answer Supervision by Call Classifier? y              DCS (Basic)? y
ARS? y                                                DCS Call Coverage? y
ARS/AAR Partitioning? y                              DCS with Rerouting? y
ARS/AAR Shortcut Dialing? n                          DEFINITY Network Admin? y
ASAI Proprietary Adjunct Links? y                    Digital Loss Plan Modification? n
Async. Transfer Mode (ATM) PNC? y                     DS1 MSP? y
Async. Transfer Mode (ATM) Trunking? y              Emergency Access to Attendant? y
ATMS? y                                               Extended Cvg/Fwd Admin? y
Attendant Vectoring? n                               External Device Alarm Admin? y
Audible Message Waiting? y                           Flexible Billing? y
Authorization Codes? y                               Forced Entry of Account Codes? y
                                                    Global Call Classification? y

```

(NOTE: You must logoff & login to effect the permission changes.)

Screen 2. Optional features—screen 2

```

change system-parameters customer-options                Page 3 of 6
                OPTIONAL FEATURES

Hospitallity (Basic)? y                               PNC Duplication? y
Hospitallity (G3V3 Enhancements)? y
H.323 Trunks? n                                       Processor and System MSP? y
IP Stations? n                                         Private Networking? y
ISDN Feature Plus? y                                  Restrict Call Forward Off Net? y
ISDN-BRI Trunks? y                                    Secondary Data Module? y
ISDN-PRI? y                                          Station and Trunk MSP? y
Malicious Call Trace? y
Mode Code for Centralized Voice Mail? n               Tenant Partitioning? y
Mode Code Interface? y                                Terminal Trans. Init. (TTI)? y
Multifrequency Signaling? y                           Time of Day Routing? y
Multimedia Appl. Server Interface (MASI)? y           Uniform Dialing Plan? y
Multimedia Call Handling (Basic)? y                   Usage Allocation Enhancements? y
Multimedia Call Handling (Enhanced)? y
Multiple Locations? y                                 Wideband Switching? y
Personal Station Access (PSA)? y                       Wireless? y

```

(NOTE: You must logoff & login to effect the permission changes.)

Screen 3. Optional features—screen 3

```
change system-parameters duplication                Page 1 of 1  SPE B
          DUPPLICATION RELATED SYSTEM PARAMETERS
```

```

Enable Operation of SPE Duplication? y
Enable Operation of PNC Duplication? y
```

Screen 4. Duplication related system parameters

```
ATM TRUNK-BOARD
```

```
Location: 2E08
```

```
Name: _____ Synchronization Capable: 1
```

Screen 5. ATM trunk board

```
add signaling-group                                Page 1 of 6
```

```
SIGNALING GROUP
```

```
Group Number: 2          Group Type: atm          Name:
                          D-Channel:             Max number of NCA TSC: 0
                          Trunk Group for NCA TSC:
                          Max number of CA TSC: 0
```

```
Trunk Group for Channel Selection:
Supplementary Service Protocol: a
```

```
CIRCUIT PARAMETERS
```

```
Virtual Path Identifier: 0
Virtual Channel Identifier:
```

```

          Signaling Mode: isdn-pri          Circuit Type: T1
          Idle Code: 11111111              Connect: pbx
Interface Companding: mulaw
Country Protocol: 1
Protocol Version: a
```

```
DCP/Analog Bearer Capability: 3.1kHz
Interworking Message: PROGRESS
```

Screen 6. Signaling group

Table 9. Country and protocol version supported (for Screen 3-3)

Value	Country	Protocol supported
1-a	United States, Canada	AT&T TR41449/41459 (tested with AT&T, Canadian, and MCI networks)
1-b	United States	Bellcore TR 1268; NIUF.302; ANSI T1.607
2	Australia	AUSTEL TSO14.1; Telecom Australia TPH 1856
3	Japan	NTT INIS-NET
4	Italy	ETS 300 102
5	Netherlands	ETS 300 102
6	Singapore	ETS 300 102
7	Mexico	ETS 300 102
8	Belgium	ETS 300 102
9	Saudi Arabia	ETS 300 102
10-a	United Kingdom	ETS 300 102 (for connection to DASS II/DPNSS through external converter)
10-b	United Kingdom	ETS 300 102 (Mercury) British Telecom ISDN 30
11	Spain	Telefonica ISDN Specification
12-a	France	VN4 (French National PRI)
12-b	France	ETS 300 102 modified according to P10-20, called Euronumeris
	Argentina	ETS 300 102
	Brazil	ETS 300 102
	China	ETS 300 102
	Germany	ETS 300 102
	Hong Kong	ETS 300 102
	South Korea	ETS 300 102
	New Zealand	ETS 300 102

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```

add signaling-group next                               Page 2 of 6
                                                    SIGNALING GROUP

Chan Port Chan Port
__1:  __  __17:  __
__2:  __  __18:  __
__3:  __  __19:  __
__4:  __  __20:  __
__5:  __  __21:  __
__6:  __  __22:  __
__7:  __  __23:  __
__8:  __  __24:  Occ (T1 only)
__9:  __
__10: __
__11: __
__12: __
__13: __
__14: __
__15: __
__16: Occ (E1 only)

