



**DEFINITY®**

**Enterprise Communications Server**

Release 10

Installation, Upgrades, and Additions for  
Compact Modular Cabinets

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Issue 3  
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## Notice

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

## Preventing Toll Fraud

“Toll fraud” is the unauthorized use of your telecommunications system by an unauthorized party (for example, a person who is not a corporate employee, agent, subcontractor, or is not working on your company's behalf). Be aware that there may be a risk of toll fraud associated with your system and that, if toll fraud occurs, it can result in substantial additional charges for your telecommunications services.

## Avaya Fraud Intervention

If you suspect that you are being victimized by toll fraud and you need technical assistance or support, in the United States and Canada, call the Technical Service Center's Toll Fraud Intervention Hotline at 1-800-643-2353. For additional support telephone numbers, see the Avaya web site:

<http://www.avaya.com>

Click on Support, click on Escalation Lists US and International. This web site includes phone numbers for escalation within the United States. For escalation phone numbers outside the United States, click on Global Escalation List.

## Providing Telecommunications Security

Telecommunications security (of voice, data, and/or video communications) is the prevention of any type of intrusion to (that is, either unauthorized or malicious access to or use of) your company's telecommunications equipment by some party.

Your company's “telecommunications equipment” includes both this Avaya product and any other voice/data/video equipment that could be accessed via this Avaya product (that is, “networked equipment”).

An “outside party” is anyone who is not a corporate employee, agent, subcontractor, or is not working on your company's behalf. Whereas, a “malicious party” is anyone (including someone who may be otherwise authorized) who accesses your telecommunications equipment with either malicious or mischievous intent.

Such intrusions may be either to/through synchronous (time-multiplexed and/or circuit-based) or asynchronous (character-, message-, or packet-based) equipment or interfaces for reasons of:

- Utilization (of capabilities special to the accessed equipment)
- Theft (such as, of intellectual property, financial assets, or toll-facility access)
- Eavesdropping (privacy invasions to humans)
- Mischief (troubling, but apparently innocuous, tampering)
- Harm (such as harmful tampering, data loss or alteration, regardless of motive or intent)

Be aware that there may be a risk of unauthorized intrusions associated with your system and/or its networked equipment. Also realize that, if such an intrusion should occur, it could result in a variety of losses to your company (including but not limited to, human/data privacy, intellectual property, material assets, financial resources, labor costs, and/or legal costs).

## Your Responsibility for Your Company's Telecommunications Security

The final responsibility for securing both this system and its networked equipment rests with you - an Avaya customer's system administrator, your telecommunications peers, and your managers. Base the fulfillment of your responsibility on acquired knowledge and resources from a variety of sources including but not limited to:

- Installation documents
- System administration documents
- Security documents
- Hardware-/software-based security tools
- Shared information between you and your peers
- Telecommunications security experts

To prevent intrusions to your telecommunications equipment, you and your peers should carefully program and configure:

- your Avaya-provided telecommunications systems and their interfaces
- your Avaya-provided software applications, as well as their underlying hardware/software platforms and interfaces
- any other equipment networked to your Avaya products.

## How to get help

For support phone numbers, see the Avaya web site:

<http://www.avaya.com>

Click on Support, click on Escalation Lists US and International. This web site includes phone numbers for escalation within the United States. For escalation phone numbers outside the United States, click on Global Escalation List.

## Standards Compliance

Avaya Inc. is not responsible for any radio or television interference caused by unauthorized modifications of this equipment or the substitution or attachment of connecting cables and equipment other than those specified by Avaya Inc. The correction of interference caused by such unauthorized modifications, substitution or attachment will be the responsibility of the user. Pursuant to Part 15 of the Federal Communications Commission (FCC) Rules, the user is cautioned that changes or modifications not expressly approved by Avaya Inc. could void the user's authority to operate this equipment.

The equipment described in this manual complies with standards of the following organizations and laws, as applicable:

- Australian Communications Agency (ACA)
- American National Standards Institute (ANSI)
- Canadian Standards Association (CSA)
- Committee for European Electrotechnical Standardization (CENELEC) – European Norms (EN's)
- Digital Private Network Signaling System (DPNSS)
- European Computer Manufacturers Association (ECMA)
- European Telecommunications Standards Institute (ETSI)
- FCC Rules Parts 15 and 68
- International Electrotechnical Commission (IEC)
- International Special Committee on Radio Interference (CISPR)
- International Telecommunications Union - Telephony (ITU-T)
- ISDN PBX Network Specification (IPNS)
- National ISDN-1
- National ISDN-2
- Underwriters Laboratories (UL)

## Product Safety Standards

This product complies with and conforms to the following international Product Safety standards as applicable:

Safety of Information Technology Equipment, IEC 60950, 3rd Edition including all relevant national deviations as listed in Compliance with IEC for Electrical Equipment (IECEE) CB-96A.

Safety of Laser products, equipment classification and requirements:

- IEC 60825-1, 1.1 Edition
- Safety of Information Technology Equipment, CAN/CSA-C22.2 No. 60950-00 / UL 60950, 3rd Edition
- Safety Requirements for Customer Equipment, ACA Technical Standard (TS) 001 - 1997
- One or more of the following Mexican national standards, as applicable: NOM 001 SCFI 1993, NOM SCFI 016 1993, NOM 019 SCFI 1998

## Electromagnetic Compatibility (EMC) Standards

This product complies with and conforms to the following international EMC standards and all relevant national deviations:

Limits and Methods of Measurement of Radio Interference of Information Technology Equipment, CISPR 22:1997 and EN55022:1998.

Information Technology Equipment – Immunity Characteristics – Limits and Methods of Measurement, CISPR 24:1997 and EN55024:1998, including:

- Electrostatic Discharge (ESD) IEC 61000-4-2
- Radiated Immunity IEC 61000-4-3
- Electrical Fast Transient IEC 61000-4-4
- Lightning Effects IEC 61000-4-5
- Conducted Immunity IEC 61000-4-6
- Mains Frequency Magnetic Field IEC 61000-4-8
- Voltage Dips and Variations IEC 61000-4-11
- Powerline Harmonics IEC 61000-3-2
- Voltage Fluctuations and Flicker IEC 61000-3-3

## Federal Communications Commission Statement

### Part 15:

**Note: 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 instruction manual, 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: 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, or
- routed to a recorded announcement that can be administered by the customer premises equipment (CPE) user.

This equipment returns answer-supervision signals on all direct inward dialed (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.

Avaya attests that this registered equipment is capable of providing users access to interstate providers of operator services through the use of access codes. Modification of this equipment by call aggregators to block access dialing codes is a violation of the Telephone Operator Consumers Act of 1990.

This equipment complies with Part 68 of the FCC Rules. On the rear of this equipment is a label that contains, among other information, the FCC registration number and ringer equivalence number (REN) for this equipment. If requested, this information must be provided to the telephone company.

The REN is used to determine the quantity of devices which may be connected to the telephone line. Excessive RENs on the telephone line may result in devices not ringing in response to an incoming call. In most, but not all areas, the sum of RENs should not exceed 5.0. To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local telephone company.

REN is not required for some types of analog or digital facilities.

## Means of Connection

Connection of this equipment to the telephone network is shown in the following table.

Manufacturer's Port Identifier	FIC Code	SOC/REN/A.S. Code	Network Jacks
Off/On premises station	OL13C	9.0F	RJ2GX, RJ21X, RJ11C
DID trunk	02RV2-T	0.0B	RJ2GX, RJ21X
CO trunk	02GS2	0.3A	RJ21X
CO trunk	02LS2	0.3A	RJ21X
Tie trunk	TL31M	9.0F	RJ2GX
Basic Rate Interface	02IS5	6.0F, 6.0Y	RJ49C
1.544 digital interface	04DU9-BN, 1KN, 1SN	6.0F	RJ48C, RJ48M
120A2 channel service unit	04DU9-DN	6.0Y	RJ48C

If the terminal equipment (for example, the DEFINITY® System equipment) causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.

If trouble is experienced with this equipment, for repair or warranty information, please contact the Technical Service Center at 1-800-242-2121 or contact your local Avaya representative. If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

It is recommended that repairs be performed by Avaya certified technicians.

The equipment cannot be used on public coin phone service provided by the telephone company. Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information.

This equipment, if it uses a telephone receiver, is hearing aid compatible.

### Canadian Department of Communications (DOC) Interference Information

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

### DECLARATIONS OF CONFORMITY

#### United States FCC Part 68 Supplier's Declaration of Conformity (SDoC)

Avaya, Inc. in the United States of America hereby certifies that the equipment described in this document and bearing a TIA TSB-168 label identification number complies with the FCC's Rules and Regulations 47 CFR Part 68, and the Administrative Council on Terminal Attachments (ACTA) adopted technical criteria.

Avaya further asserts that Avaya handset equipped terminal equipment described in this document complies with Paragraph 68.316 of the FCC Rules and Regulations defining Hearing Aid Compatibility and is deemed compatible with hearing aids.

Copies of SDoCs signed by the Responsible Party in the U. S. can be obtained by contacting your local sales representative and are available on the following Web site:

<http://support.avaya.com/elmodocs2/DoC/SDoC/index.jhtml/>

All DEFINITY<sup>®</sup> system products are compliant with FCC Part 68, but many have been registered with the FCC before the SDoC process was available. A list of all Avaya registered products may be found at:

<http://www.part68.org/>

by conducting a search using "Avaya" as manufacturer.

#### European Union Declarations of Conformity



Avaya Inc. declares that the equipment specified in this document bearing the "CE" (*Conformité Européenne*) mark conforms to the European Union Radio and Telecommunications Terminal Equipment Directive (1999/5/EC), including the Electromagnetic Compatibility Directive (89/336/EEC) and Low Voltage Directive (73/23/EEC). This equipment has been certified to meet CTR3 Basic Rate Interface (BRI) and CTR4 Primary Rate Interface (PRI) and subsets thereof in CTR12 and CTR13, as applicable.

Copies of these Declarations of Conformity (DoCs) signed by the Vice President of DEFINITY<sup>®</sup> systems research and development, Avaya Inc., can be obtained by contacting your local sales representative and are available on the following Web site:

<http://support.avaya.com/elmodocs2/DoC/IDoC/index.jhtml/>

### Japan

This is a Class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may occur, in which case, the user may be required to take corrective actions.

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

### Network Connections

Digital Connections - The equipment described in this document can be connected to the network digital interfaces throughout the European Union.

Analogue Connections - The equipment described in this document can be connected to the network analogue interfaces throughout the following member states:

Belgium	Germany	Greece	Italy	Luxemburg
Netherlands	Spain	United Kingdom		

### LASER Product

The equipment described in this document may contain Class 1 LASER Device(s) if single-mode fiber-optic cable is connected to a remote expansion port network (EPN). The LASER devices operate within the following parameters:

- Maximum power output -5 dBm to -8 dBm
- Center Wavelength 1310 nm to 1360 nm
- CLASS 1 LASER PRODUCT IEC 60825-1: 1998

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure. Contact your Avaya representative for more laser product information.

### Trademarks

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Okidata is a registered trademark of OKI Electric Co., LTD.

UNIX is a registered trademark in the United States and other countries, licensed exclusively through X/Open Company Limited.

Xiox is a trademark of @Comm Corporation.

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200 Ward Hill Avenue  
Haverhill, MA 01835 USA  
Attention: Avaya Account Management

Email: [totalware@gwsmail.com](mailto:totalware@gwsmail.com)  
Order: Document No. 555-233-118

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## About This Book

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This document provides procedures to install, upgrade, or make additions to a DEFINITY® Enterprise Communications Server Release 10csi, using the Compact Modular Cabinet.

This document is intended for use by trained installation technicians.

## Conventions Used in This Book

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- Information you type is shown as: **save translation**. To submit the command you typed, press the Enter key in the numbers section of the keyboard, not the Enter/Return key in the letters section.
- Information displayed on the management terminal is shown as: `login`
- Keyboard keys are shown as: Enter.
- Circuit pack codes (such as TN2182B) are shown with the minimum acceptable alphabetic suffix.

Generally, an alphabetic suffix higher than that shown is also acceptable. However, not every vintage of either the minimum suffix or a higher suffix code is necessarily acceptable.

### NOTE:

Refer to *Technical Monthly: Reference Guide for Circuit Pack Vintages and Change Notices* for current information about usable vintages of specific circuit pack codes (including the suffix).

The following conventions describe the systems referred to in this document.

- The word *system* is a general term encompassing Release 10 and includes references to the DEFINITY Enterprise Communications Server
- Systems in this book are called Release 10, Release 10 CMC, and R10csi
- Information in this book is applicable for Release 10 unless otherwise specified
- DEFINITY Enterprise Communications Server is abbreviated as DEFINITY ECS
- Physical dimensions in this book are in inches (in.) followed by metric centimeters (cm) in parentheses. Wire gauge measurements are in AWG followed by the cross-sectional area in millimeters squared (mm<sup>2</sup>) in parentheses

## Related Documents

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As supplemental information, you may need the following documents when installing a DEFINITY ECS Release 10 system. These documents are available in English only unless otherwise noted.

- *DEFINITY Enterprise Communications Server Release 10 Administration for Network Connectivity*
- *BCS Products Security Handbook*
- *DEFINITY Enterprise Communications Server Release 10 Installation for Adjuncts and Peripherals*
- *DEFINITY Enterprise Communications Server Release 10 Administrator's Guide*
- *DEFINITY Enterprise Communications Server Release 10 Maintenance for R10csi*
- *DEFINITY Enterprise Communications Server Release 10 System Description* (available in other languages)
- *DEFINITY Communications System and System 75 and System 85 Terminals and Adjuncts*
- *Switch Administration for DEFINITY AUDIX*
- *DEFINITY Enterprise Communications Server Release 10 ATM Installation, Upgrades, and Administration*

In addition to this book, other description, installation and test, maintenance, and administration books are available.

## How to Order Documentation

A complete list of DEFINITY books is available in the *Business Communications System Publications Catalog*.

You can order this document and any other DEFINITY documentation by mail from:

Globalware Solutions  
200 Ward Hill Avenue  
Haverhill, MA 01835 USA

Call toll free within the United States at 1-800-457-1235.

If you are unable to use 1-800 numbers, call:

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+1 410 891-0207 (fax)

In addition to this book, other description, installation and test, maintenance, and administration books are available. A complete list of DEFINITY books can be found in the *Business Communications System Publications Catalog*.

This book and any other DEFINITY books can be ordered directly from the Avaya Publications Fulfillment Center at 1-410-457-1235 or toll free at 1-800-457-1235.

## How to comment on this document

Avaya welcomes your feedback. Your comments are of great value and help improve our documentation.

- Please fill out the reader comment card at the front of this manual and return it.
- If the reader comment card is missing, FAX your comments to 1-303-538-1741 or to your Avaya representative, and mention this document's name and number.
- E-mail your comments to **document@drmail.avaya.com**

## Where to get additional help

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### Other DEFINITY library documents

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Other books in the DEFINITY library You can find general information on troubleshooting associated with maintenance procedures in:

- Chapter 5, "Alarms, Errors and Troubleshooting," in *DEFINITY Enterprise Communications Server Release 10 Maintenance for R10r*.
- *DEFINITY Enterprise Communications Server Release 10 Installation for Adjuncts and Peripherals*
- *DEFINITY Made Easy: Multicarrier Cabinet Installation CD*
- *DEFINITY Made Easy: Single-Carrier Cabinet Installation CD*
- *DEFINITY Enterprise Communications Server Release 10 Installation, Upgrades, and Additions for Compact Modular Cabinets*
- *DEFINITY ONE Communications Systems Release 10 Installation and Upgrades*
- *DEFINITY Enterprise Communications Server Release 10 Administrator's Guide*
- *DEFINITY Made Easy: Upgrades for R10si CD*

### Trouble escalation

---

For additional support telephone numbers:

1. At your browser, go to the Avaya web site:

<http://www.avaya.com>

2. Click on *Support*.

3. If you are:

- Within the United States, click on *Escalation Lists US and International*.
- Outside the United States, click on *Global Escalation List*.

These lists contain phone numbers for the Centers of Excellence in each Avaya-defined region.

### How to order media

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In addition to this book, other description, installation and test, maintenance, and administration books are available. A complete list of DEFINITY books can be found in the *Business Communications System Publications Catalog*.

This book and any other DEFINITY books can be ordered directly from the Avaya Publications Fulfillment Center at 1-410-457-1235 or toll free at 1-800-457-1235.

## Security Issues

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To ensure the greatest security possible for customers, Avaya Inc. offers services that can reduce toll-fraud liabilities. Contact your Avaya Inc. representative for more security information.

Login security is an attribute of the DEFINITY ECS software. Existing passwords expire 24 hours after installation.

For Access Security Gateway (ASG), see [Appendix B, "Access Security Gateway"](#).

## Trademarks

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This document contains references to the following Avaya Inc. trademarked products:

- ACCUNET®
- AUDIX®
- Callmaster®
- CallVisor®
- CONVERSANT®
- DEFINITY®
- FORUM™
- MEGACOM®
- TRANSTALK™

The following products are trademarked by their appropriate U.S. vendor:

- LINX™ is a trademark of Illinois Tool Works, Incorporated
- Shockwatch® is a registered trademark of Media Recovery, Incorporated
- Styrofoam® is a registered trademark of Styrofoam Corporation
- Tiltwatch® is a registered trademark of Media Recovery, Incorporated

## **Standards Compliance**

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The equipment presented in this document complies with the following standards (as appropriate):

- ITU-T (Formerly CCITT)
- ECMA
- ETSI
- IPNS
- DPNSS
- National ISDN-1
- National ISDN-2
- ISO-9000
- ANSI
- FCC Part 15 and Part 68
- EN55022
- EN50081
- EN50082
- CISPR22
- Australia AS3548 (AS/NZ3548)
- Australia AS3260
- IEC 825
- IEC 950
- UL 1459
- UL 1950
- CSA C222 Number 225
- TS001

Contact your Avaya Inc. representative for more information.

## Electromagnetic Compatibility Standards

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This product complies with and conforms to the following standards (as appropriate):

- Limits and Methods of Measurements of Radio Interference Characteristics of Information Technology Equipment, EN55022 (CISPR22), 1993
- EN50082-1, European Generic Immunity Standard
- FCC Part 15
- Australia AS3548



**NOTE:**

The system conforms to Class A (industrial) equipment. Voice terminals meet Class B requirements.

- Electrostatic Discharge (ESD) IEC 1000-4-2
- Radiated radio frequency field IEC 1000-4-3
- Electrical Fast Transient IEC 1000-4-4
- Lightning effects IEC 1000-4-5
- Conducted radio frequency IEC 1000-4-6
- Mains frequency magnetic field IEC 1000-4-8
- Low frequency mains disturbance IEC 1000-4-11

### European Union Standards

Avaya Inc. Business Communications Systems (BCS) declares that the DEFINITY equipment specified in this document bearing the CE mark conforms to the European Union Electromagnetic Compatibility Directives.

The CE (Conformité Européenne) mark indicates conformance to the European Union Electromagnetic Compatibility Directive (89/336/EEC), Low Voltage Directive (73/23/EEC), Telecommunication Terminal Equipment (TTE) Directive (91/263/EEC), i-CTR3 Basic Rate Interface (BRI), and i-CTR4 Primary Rate Interface (PRI) as applicable.

The CE mark is applied to the following Release 10 products:

- Global AC-powered Multi-Carrier Cabinet (MCC)
- DC-powered Multi-Carrier Cabinet (MCC) with 25-Hz ring generator
- AC-powered Enhanced Single-Carrier Cabinet (ESCC) with 25-Hz ring generator
- AC-powered Compact Single-Carrier Cabinet (CSCC) with 25-Hz ring generator

- Enhanced DC power system
- AC-powered Compact Modular Cabinet (CMC) with 25-Hz ring generator
- AC-powered Compact Modular Cabinet (CMC) with 50-Hz ring generator for France

## Antistatic Protection

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### **CAUTION:**

*When handling circuit packs or any components of a DEFINITY System, always wear an antistatic wrist ground strap. Connect the strap to an approved ground such as an unpainted metal surface on the DEFINITY System.*

## Remove/Install circuit packs

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### **CAUTION:**

*When the power is on:*

- *The control circuit packs cannot be removed or installed.*
- *The port circuit packs can be removed or installed.*

## Federal Communications Commission Statement

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### Part 68: Statement

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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

Avaya Inc. attests that this registered equipment is capable of providing users access to interstate providers of operator services through the use of access codes. Modification of this equipment by call aggregators to block access dialing codes is a violation of the Telephone Operator Consumers Act of 1990.

This equipment complies with Part 68 of the FCC Rules. A label is provided on this equipment that contains, among other information, the FCC registration number and ringer equivalence number (REN) for this equipment. If requested, this information must be provided to the telephone company.

The REN is used to determine the quantity of devices which may be connected to the telephone line. Excessive RENs on the telephone line may result in devices not ringing in response to an incoming call. In most, but not all areas, the sum of RENs should not exceed 5.0. To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local telephone company.



**NOTE:**

REN is not required for some types of analog or digital facilities.

**Means of Connection**

Connection of this equipment to the telephone network is shown in the following table.

<b>Manufacturer's Port Identifier</b>	<b>FIC Code</b>	<b>SOC/REN/ A.S. Code</b>	<b>Network Jacks</b>
Off/On Premises Station	OL13C	9.0F	RJ2GX, RJ21X, RJ11C
DID Trunk	02RV2-T	0.0B	RJ2GX, RJ21X
CO Trunk	02GS2	0.3A	RJ21X
CO Trunk	02LS2	0.3A	RJ21X
Tie Trunk	TL31M	9.0F	RJ2GX
1.544 Digital Interface	04DU9-B,C	6.0P	RJ48C, RJ48M
1.544 Digital Interface	04DU9-BN,KN	6.0P	RJ48C, RJ48M
120A2 Channel Service Unit	04DU9-DN	6.0P	RJ48C

If the terminal equipment (DEFINITY® System) causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.

If trouble is experienced with this equipment, for repair or warranty information, please contact the Technical Service Center at 1-800-242-2121. For assistance outside of the United States, refer to [“Where to get additional help” on page -xviii](#). If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

It is recommended that repairs be performed by Avaya Inc. certified technicians.

The equipment cannot be used on public coin phone service provided by the telephone company. Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information.

This equipment, if it uses a telephone receiver, is hearing aid compatible.

# Installing and Cabling the Cabinets

# 1

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## Read This First

---

### License File

Remote Feature Activation (RFA) is a Web-based application that enables the creation and deployment of License Files for all switches beginning with R10. The License File enables the switch's software category, release, features, and capacities. License Files are created using SAP order information and/or current customer configuration information. *Without a license file, the switch does not provide normal call processing.*

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### Pre-installation checklist

In order to be properly prepared for the installation, have the items listed in [Table 1-1](#) ready.

**Table 1-1. R10csi pre-installation checklist**

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Item No.	Item	✓
1.	Software Release Letter	
2.	Release 10 system software on removable media	
3.	Extra formatted removable media	

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*Continued on next page*

**Table 1-1. R10csi pre-installation checklist — Continued**

Item No.	Item	✓
4.	Authorized wrist grounding strap	
5.	Documentation (book or PDF file) for the current release: <ul style="list-style-type: none"> <li>■ DEFINITY Enterprise Communications Server Release 10 Maintenance for R10csi</li> <li>■ DEFINITY Enterprise Communications Server Release 10 Administrator's Guide</li> </ul>	
6.	Your personal Single Sign-On (SSO) for RFA website authentication login.	
7.	SAP order number with RTUs	
8.	Processor faceplate serial number(s)	
9.	Transaction Record number	
10.	System Identification (SID) number	
11.	Switch telephone number or IP address	
12.	Access to the RFA Information page for these items (if not already installed on your PC): <ul style="list-style-type: none"> <li>■ License Installation Tool (LIT) application</li> <li>■ LIT documentation</li> </ul>	
13.	Adobe Acrobat Reader application installed on your PC (to read FET and LIT documentation)	
14.	Internet Explorer 5.0 or higher installed on your laptop/PC	
15.	Intranet access to your designated RFA portal (see <a href="#">Go to the RFA website</a> ).	

## Go to the RFA website

The Remote Feature Activation (RFA) website automates some of the upgrade procedures, including generating a License File.

1. At your laptop/PC browser, go to the appropriate website:
  - *Associates*: [http://associate2.avaya.com/sales\\_market/services/](http://associate2.avaya.com/sales_market/services/)  
or the services portal: <http://usservices.avaya.com/>
  - *Business Partners* go to the appropriate regional Business Partner portal:
    - United States: <http://www.avaya.com/businesspartner/>
    - Canada: <https://www.avaya.ca/BusinessPartner>
    - Brazil: <http://www.avaya.com.br/Home.asp>
    - CALA: <https://cala-businesspartner.avaya.com/mnc/index.html>
    - EMEA: <https://emea-businesspartner.avaya.com/>
    - APAC: <http://www.avaya-apac.com/bp>
  - *Contractors* go to <http://www.avaya.com/services/rfa/>
  - If you are unable to access RFA using your recommended portal, try: <http://rfa.avaya.com>
2. Using your SSO, log in to the RFA website.
3. Follow the links to the RFA Information page.
4. Complete the information necessary to create a License File.

If you have a direct connection to the switch:

1. Do not deliver the License File at this time. You will deliver and install it later in this upgrade procedure.

If you do not have a direct connection to the switch:

1. Deliver the License File to your laptop/PC for installation later in this procedure.

## Check Customer's Order

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Check the customer's order and the shipping packing lists to confirm that all equipment is present. If any equipment is missing, report this to your Avaya Inc. representative. Check the system adjuncts for damage and report all damage according to local shipping instructions.

## Correcting Shipping Errors

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1. Red-tag all defective equipment and over-shipped equipment and return according to the nearest Material Stocking Location (MSL) instructions. For international customers, contact your order service agent.
2. Direct all short-shipped reports to the nearest MSL. Contact the appropriate location for specific instructions. For Streamlined Implementation in the United States, call 1-800-772-5409.