```

Screen 7. Signaling group D-channel assignments—screen 2

```

add trunk-group                                     Page 1 of 10
                                                    TRUNK GROUP

Group Number: 1                               Group Type: isdn           CDR Reports: y
  Group Name: OUTSIDE CALL                     COR: 1                   TN: 1           TAC:
  Direction: two-way                          Outgoing Display? n     Carrier Medium: ATM
  Dial Access? n                               Busy Threshold: 99      Night Service:
Queue Length: 0
Service Type: tie                               Auth Code? n           TestCall ITC: rest
Far End Test Line No:

TestCall BCC: 4
TRUNK PARAMETERS
  Codeset to Send Display: 6                   Codeset to Send National IEs: 6
  Max Message Size to Send: 260               Charge Advice: none
  Supplementary Service Protocol: a           Digit Handling (in/out): enbloc/enbloc

  Trunk Hunt: cyclical                         QSIG Value-Added Lucent? n
                                           Digital Loss Group: 13
Calling Number - Delete:                      Insert:                   Numbering Format:
  Bit Rate: 1200                               Synchronization: async  Duplex: full
Disconnect Supervision - In? y Out? n
Answer Supervision Timeout: 0

```

Screen 8. Trunk group—screen 1

```

add trunk-group                                     Page 4 of 10
                                                    TRUNK GROUP
                                                    Administered Members (min/max): 0/0
GROUP MEMBER ASSIGNMENTS                          Total Administered Members: 0
Port      Code Sfx Name      Night      Sig Grp
1:
2:
3:
4:
5:
6:
7:
8:
9:
10:
11:
12:
13:
14:
15:

```

Screen 9. Trunk group—screen 4**Changing the port-to-channel mapping**

Use the following steps to change the port-to-channel mapping for emulated circuits:

1. Type **busyout atm signaling-group siggrpnr** and press Enter to busyout the signaling group.
2. Type **change trunk-group trkgrpnr** and press Enter.
Remove any port administration on screen 6.
3. Type **change signaling-group siggrpnr**.
Modify the port-to-channel mapping.
4. Type **change trunk-group trkgrpnr** and press Enter.
Add the ports back in on screen 6, using new port numbers, if desired.
5. Type **release atm signaling-group siggrpnr** and press Enter to release the signaling group.

The display shows the command aborts, but the D-channel and B-channels come up.

DEFINITY commands for CES

Administration commands that are useful in working with CES are listed in [Table 10](#).

Table 10. ATM administration commands

Command	Description
display circuit-packs cabinet	Displays the packs in the cabinet, identifying ATM Trunk as well as ATM PNC EI boards. ATM Interface boards have not been specified as CES or PNC yet.
display atm ports eqloc	Displays the 256 ports on the ATM board with the corresponding signaling and trunk group.
list configuration atm	Lists the ATM boards, identifying equipment location, board code, type, and vintage.
list configuration trunks	Lists boards identifying assigned ports. Although the ATM board is listed, the 256 ports are not.

Additional DEFINITY ECS administration

After administering the ATM-PNC or ATM-CES, you may need to do some further administration, specifically identifying parameters of the switches' locations.

All locations must be in the same country code.



NOTE:

The screens and field description follow the table.

Table 11. Administer location procedure

√	Step	Action	Description
	1.	Activate the feature	Type change system-parameters customer-options and press Enter. (<i>Init password required.</i>) The Customer Options screen displays. Go to screen 3 (Screen 10).
	2.	Set multiple locations	Change the value in the <code>Multiple locations</code> field to y and press Enter.



NOTE:

The system is limited to a single location unless this field is changed.