## Unpack and Inspect

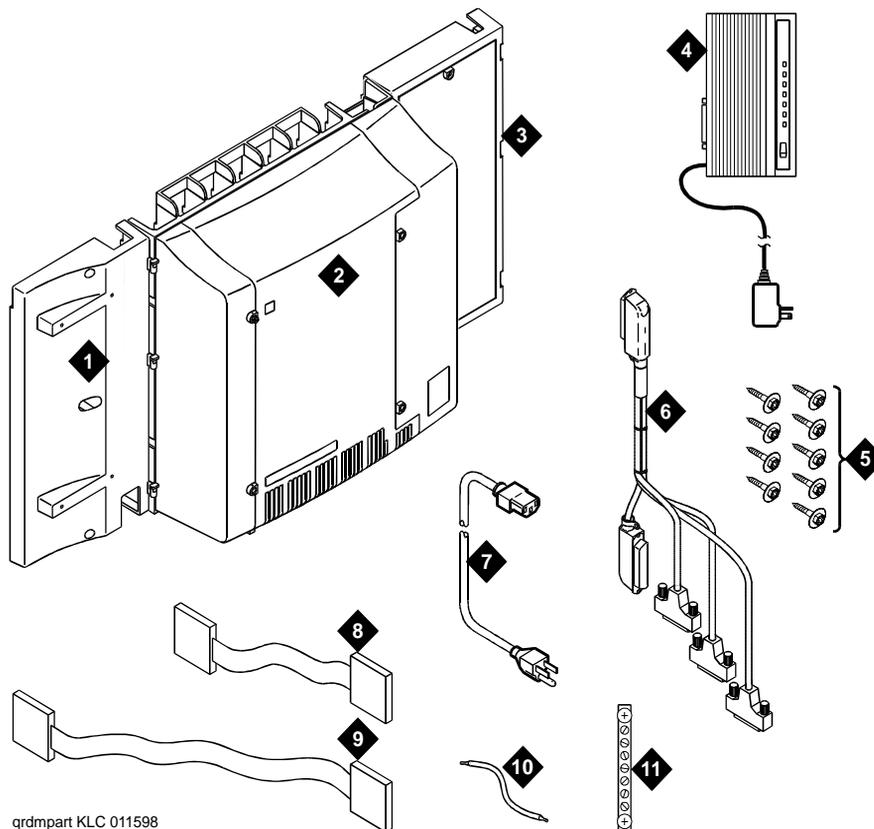
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### CAUTION:

*A fully loaded system weighs 58 lbs (26.3 kg). Use lifting precautions. If the doors, power unit, and circuit packs are removed, the unit weighs only 29 lbs (13.1 kg).*

1. Verify the equipment received. See [Figure 1-1 on page 1-5](#). Actual equipment may vary in appearance and may ship in separate packages.
2. Equipment comcodes are listed in [Table 1-2 on page 1-6](#).
3. Before mounting the cabinets, remove the cabinet doors by opening them and lifting them straight up and off of the hinge pins.



qrdmpart KLC 011598

### Figure Notes

- |   |  |
|---|--|
| 1. Left panel (also acts as a wall-mount <u>template</u> and as a floor mount pedestal) | 7. AC power cord (NEMA 5-15P or IEC 320)                           |
| 2. Compact modular cabinet  | 8. Vertical TDM/LAN bus cable (not shipped with all systems)       |
| 3. Right panel  | 9. Horizontal TDM/LAN bus cable (not shipped with all systems)     |
| 4. U.S. Robotics external modem (not shipped with all systems)                          | 10. 14-in. (35.5 cm) 6 AWG (#40) (16 mm <sup>2</sup> ) ground wire |
| 5. #12 x 1-inch shoulder screws   | 11. Single-point ground block                                      |
| 6. Processor interface cable (not shipped with all cabinets)                            |  |

Figure 1-1. Equipment Packed with the Compact Modular Cabinet

## Comcodes for CMC

---

Table 1-2 lists the comcodes for equipment used with the CMC.

Table 1-2. Comcodes for Release 7.1 and Later

Comcode	Description
847951662	Left Panel
847951670	Right Panel
847915238	Right Door
847915246	Left Door
847960002	Processor Interface Cable
108516683	TN2402 Processor Circuit Pack
107784019	TN2182B Tone-Clock — Tone Detector and Call Classifier Circuit Pack
407633999	U.S. Robotics Sportster Model USR 33.6 EXT External Modem
105631527	TDM/LAN Bus Terminator (AHF110)
407772870	Vertical TDM/LAN Bus Cable (WP-91716 List 8)
407772888	Horizontal TDM/LAN Bus Cable (WP-91716 List 9)
706827717	Single-Point Ground Block
H600-487	14-inch (35.5 cm) 6 AWG (#40) (16 mm <sup>2</sup> ) Green Ground Wire
847987187	CMC 110 Cross-Connect Assembly (Main Distribution Frame)
407676691	120 VAC Power Distribution Unit (145D 6-AC)
107949364	650A Power Supply
848082715	Fan Assembly
407745009	Fan Air Filter
405362641	120 VAC Power Cord (U.S.)
407786623	120 VAC Power Cord (Europe)
407786599	120 VAC Power Cord (United Kingdom)
407786631	120 VAC Power Cord (Australia)
407790591	120 VAC Power Cord (India)
106278062	Apparatus Blank (Circuit Pack Blank) (158P)
108724907	8-Mbyte Mass-Storage Translation Card (White Card)

*Continued on next page*

Table 1-2. Comcodes for Release 7.1 and Later — *Continued*

Comcode	Description
108724915	16-Mbyte Mass-Storage Translation Card (White Card)
108724923	48-Mbyte Mass-Storage Translation Card (White Card)
106606536	Integrated Channel Service Unit (ICSU) (120A2)
107988867	DS1 Loopback Jack (T1 Only) (700A)
107152969	75-ohm DS1 Coaxial Adapter (888B)
403613003	157B Connecting Block
406948976	6SCP-110 Protector
107435091	507B Sneak Current Fuse Panel
407216316	220029 Sneak Current Fuse
403613003	157B Connecting Block
103970000	Main Distribution Frame Label (Code 220A)
104307327	C6C cable — 50-ft (15.2 m) shielded DS1 cable with 50-pin male to 15-pin male
104307376	C6D cable — 50-ft (15.2 m) shielded DS1 cable with 50-pin male on each end
104307434	C6E cable — 100-ft (30.5 m) shielded DS1 cable with 50-pin male to 50-pin female
104307475	C6F cable — 50-ft (15.2 m) shielded DS1 cable with 50-pin male to 3 in. (7.6 cm) stub
102381779	3B1A Carbon Block
104410147	3B1E-W Wide Gap Gas Tube
105514756	3C1S Solid State
102904893	4B1C Carbon Block with Heat Coil
104401856	4B1E-W Wide Gap Gas Tube with Heat Coil
104386545	4C1S Solid State with Heat Coil
406948976	SCP-110 Sneak Current Protector
407216316	220029 Fuse Sneak Current Protector
105581086	4C3S-75 Solid State with Heat Coil
406144907	ITW LINX Gas Tube, Avalanche Suppress
901007120	ITW Linx Ground Bar (used with above)

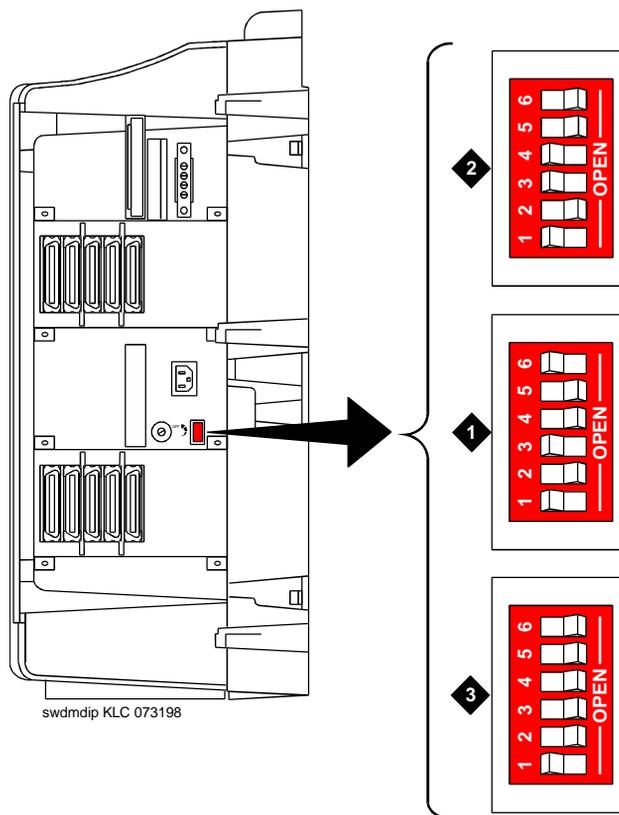
*Continued on next page*

Table 1-2. Comcodes for Release 7.1 and Later — *Continued*

Comcode	Description
406304816	ITW Linx Replacement Fuse
103972758	Data Link Protector (1 circuit)
103972733	Data Link Protector (8 circuits)
407063478	Electrostatic Discharge (ESD) Wrist Strap
107731853	Single-Mode Fiber Optic Transceiver (300A)
106455348	Multi-Mode Fiber Optic Transceiver (9823A)
106455363	Multi-Mode Fiber Optic Transceiver (9823B)
407439975	Multi-mode Fiber Interconnect Cable — 20 ft (6.1 m)
407598325	Single-mode Fiber Interconnect Cable — 20 ft (6.1 m)
105357727	Single-mode Fiber Optic Patch Cord — 2 ft (0.6 m)
106060718	Single-mode 5-dB Attenuator
106060734	Single-mode 10-dB Attenuator

## Install the System Cabinets

### Set the Carrier Address ID — All Cabinets



#### Figure Notes

1. Carrier A switch settings
2. Carrier B switch settings
3. Carrier C switch settings

Figure 1-2. Setting Carrier Address ID (Right Side)

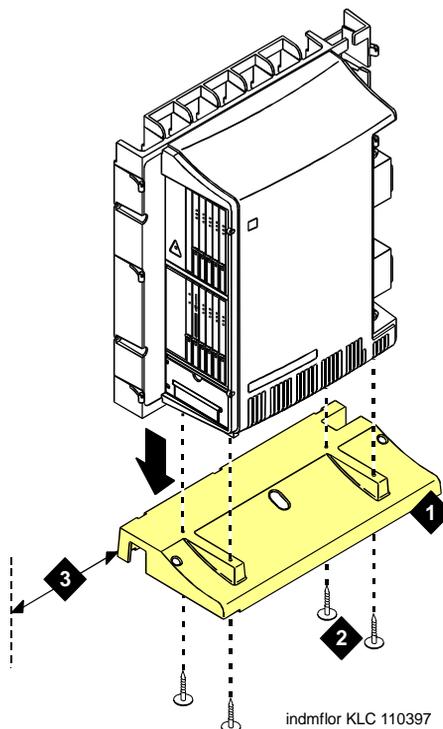
1. Proceed to either [“Floor-Mount the Cabinet”](#) on page 1-10 or to [“Wall-Mount the Cabinets”](#) on page 1-11.

## Floor-Mount the Cabinet

---

The cabinet dimensions (with floor pedestal) are 28.5 in. (72.4 cm) high, 24.5 in. (62.2 cm) wide, and 12 in. (30.5 cm) deep. Maintain a service clearance of 12 in. (30.5 cm) on the left, right, and front of the cabinet.

---



### Figure Notes

1. Left panel (floor-mount pedestal)
2. #12 x 1-in. (2.5 cm) shoulder screws
3. 12 in. (30.5 cm) minimum from nearest object (required to service the circuit packs)

---

### Figure 1-3. Typical Floor Mount Installation

1. Proceed to [“Cable the System”](#) on page 1-25.

## Wall-Mount the Cabinets

---

### CAUTION:

*A fully loaded system weighs 58 lb (26.3 kg). Use lifting precautions. If the doors, power unit, and circuit packs are removed, the unit weighs only 29 lb (13.1 kg).*

### Install Plywood Backing onto Wall

The plywood and the hardware to mount the plywood are installer-provided.

#### NOTE:

The following plywood dimensions account for the extra space needed to install the panels on each side of the cabinet. The cabinet is 24 in. (0.6 m) wide and each panel is 12 in. (0.3 m) wide.

### Single-Cabinet Installation

1. Install a 3/4-in. (2 cm) thick sheet of 2 x 4-ft (0.6 x 1.2 m) plywood horizontally onto the wall. See [Figure 1-4 on page 1-12](#).

The top of the plywood must be at least 54 in. (137 cm) from the floor.

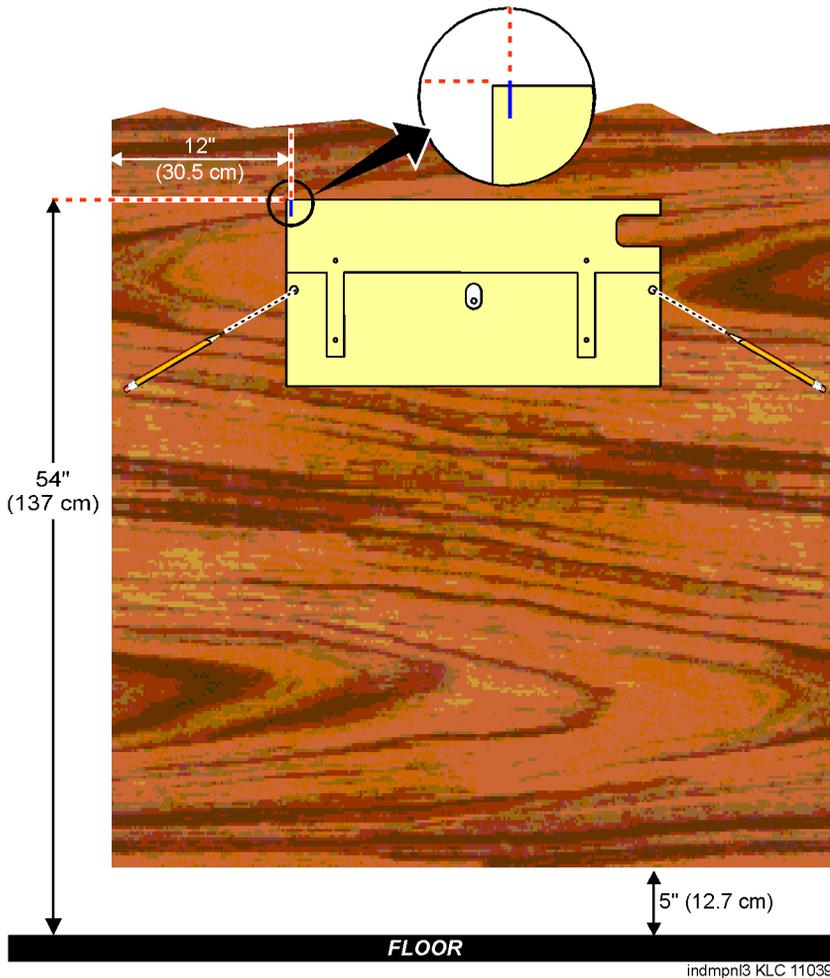
### 2 or 3 Vertically Mounted Cabinets

1. Install a 3/4-in. (2 cm) thick sheet of 4 x 8-ft (1.2 x 2.4 m) plywood vertically onto the wall. See [Figure 1-6 on page 1-14](#).