Continued on next page

Table 11. Administer location procedure — *Continued*

√	Step	Action	Description
	3.	Verify feature activation	Type display system-parameters customer-options and press Enter. The Customer Options screen displays (Screen 10). Go to screen 2 and verify that the <code>Multiple locations</code> field is set to y .
	4.	Change cabinet administration	Type change cabinet n (cabinet number) and press Enter. The Cabinet screen displays (Screen 11).
	5.	Administer cabinet location	Each cabinet in the switch and the port network(s) in that cabinet must be assigned a location number (default location number is 1). Change the <code>Location</code> field to the appropriate number and press Enter.
	6.	Administer location properties	Type change locations and press Enter. The Locations screen displays (Screen 12).
	7.	Set timezone offset	Ensure that the <code>Timezone Offset</code> field for Location 1 is set at 00:00 , indicating the local time. This serves as a system-wide, relative time reference.
	8.	Set Number Plan Area Code	The <code>Number Plan Area Code</code> field (for subnet trunking conversions between 10-digit North American Number Plan (NANP) and 7-digit (local) numbers). Leaving the field blank is the normal setting for a location <ul style="list-style-type: none"> ■ outside the NANP. ■ with no 7-digit local calling plan. These locations may have overlaid area codes requiring 10-digit dialing.
	9.	Administer cabinet locations	Administer all other locations as necessary. For example, if the PPN is in New York and a group of EPNs is in Los Angeles, then New York (location 1) is the reference and is administered with no time offset (see step 8). Los Angeles (location 2) is 3 hours earlier than New York time and is administered with a time offset of -03:00. Administer cabinet locations as they are added to the system. More than 1 cabinet can be in the same location. For location-related feature limitations and interactions see Table 11 . When finished, press Enter to effect the changes.

Continued on next page

Table 11. Administer location procedure — *Continued*

√	Step	Action	Description
	10.	Administer Daylight-Savings Time rules	<p>Type change daylight-savings-rules and press Enter.</p> <p>The Daylight Savings Rules screen displays (Screen 13).</p> <p>Administer as many rules as necessary for all of the administered locations.</p> <p>If you want to deny access for an individual login:</p> <ul style="list-style-type: none"> ■ set the <code>Additional Restrictions</code> field for that login to y, and entering daylight-savings-rules in the <code>Restricted Object List</code> field. ■ set the <code>Administer Features</code> field for that login to n. ■ set the <code>Display Admin. and Maint. Data</code> field for that login to n.
	11.	Verify date and time	<p>Check the system date and time (set time).</p> <p>Ensure that the <code>Type</code> and <code>Daylight Savings Rule</code> fields are administered correctly (Screen 14).</p>
	12.	Administer ARS routing	<p>Administer the <code>Location</code> field on the ARS analysis screen (change ars analysis 0 location all), observing the following conditions:</p> <ul style="list-style-type: none"> ■ ARS customer option (change system-parameters customer-options) must be enabled (<i>init password required</i>). ■ the Multiple Locations customer option must be administered to a value other than all.

```
change system-parameters customer-options                               Page 3 of 6
                                OPTIONAL FEATURES

    Hospitality (Basic)? y                                           PNC Duplication? y
    Hospitality (G3V3 Enhancements)? y
        H.323 Trunks? n                                           Processor and System MSP? y
        IP Stations? n                                           Private Networking? y
        ISDN Feature Plus? y   Restrict Call Forward Off Net? y
        ISDN-BRI Trunks? y   Secondary Data Module? y
        ISDN-PRI? y         Station and Trunk MSP? y
        Malicious Call Trace? y
    Mode Code for Centralized Voice Mail? n   Tenant Partitioning? y
        Mode Code Interface? y   Terminal Trans. Init. (TTI)? y
        Multifrequency Signaling? y   Time of Day Routing? y
    Multimedia Appl. Server Interface (MASI)? y   Uniform Dialing Plan? y
        Multimedia Call Handling (Basic)? y   Usage Allocation Enhancements? y
        Multimedia Call Handling (Enhanced)? y
            Multiple Locations? y                               Wideband Switching? y
        Personal Station Access (PSA)? y   Wireless? y

(NOTE: You must logoff & login to effect the permission changes.)
```

Screen 10. Optional features—screen 3

```
change cabinet 1                                                       Page 1 of 1
                                CABINET

CABINET DESCRIPTION
    Cabinet: 1
    Cabinet Layout: five-carrier
    Cabinet Type: processor
    Number of Portnetworks: 1

        Location: 1

                Room:                Floor:                Building:

CARRIER DESCRIPTION
    Carrier      Carrier Type      Number
    C            not-used          PN 01
    B            not-used          PN 01
    A            processor       PN 01
    X            fan
    D            not-used          PN 01
    E            not-used          PN 01
```

Screen 11. Cabinet



NOTE:

With Release 7.1 or later software, all cabinets are automatically assigned location 1.