### 2 Cabinets Vertically Mounted and 1 Cabinet Horizontally Mounted

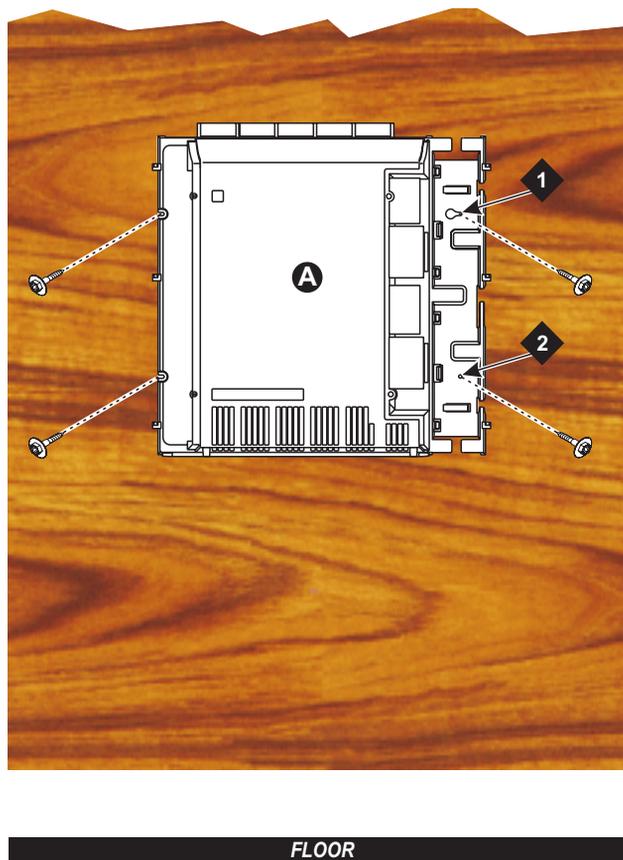
1. Install a 3/4-in. (2 cm) thick sheet of 4 x 8-ft (1.2 x 2.4 m) plywood vertically onto the wall. See [Figure 1-6 on page 1-14](#).
2. Install a 3/4-in. (2 cm) thick sheet of 2 x 4-ft (0.6 x 1.2 m) sheet of plywood horizontally onto the wall. Position the plywood to the right of the first sheet, across from Cabinet A.

## Install Cabinet A — Wall-Mount



**Figure 1-4. Left Panel Used as Mounting Template**

1. Place the template on the wall ensuring that the top surface is level.
2. Mark two 1/8-in. (0.3 cm) pilot holes in the mounting hole locations.
3. Remove the template from the wall.
4. Drill the two pilot holes.
5. Thread two #12 x 1-in. shoulder screws partially into the holes.
6. Set the cabinet onto the wall and align the slots with the shoulder screws. See [Figure 1-5 on page 1-13](#). Slide the cabinet to the left to hold it in place. Tighten the screws securely.



### Figure Notes

1. #12 x 1-in. shoulder screws

2. #12 x 1-inch safety screw

### Figure 1-5. Typical Wall-Mount Installation

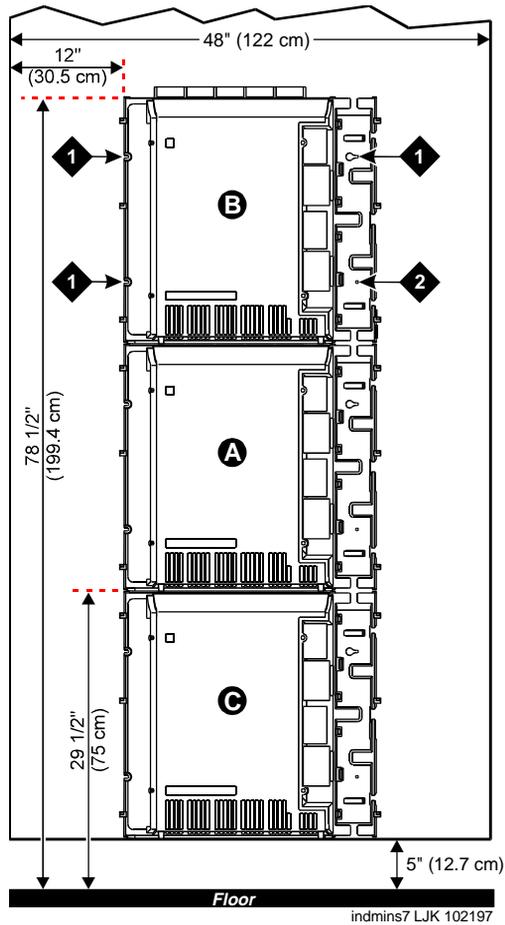
7. Drill two lower mounting holes using the cabinet as a template.
8. Thread the 2 lower screws and tighten.



### CAUTION:

*Be sure the right bottom safety screw is in place and tight.*

## Install 2 or 3 Vertically Mounted Cabinets



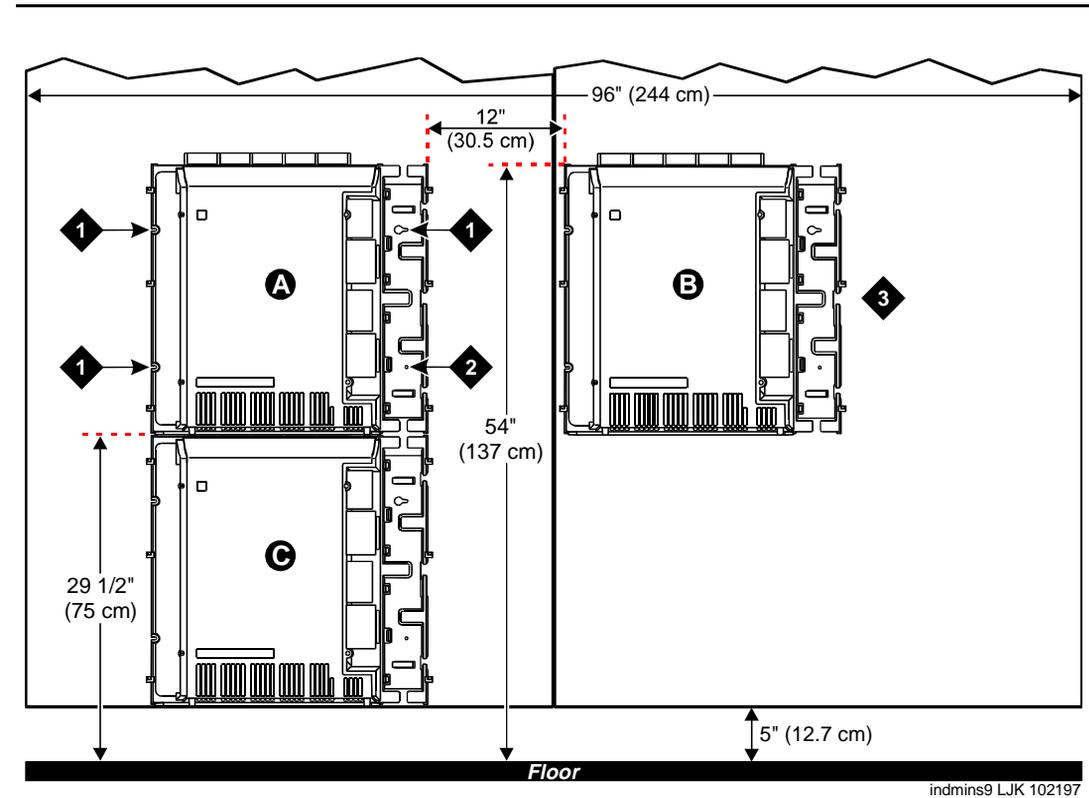
### Figure Notes

1. #12 x 1-inch shoulder screws                      2. #12 x 1-inch safety screw

Figure 1-6. Typical Vertical Multicabinet Installation

1. Securely tighten the shoulder screws and safety screws.

## Install 2 Cabinets Vertically and 1 Cabinet Horizontally



indmins9 LJK 102197

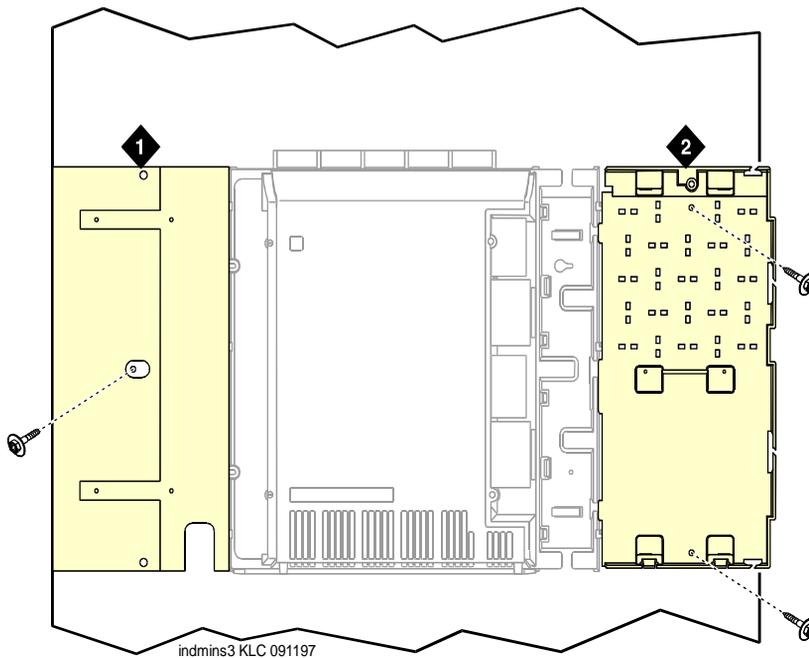
### Figure Notes

1. #12 x 1-inch shoulder screws
2. #12 x 1-inch safety screw
3. Second sheet of plywood

Figure 1-7. Typical 3-Cabinet Installation

1. Securely tighten the shoulder screws and safety screws.

## Install Left and Right Panels — Wall-Mount



### Figure Notes

1. Left panel

2. Right panel

### Figure 1-8. Left and Right Panel Installation

1. Align the cutouts in the panels with the cabinet hinges.
2. Drill a 1/8-inch (0.3 cm) pilot hole into the wall and secure the panels with the #12 x 1-inch shoulder screws.

## AC Power and Ground

---

 **CAUTION:**  
*The system requires a dedicated AC power circuit that is not shared with other equipment and is not controlled by a wall switch. The AC receptacle must not be located under the Main Distribution Frame and must be easily accessible.*

 **CAUTION:**  
*The latch only removes DC power from the cabinet. Unseating the power supply removes AC power from the power supply, but not from the cabinet. To remove AC power from the cabinet, pull the AC power cord from the AC appliance connector on the rear of the cabinet.*

 **CAUTION:**  
*System grounding must comply with the general rules for grounding provided in Article 250 of the National Electrical Code (NEC), National Fire Protection Agency (NFPA) 70, or the applicable electric code in the country of installation.*

 **CAUTION:**  
*AC mains wiring and testing must be performed by a qualified electrician and must conform to Article 250 of the National Electrical Code (NEC), National Fire Protection Agency (NFPA) 70, or the applicable electric code in the country of installation.*

### Check AC Power

Each CMC uses an auto-ranging 85 to 264 VAC power supply, 47 to 63 Hz, 330 W, 4.5 amps (100-120 VAC) or 2.3 amps (200 to 240 VAC), at 500 VA. The AC power source can be 1 phase of 120 VAC with neutral (100 VAC for Japan) with 15 amp circuit breaker, or 1 phase of 220 or 240 VAC (200 VAC for Japan) with 10 amp circuit breaker. The AC cord uses a NEMA 5-15P plug or an IEC 320 plug.

Before powering up the system, check the AC power in the equipment room using a KS-20599 digital voltmeter (DVM) (or equivalent).

1. Measure the AC voltage between the hot and neutral side of the receptacle.
2. Depending on the AC power source, verify that the meter reads 90 to 132 VAC or 180 to 264 VAC. If not, have a qualified electrician correct the problem.
3. Measure the voltage between the neutral and ground side of the receptacle.
4. Verify that the meter reads 0 VAC. If not, have a qualified electrician correct the problem.
5. When finished, set the AC mains circuit breakers to **OFF**.

## Approved Grounds

An approved ground is the closest acceptable medium for grounding the building entrance protector, entrance cable shield, or single-point ground of electronic telephony equipment. If more than 1 type of approved ground is available on the premises, the grounds must be bonded together as required in Section 250-81 of the National Electrical Code.