Field description:

- Location Location number associated with the cabinet (range is 1-44, default 1).
- Field cannot be blank
 - Location is display-only if the Multiple locations field (**change system-parameters customer-options**) is not set to **y**.

change locations Page 1 of 3

LOCATIONS

ARS Prefix 1 Required For 10-Digit NAMP Calls? y

Number	Name	Timezone Offset	Daylight-Savings Rule	Number Plan Area Code
1	Main	+ 00:00	0	
2		:		
3		:		
4		:		
5		:		
6		:		
7		:		
8		:		
9		:		
10		:		
11		:		
12		:		
13		:		
14		:		

Screen 12. Locations—screen 1

 **NOTE:**
Upgrades from a previous software version default to a single location (location 1) with the values shown in [Screen 12](#). The Number Plan Area Code is the home NPA from the dial plan screen of the earlier release.

Field description:

ARS Prefix 1 Required For 10-Digit NAMP Calls? This field is set to **y** if all 10-digit NAMP calls (those marked as FNPA in the ARS analysis tables) must be preceded by a digit '1' (commonly called the toll prefix); otherwise, it is set to **n**.

 **NOTE:**
Many areas in the United States have changed to 10-digit dialing for local calls, and administration for this field and the ARS analysis entries must reflect these changes.

Number This read-only field uniquely identifies a location. Valid values range from 1 to 44.

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- Name This 15-character field identifies the location but may be blank for any given location (default = y).
- Timezone This field specifies the time offset from the system standard time. Set a value in the ±, hour (0-23), and minute (0-59) areas, as these fields cannot be blank for an administered location.
- Offset
- Number This field is the number assigned to the administered, customized rule (0 to 15) for this location. Each rule consists of the week, day, month, and time that daylight savings starts and stops.
 - Rule 0 is no daylight savings time and is not alterable.
 - Rule 1 defaults to the U.S. daylight savings time rule but may be altered or deleted.
- Number Plan This field is the numbering plan area code appropriate for this location
- Area Code (can be blank).

change daylight-savings-rules

Page 1 of 2

DAYLIGHT SAVINGS RULES

Rule	Change Day	Month	Date	Time	Increment
0: No Daylight Savings					
1: Start:	first Sunday	on or after	April	1	at 2 :0
Stop:	first Sunday	on or after	October	25	at 2 :0
2. Start:	first	on or after			at 0 :
Stop:	first	on or after			at 0 :
3. Start:	first	on or after			at 0 :
Stop:	first	on or after			at 0 :
4. Start:	first	on or after			at 0 :
Stop:	first	on or after			at 0 :
5. Start:	first	on or after			at 0 :
Stop:	first	on or after			at 0 :
6. Start:	first	on or after			at 0 :
Stop:	first	on or after			at 0 :
7. Start:	first	on or after			at 0 :
Stop:	first	on or after			at 0 :

Screen 13. Daylight savings rules screen

Field description:

Change Day	The day of the week, or date that the change takes effect.
Month	The month the change takes effect.
Date	The date on or after which the change takes place.
Time	2 fields that specify the hour (0-23) and minute (0-59) that the change takes effect (in 24-hour format)
Increment	2 fields specifying the number of hours (0-23) and minutes (0-59) the clock is moved ahead to begin daylight savings time (and moved back to return to standard time).



NOTE:

Some states (Arizona) or portions of states (Indiana) do not observe daylight savings time. Verify the daylight savings time status in all your locations.

```

set time                                     Page 1 of 1

                                DATE AND TIME

DATE

    Day of the Week: Sunday                Month: October
    Day of the Month: 24                   Year: 1999

TIME

    Hour: 8   Minute: 16   Second: 31   Type: Standard
    Daylight Savings Time Rule: 0

WARNING: Changing the date or time will impact BCMS, CDR and MEASUREMENTS
    
```

Screen 14. Date and time screen



NOTE:

When the system clock is upgraded from an earlier release, the daylight savings time rule on the **set time** screen defaults to **0** (no rule). While you can change the daylight savings time rule, the system clock is not adjusted automatically until the next transition of the rule.

Field description:

Type	Daylight-savings = daylight savings time Standard = standard time
Daylight Savings Rule	The daylight savings time rule number (0 to 15). Rule 0 is no daylight savings time, and rule 1 defaults to U.S. daylight savings time rule.

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