**Grounded Building Steel** — The metal frame of the building where it is effectively grounded by 1 of the following grounds: acceptable metallic water pipe, concrete encased ground, or a ground ring.

**Acceptable Water Pipe** — A metal underground water pipe, at least 1/2-in. (1.3 cm) in diameter, in direct contact with the earth for at least 10 ft (3 m). The pipe must be electrically continuous (or made electrically continuous by bonding around insulated joints, plastic pipe, or plastic water meters) to the point where the protector ground wire connects. A metallic underground water pipe must be supplemented by the metal frame of the building, a concrete-encased ground, or a ground ring. If these grounds are not available, the water pipe ground can be supplemented by 1 of the following types of grounds:

- Other local metal underground systems or structures — Local underground structures such as tanks and piping systems
- Rod and pipe electrodes — A 5/8-in. (1.6 cm) solid rod or 3/4-in. (2 cm) conduit or pipe electrode driven to a minimum depth of 8 ft (2.4 m)
- Plate electrodes — Must have a minimum of 2 ft<sup>2</sup> (0.185 m<sup>2</sup>) of metallic surface exposed to the exterior soil

**Concrete Encased Ground** — An electrode encased by at least 2 in. (5.1 cm) of concrete and located within and near the bottom of a concrete foundation or footing in direct contact with the earth. The electrode must be at least 20 feet (6.1 m) of 1 or more steel reinforcing bars or rods 1/2-in. (1.3 cm) in diameter, or at least 20 ft (6.1 m) of bare, solid copper, 4 AWG (26 mm<sup>2</sup>) wire.

**Ground Ring** — A buried ground that encircles a building or structure at a depth of at least 2.5 ft (0.76 m) below the earth's surface. The ground ring must be at least 20 ft (6.1 m) of 2 AWG (35 mm<sup>2</sup>), bare, copper wire.

## Approved Floor Grounds



### CAUTION:

*If the approved ground is inside a dedicated equipment room, then these connections must be made by a qualified electrician.*

Floor grounds are those grounds on each floor of a high-rise building that are suitable for connection to the ground terminal in the riser closet and to the cabinet single-point ground terminal. Approved floor grounds may include:

- Building steel
- The grounding conductor for the secondary side of the power transformer feeding the floor
- Metallic water pipes
- Power-feed metallic conduit supplying panel boards on the floor
- A grounding point specifically provided in the building for the purpose

## Uninterruptible Power Supply

An optional UPS (Uninterruptible Power Supply) may be used for power holdover. The type of UPS depends on the holdover requirements. Holdover times vary from less than 10 minutes to up to 8 hours. The UPS must provide surge protection for all connected cabinets.

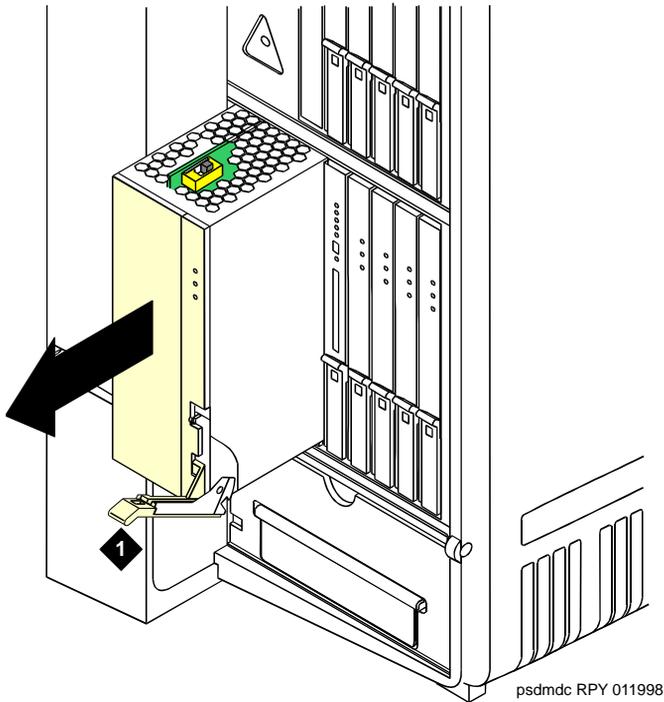
1. Connect the UPS to an electrical outlet capable of handling the power requirements of all cabinets:
  - a. For 100 VAC, multiply 4.5 amps times the number of cabinets.
  - b. For 120 VAC, multiply 3.8 amps times the number of cabinets.
  - c. For 200 VAC, multiply 2.3 amps times the number of cabinets.
  - d. For 220-240 VAC, multiply 2.0 amps times the number of cabinets.
2. Be sure that Cabinet A (control carrier) is connected to an “unswitched” or “always on” electrical outlet on the UPS.

## CMC Power Switch



### **CAUTION:**

*The latch only removes DC power from the cabinet. Unseating the power supply removes AC power from the power supply, but not from the cabinet. To remove AC power from the cabinet, pull the AC power cord from the AC appliance connector on the rear of the cabinet. See [Figure 1-9](#).*



### Figure Notes

1. Latch

Figure 1-9. CMC Power Supply

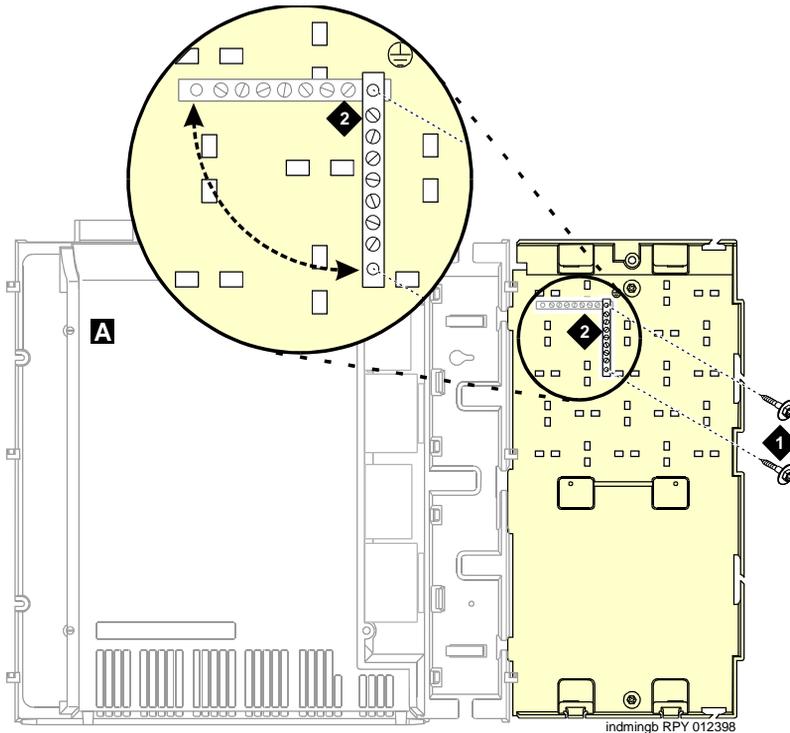
## Connect Cabinet Grounds and Other Grounds

The following additional grounding requirements must be met:

- The approved ground wire must be green, 6 AWG (#40) (16 mm<sup>2</sup>), copper, stranded wire (this is in addition to the ground wire in the AC power cord)
- Bond all approved grounds at the single-point ground to form a single grounding electrode system

## Install the Ground Block

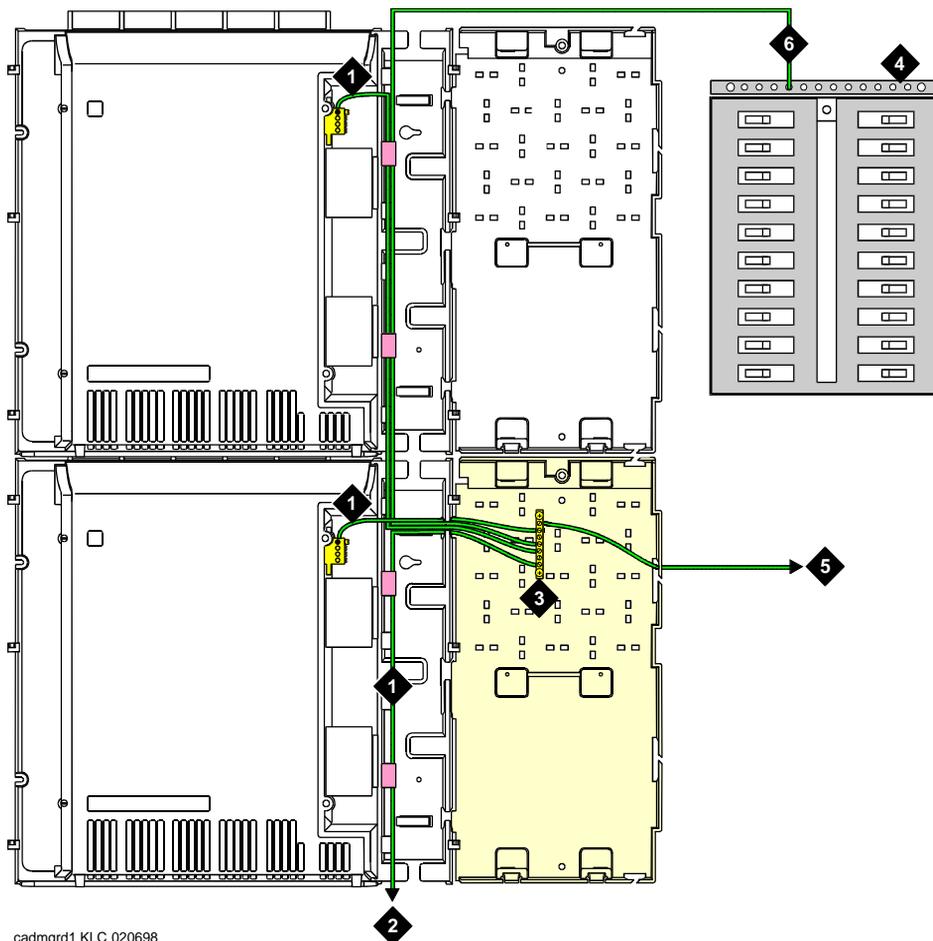
1. Mount the ground block as shown in [Figure 1-10](#).
2. Make the cable connections as shown in [Figure 1-11 on page 1-22](#).



### Figure Notes

1. #12 x 1-inch shoulder screws
2. Single-point ground block

Figure 1-10. Ground Block Installation to Right Panel



cadmgrd1 KLC 020698

**Figure Notes**

- |  |   |
|--|---|
| 1. 6 AWG (#40) (16 mm <sup>2</sup> ) cabinet ground wire         | 4. AC load center single-point ground   |
| 2. 6 AWG (#40) (16 mm <sup>2</sup> ) ground wire to next cabinet | 5. 10 AWG (#25) (6 mm <sup>2</sup> ) wire to coupled bonding conductor (CBC)  |
| 3. Single-point ground block                                     | 6. 6 AWG (#40) (16 mm <sup>2</sup> ) ground wire from single-point ground block to the AC load center single-point ground |

Figure 1-11. Typical Cabinet Grounding

## Install Coupled Bonding Conductor

The Coupled Bonding Conductor (CBC) provides for mutual inductance coupling between the CBC and the telephone cables that are exposed to lightning. The conductor can be a 10 AWG (#25) (6 mm<sup>2</sup>) wire tie wrapped to the exposed cables, a metal cable shield around the exposed cables, or 6 spare pairs from the exposed cable.

In a high rise building, connect the CBC to an approved building ground on each floor. To provide the coupled bonding protection:

1. Connect 1 end of the conductor to a telephone cable building entrance protector ground that is connected to an approved ground.
2. Route the rest of the conductor next to the exposed telephone cables being protected until they reach the cross-connect nearest to the telephone system.
3. Position the non-exposed telephone cables at least 12 inches (30.5 cm) away from exposed telephone cables whenever possible.
4. Terminate the other end to the single-point ground block provided for the telephone system.

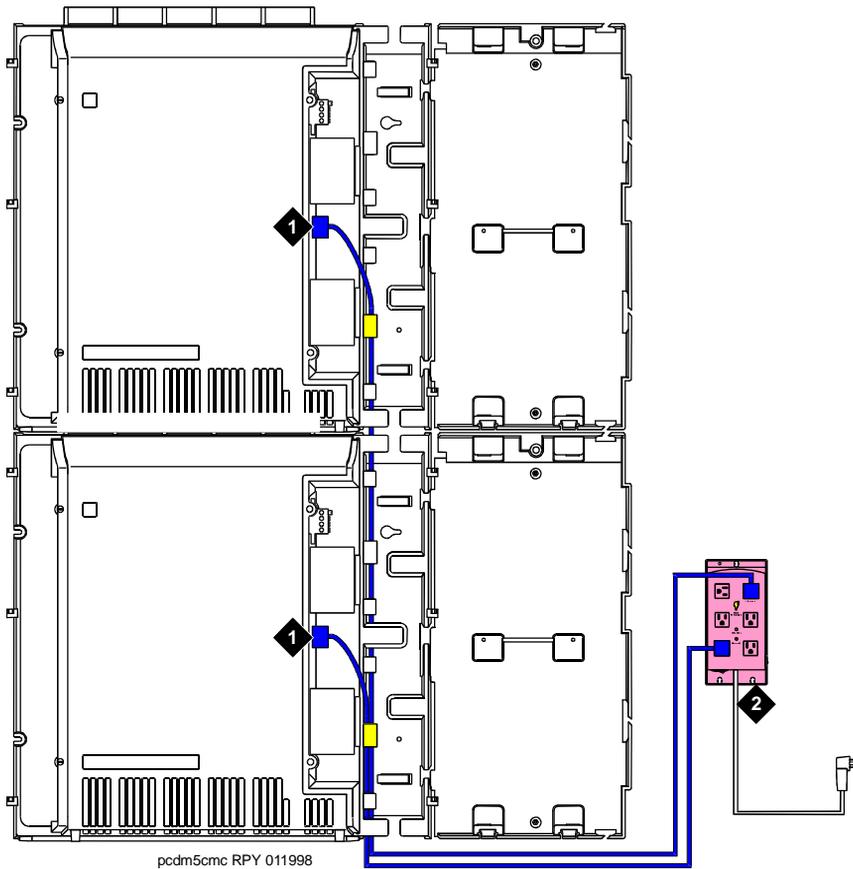
## Connect and Route Cabinet AC Power Cords



### **CAUTION:**

*The AC power cords may connect to a properly rated power distribution unit, individual AC power receptacles, or to a UPS. See [Figure 1-12 on page 1-24](#).*

1. Be sure the circuit breakers at the AC load center are **OFF**.
2. Connect Cabinet A to an “unswitched” or “always on” electrical outlet.



### Figure Notes

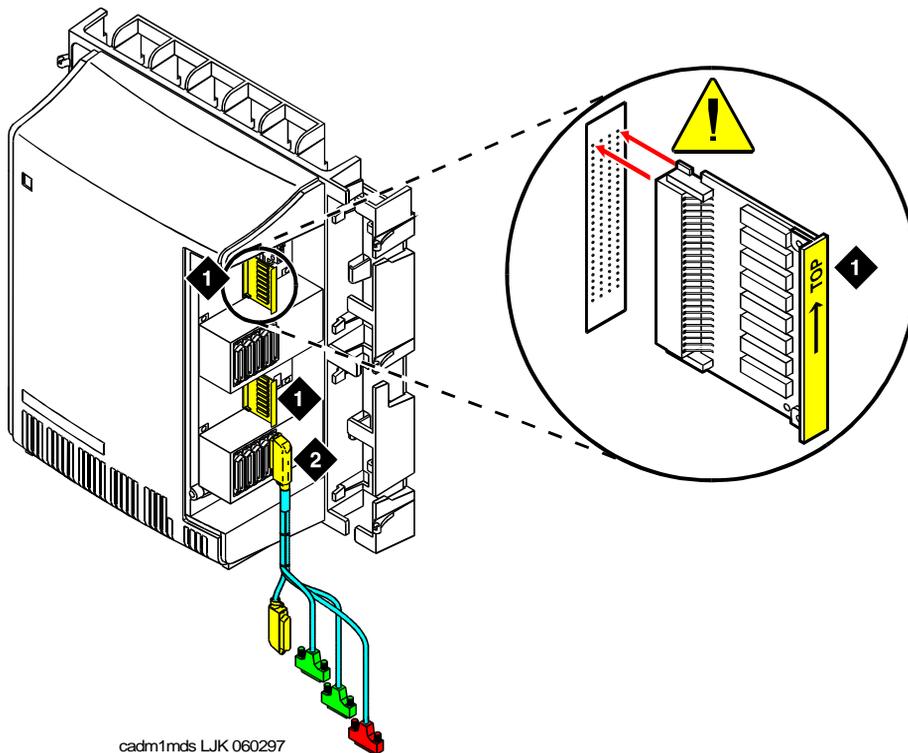
1. Cabinet AC power cord
2. Surge-protected AC power distribution unit (120 VAC systems) (optional)

Figure 1-12. Routing AC Power Cords to a Power Distribution Unit

## Cable the System

If there is more than one cabinet, you need to interconnect all the cabinets in the system.

### Install Processor Interface Cable — Cabinet A Only and TDM/LAN Bus Terminator



#### Figure Notes

1. TDM/LAN bus terminator
2. Processor interface cable (cabinet A only)

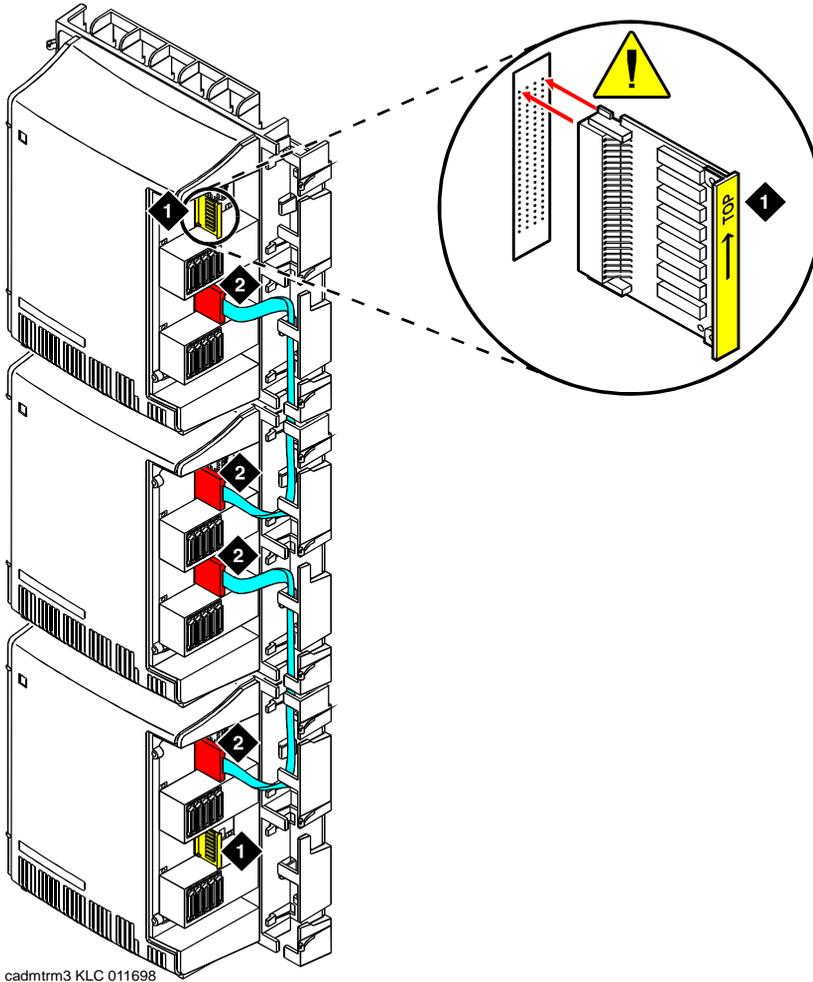
#### Figure 1-13. System Cable Connections

1. Connect the Processor Interface Cable to slot 1 of Cabinet A. See [Figure 1-13](#).
2. Install the TDM/LAN bus terminators.

## Cable the Multi-Cabinet System — Wall-Mount

### Vertically Mounted System

1. Route the TDM/LAN bus cables through the cable trough.  
See [Figure 1-14](#).



#### Figure Notes

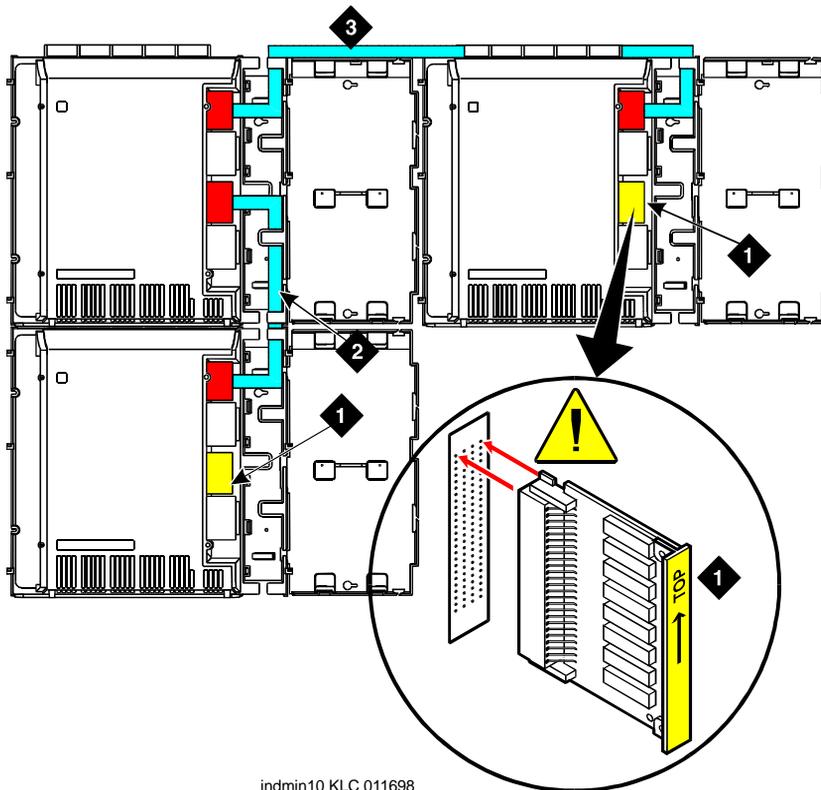
1. TDM/LAN bus terminator (at each end of the TDM/LAN bus)
2. Vertical TDM/LAN bus cable (List 8)

Figure 1-14. TDM/LAN Bus Cables and Terminators

## Vertically and Horizontally Mounted System

Only 1 horizontal TDM/LAN Bus cable is allowed per system. See [Figure 1-15](#).

1. Route the TDM/LAN bus cables through the cable trough.



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### Figure Notes

1. TDM/LAN bus terminator (at each end of the TDM/LAN bus)
2. Vertical TDM/LAN bus cable (List 8)
3. Horizontal TDM/LAN bus cable (List 9)

Figure 1-15. System Cable Connections

## Install Main Distribution Frame (MDF) and External Modem

---

### Install the MDF

---



#### CAUTION:

*The optional MDF is a special 110 cross-connect field and is smaller than standard 110 cross-connect hardware. Do not install standard 110 hardware inside the right panel.*



#### NOTE:

The depth of any equipment installed inside the right panel must not exceed 2.5 inches (6.3 cm), otherwise the right cover panel cannot fit over the right panel.

The optional MDF represents the trunk/auxiliary field.

1. Mount the optional MDF to the right panel using one of the following:
  - For bottom-mount MDFs, refer to [“Bottom-mounted MDF with Modem” on page 1-28](#).
  - For top-mount MDFs (in cabinets other than cabinet A), refer to [“Top-Mounted MDF” on page 1-30](#).
  - For dual-mount MDFs, refer to [“Dual MDFs” on page 1-31](#).

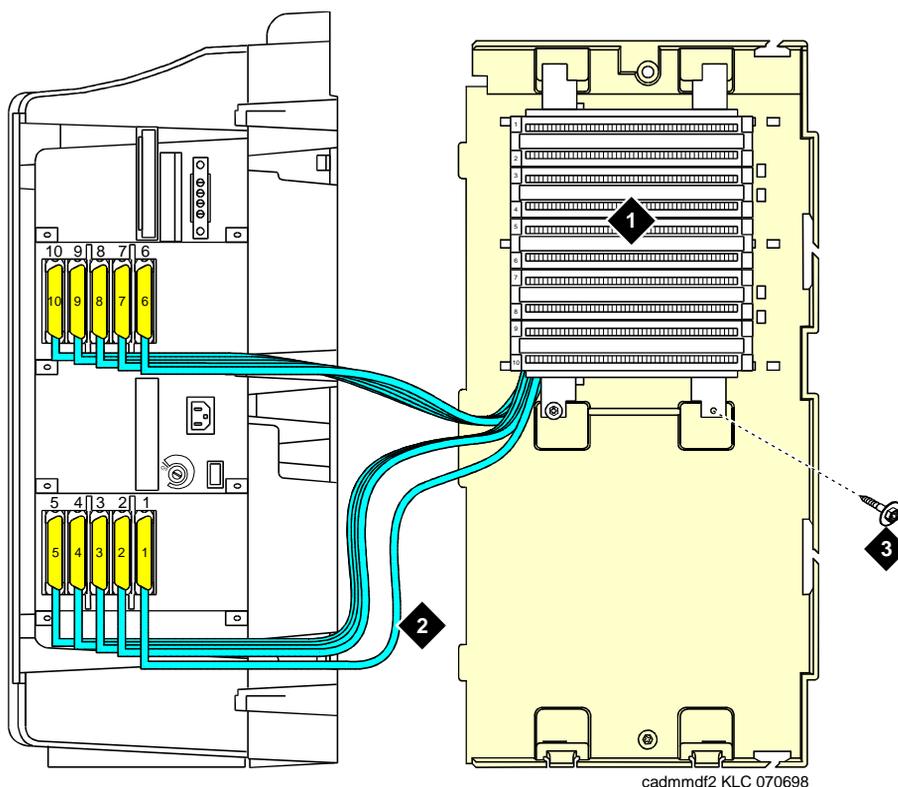
### Bottom-mounted MDF with Modem

1. On the rear of the MDF, cut the cable tie securing the top 5 cables to the MDF mounting frame.
2. Mount the MDF to the right panel. See [Figure 1-16 on page 1-29](#).
3. Secure all 10 cables to the bottom left bracket on the MDF with a cable tie.



## Top-Mounted MDF

Use this configuration when the cabinet is wall-mounted, and is near the floor. Do not use this configuration for cabinet A.



### Figure Notes

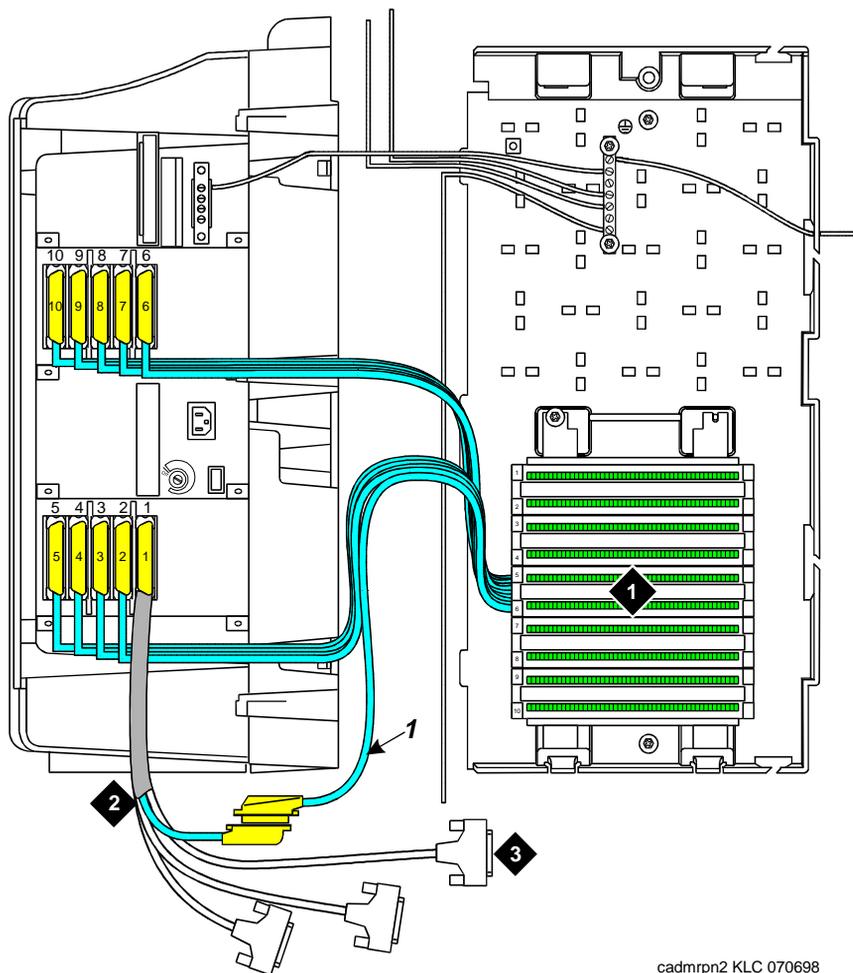
1. Main distribution frame (MDF)
2. Connect cable 1 to slot 1
3. #12 x 1-inch shoulder screw

Figure 1-17. Typical Top-Mount MDF Cable Routing

1. On the rear of the MDF, cut the cable tie securing the top 5 cables to the MDF mounting frame.
2. Mount the MDF to the right panel. See [Figure 1-17](#).
3. Secure all 10 cables to the bottom left bracket on the MDF with a cable tie.

## Dual MDFs

Use this configuration when mounting two MDFs.



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### Figure Notes

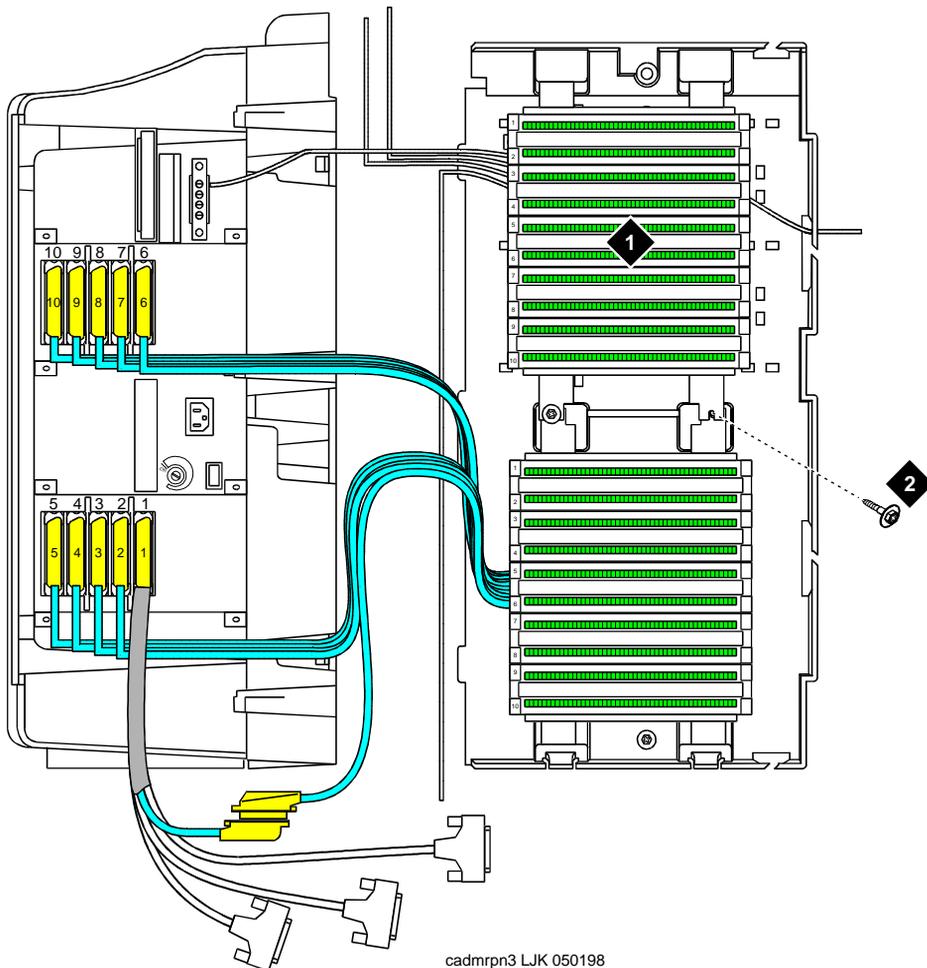
1. Main distribution frame (MDF)
2. Connect cable 1 to slot 1
3. To external modem

Figure 1-18. Preliminary Dual-Mount MDF Cable Routing

1 Installing and Cabling the Cabinets  
Install Main Distribution Frame (MDF) and External Modem

1-32

1. On the rear of the MDF, cut the cable tie securing the top 5 cables to the MDF mounting frame.
2. Mount the MDF to the bottom position on the right panel. See [Figure 1-18 on page 1-31](#).
3. Secure all 10 cables to the bottom left bracket on the MDF with a cable tie.
4. Mount the second MDF to the top position on the right panel. See [Figure 1-19](#).



**Figure Notes**

1. Main distribution frame (MDF)
2. #12 x 1-inch shoulder screw

**Figure 1-19. Typical Dual-Mount MDF Cable Routing**

## Install the External Modem

The U.S. Robotics Sportster Model USR 33.6 EXT external modem is the recommended external modem. Release 10 CMC systems operate with this modem set to the factory default settings.

### NOTE:

You may use a locally obtained, type-approved external modem (33.6 kbps and V.34 protocol). Contact your Avaya Inc. representative for more information.

1. Use installer-provided hardware to mount the modem. See [Figure 1-16 on page 1-29](#). If top-mounting MDFs or dual-mounting MDFs, mount the external modem to the plywood in a location which allows the standard connection to the interconnect cable.
2. Route the MODEM cable (P2) from the Processor Interface Cable through the cable trough and to the modem.
3. Connect the cable to the modem. Refer to [“Processor Interface Cable Pinout” on page 2-15](#) for the pinout of the modem cable.
4. Plug the modem power cord into an electrical outlet and turn on the modem.
5. Modem setup and administration is performed in [“External Modem Option Settings” on page 1-106](#).

## Install Equipment Room Hardware

---

Refer to *DEFINITY Communications System Generic 1 and Generic 3 Main Distribution Field Design*, 555-230-630, for more information.

### Cross-Connect the Cabinets to the MDF

---

1. Cross-connect the ports on the trunk and line circuit packs to the MDF as required. See [Figure 1-21 on page 1-38](#).

### Circuit Pack Installation

---



**CAUTION:**

*When handling circuit packs or any components of a DEFINITY System, always wear an authorized wrist ground strap. Connect the strap to the ground connector provided on the system cabinet.*



**NOTE:**

Unlike previous releases of DEFINITY, the circuit pack slots in the CMC are not purple or white. This is because all of the circuit pack slots in the CMC are "universal slots." That is, any slot can contain any type of *port* circuit pack.

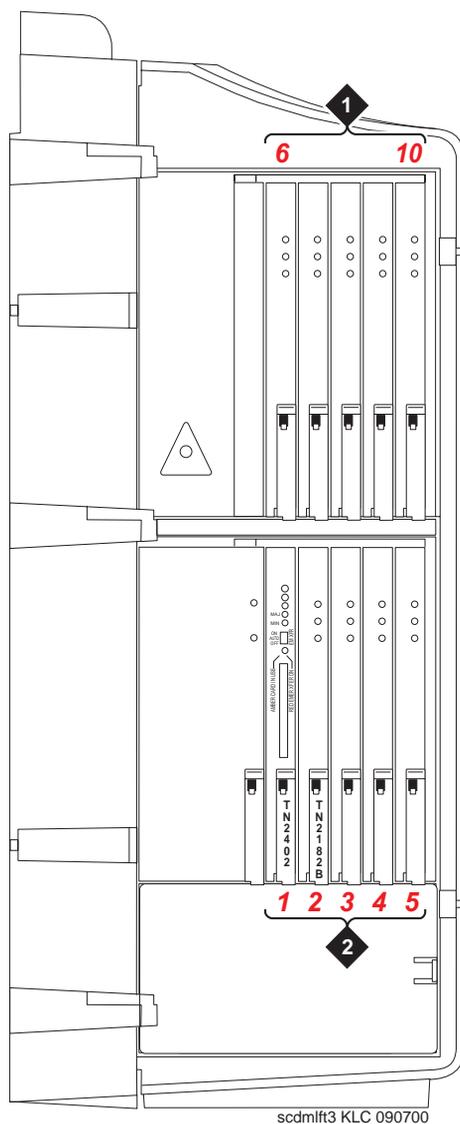
### Circuit Pack Slot Loading

In general, load the circuit packs so that the number of packs in each cabinet is about equal and the trunks and lines are evenly distributed among the cabinets. See [Figure 1-20 on page 1-35](#).

1. Install the TN2402 Processor circuit pack in slot 1 of Cabinet A.
2. Install the TN2182B Tone-Clock circuit pack in slot 2 of Cabinet A.

Load all port circuit packs starting with Cabinet A first, Cabinet B next, and so forth. Return to Cabinet A and repeat.

3. A TN744D Call Classifier/Tone Detector circuit pack may be required in systems with heavy traffic. Install the TN744D into any port slot. Slot 1 of Cabinet B is preferred.
4. See [Table 1-3 on page 1-36](#) for the recommended circuit pack layout for the control carrier and the port carriers.



**Figure Notes**

1. Line circuit pack slots

2. Trunk circuit pack slots

Figure 1-20. Control Carrier Slot Layout

**1 Installing and Cabling the Cabinets**  
*Install Equipment Room Hardware*

1-36

**Table 1-3. Circuit Pack Installation Order (Loading)**

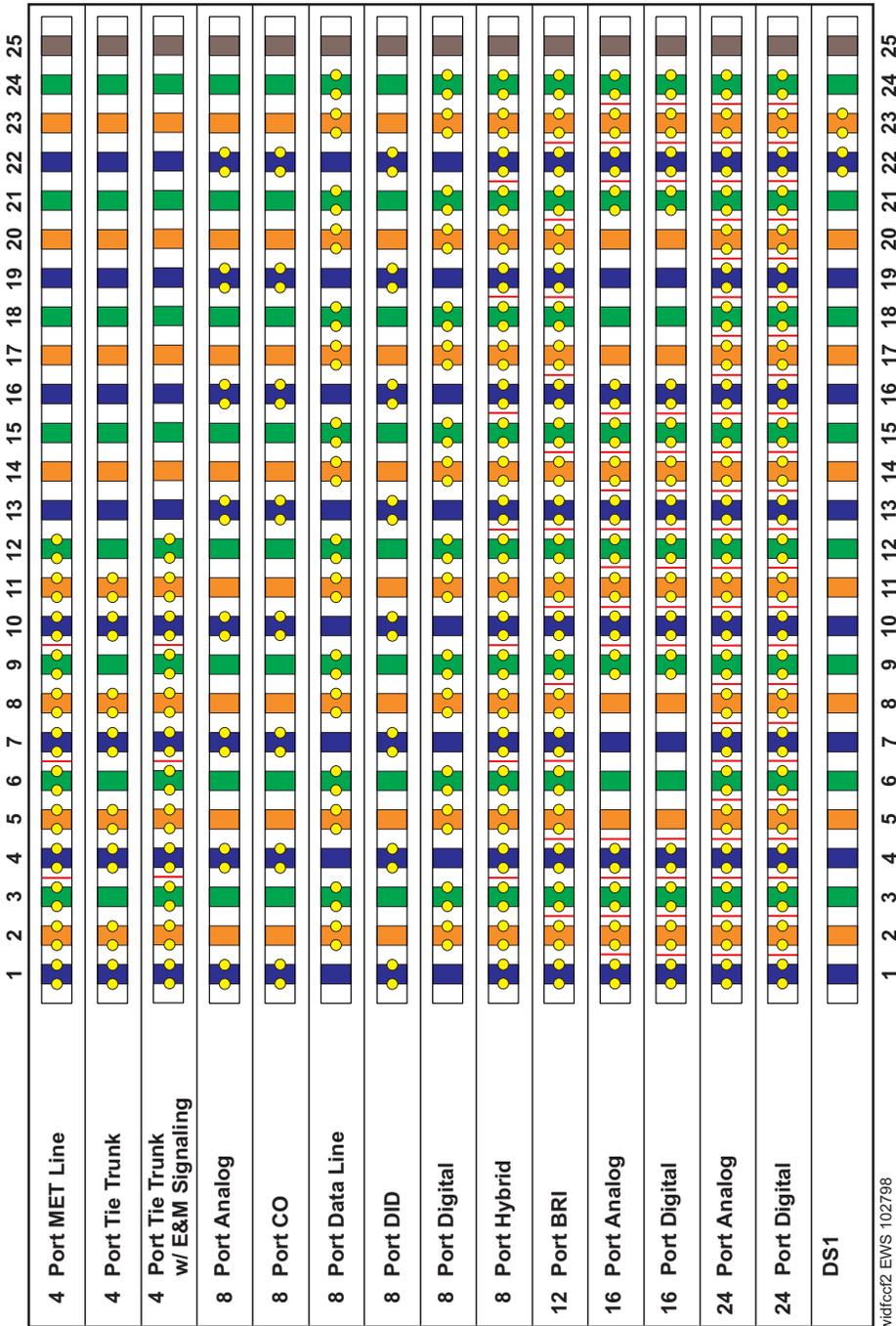
Function	Apparatus Code	Load From	Notes
Processor	TN2402	Slot 1 in Cabinet A	
Tone Clock	TN2182B	Slot 2 in Cabinet A	
Call Classifier/ Tone Detector	TN744D	Slot 1 of Cabinet B	If slot is not available, load in first available slot from slot 1.
DEFINITY AUDIX	ED-1E546 (TN566/TN567)	Slots 6-9	TN566 and TN567 require 4 slots with overlap into area to the left of slot 6. In any other position, 5 slots are required.
DEFINITY AUDIX Slim	TN568	Slot 6	TN568 requires 2 slots. If there is a fiber-optic interface and slot 6 is occupied, use slots 7 and 8.
Announcement	TN750C	Lower Left	
Speech Synthesizer	TN725B	Lower Left	
DS1/E1, ISDN PRI	TN464GP, TN767E, TN2242, TN2464BP (Guestworks and BCS only)	Lower Left	Maximum of 8 ISDN-PRI. Total number of ISDN-PRI plus number of ISDN-BRI circuit packs must not exceed 8.
ISDN-BRI Trunk	TN2185	Lower Left	Maximum of 4
CO Trunk	TN747B, TN465C, TN2199, TN2147C, TN2138, TN438B	Lower Left	
DID Trunk	TN753, TN2139, TN2146, TN436B, TN459B	Lower Left	
Tie Trunk	TN760D, TN497, TN2140B	Lower Left	
Auxiliary Trunk	TN763B	Lower Left	
Modem Pool	TN758	Lower Left	
Data Line	TN726	Upper Left	
Digital Line	TN754C, TN2181, TN2224/B, TN2214/B	Upper Left	
Analog Line	TN746B, TN2183, TN2215, TN468B, TN791, TN2214	Upper Left	
Hybrid Line	TN762B	Upper Left	

*Continued on next page*

**Table 1-3. Circuit Pack Installation Order (Loading) — Continued**

Function	Apparatus Code	Load From	Notes
MET Line	TN735	Upper Left	
Radio Controller	TN789	Upper Left	
ISDN-BRI 4-Wire S/T-NT Line (A-Law)	TN556C	Upper Left	

1. Cross-connect the port circuit packs to the MDF. See [Figure 1-21 on page 1-38](#).



widfacf2 EWS 102798

Figure 1-21. Example MDF Connections

## Off-Premises Circuit Protection

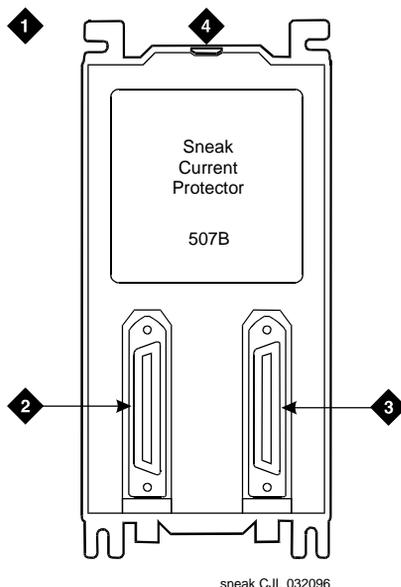
Protection from hazardous voltages and currents is required for all off-premises (out of building) trunks, lines, and terminal installations. Both over-voltage protection (lightning, power induction, and so forth), and sneak current protection are required. Sneak current protectors must be either UL listed/CSA certified, or must comply with local safety standards.

Sneak current protectors must have a maximum rating of 350 mA, and a minimum voltage rating of 600V, or as required by local regulations. The following devices protect the system from over-voltages:

- Analog trunks use the 507B sneak protector or equivalent. Over-voltage protection is normally provided by the local telephone company.
- Analog voice terminals use one of the following types of combined over-voltage and sneak current protection, or equivalent:
  - Carbon block with heat coil for UL code 4B1C
  - Gas tube with heat coil for UL code 4B1E-W
  - Solid state with heat coil for UL code 4C1S
- DCP and ISDN-BRI terminals use the solid state 4C3S-75 with heat coil protector, or equivalent
- DS1/E1/T1 circuits require isolation from exposed facilities. This isolation may be provided by a CSU (T1), LIU (E1), or other equipment that provides equivalent protection

## Install Sneak Fuse Panels

Sneak current protection is required between the incoming RJ21X or RJ2GX network interface and the system for both trunk and off-premises circuit packs. The model 507B sneak current fuse panel, or equivalent, is recommended for sneak current protection. See [Figure 1-22](#).



### Figure Notes

- |  |  |
|--|--|
| 1. Sneak current protector (PEC 63210) | 3. 25-pair female connector (Out)  |
| 2. 25-pair male connector (In)         | 4. 220029 fuses (inside panel). Use a small screwdriver to pry top cover off |

**Figure 1-22. Model 507B Sneak Fuse Panel**

Approximately 8 inches (20 cm) of horizontal wall space is required for each column of sneak fuse panels. Connector cables connect the network interface to the sneak fuse panel. Also, use 157B connecting blocks equipped with SCP-110 protectors for sneak current protection.

### NOTE:

Sneak current protectors with a rating of 350 mA at 600 V must be UL listed for United States installations and CSA certified for Canadian installations. The panel contains two 25-pair connectors, fuse removal tool, and fifty 220029 Sneak Fuses (and 2 spares). Use the SCP-110 protectors with 110-type hardware and on the 507B Sneak Fuse Panel. The SCP-110 Protectors can be ordered separately and installed on the 157B connecting block. Fifty protectors are required per block.

1. Install the 507B near the network interface or MDF with locally-obtained #12 x 3/4-inch screws (or equivalent).

Table 1-4 is a pinout of the cable wiring and associated fuse numbers.

**Table 1-4. Sneak Fuse Connector Pinout**

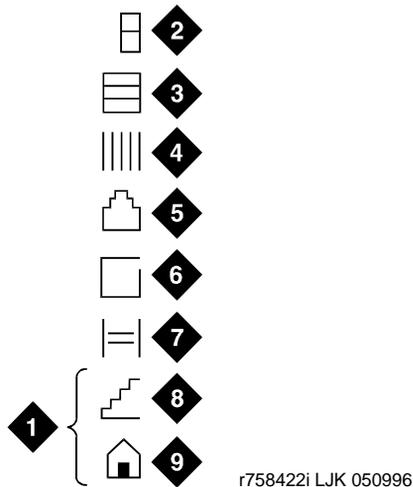
<b>Connector Pin Numbers</b>	<b>Pair/Fuse Number</b>
26/1	1
27/2	2
28/3	3
29/4	4
30/5	5
31/6	6
32/7	7
33/8	8
34/9	9
35/10	10
36/11	11
37/12	12
38/13	13
39/14	14
40/15	15
41/16	16
42/17	17
43/18	18
44/19	19
45/20	20
46/21	21
47/22	22
48/23	23
49/34	24
50/25	25

## Label the Main Distribution Frame

---

Figure 1-23 shows the graphic symbols used on the supplied labels for the system, cross-connections, information outlets, and cables.

1. Write the floor and building identification on each label as required.
  2. Insert the labels into the plastic holders.
  3. Snap the holders into the appropriate locations on the MDF.
- 



### Figure Notes

- |                                      |                          |
|--------------------------------------|--------------------------|
| 1. Floor and building identification | 6. Site/satellite closet |
| 2. Cabinet                           | 7. Tie circuit           |
| 3. Carrier                           | 8. Floor                 |
| 4. Slot                              | 9. Building              |
| 5. Information outlet                |                          |

---

### Figure 1-23. Label Graphic Symbols and Nomenclature

1. Label the cables as required using the supplied labels. Label code number 220A (Comcode 103970000) contains all required labels.

## Set Up System Access

To administer the DEFINITY ECS, you must be able to access the system. With Release 7 and later, the DEFINITY ECS no longer requires a dedicated management terminal. Personal computers and technician laptops equipped with Avaya Site Administration is the primary support access for system initialization, aftermarket additions, and ongoing maintenance.

The following sections describe

- [Installing and using Avaya Site Administration](#)
- [Connecting a PC](#)

### Installing and using Avaya Site Administration

To install Avaya Site Administration, your laptop/PC must meet the minimum requirements described in [Table 1-5](#):

**Table 1-5. Minimum requirements to run Avaya Site Administration**

Operating systems: MS Windows 95 MS Windows 98 MS Windows NT 4.0 MS Windows 2000	Processor/RAM: 486SL/66/16 MB Pentium/32 MB Pentium/64 MB Pentium-class 300 MHz/64 MB
Graphics adapter	SVGA with minimum screen resolution of 800 x 600
Floppy disk drive	3-1/2 in. 1.44-MB floppy disk drive
CD-ROM	CD-ROM drive (required to install Avaya Site Administration from CD)
Available hard disk space	A minimum of 100-MB free hard disk space is required. The requirement for disk space depends on the size and number of configuration data sets.
Printer port	Standard PC or network printer port is required for connecting to a printer to produce station button labels.
Network adapter	May be required for network access to AUDIX and other network-connected systems.

*Continued on next page*

Table 1-5. Minimum requirements to run Avaya Site Administration —

Free serial ports	<p>One free serial port capable of 9600-bps operation is required for a connection to each serial device (ADU, modem, data module) or direct connection to a DEFINITY ECS.</p> <p>We recommend that PCs have at least a 16550A UART or 16550A UART simulator (capable of 56 kbps DTE-speed connections). USB and internal modems should emulate this hardware.</p> <p>A second serial port is required for simultaneous connection to AUDIX through a serial connection.</p>
-------------------	--

To install Avaya Site Administration on your computer:

1. Place the Avaya Site Administration CD in the CD-ROM drive and follow the installation instructions.
2. To start Avaya Site Administration, click on **Start > Programs > Avaya Site Administration**.

Avaya Site Administration supports SAT emulation, which is directly equivalent to using the SAT (see [Figure 1-24 on page 1-45](#)). Avaya Site Administration also supports a whole range of other features, including the graphically enhanced DEFINITY interface (GEDI) (see [Figure 1-25 on page 1-45](#)) and Data Import. For more information refer to these Avaya Site Administration Help menu items:

- Guided Tour
- Show Me

1 Installing and Cabling the Cabinets  
Set Up System Access

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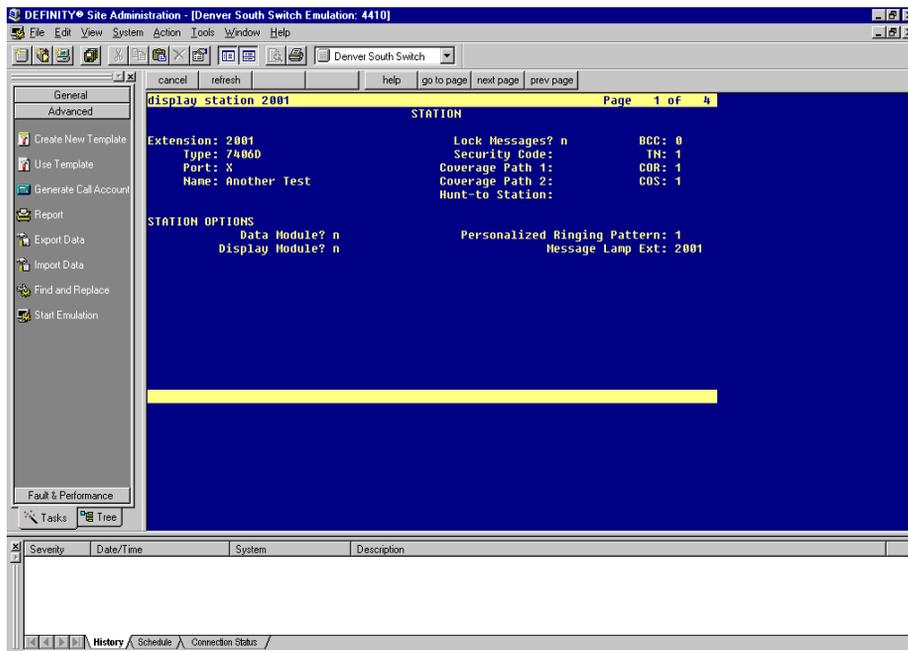


Figure 1-24. Typical Avaya Site Administration screen in SAT emulation mode

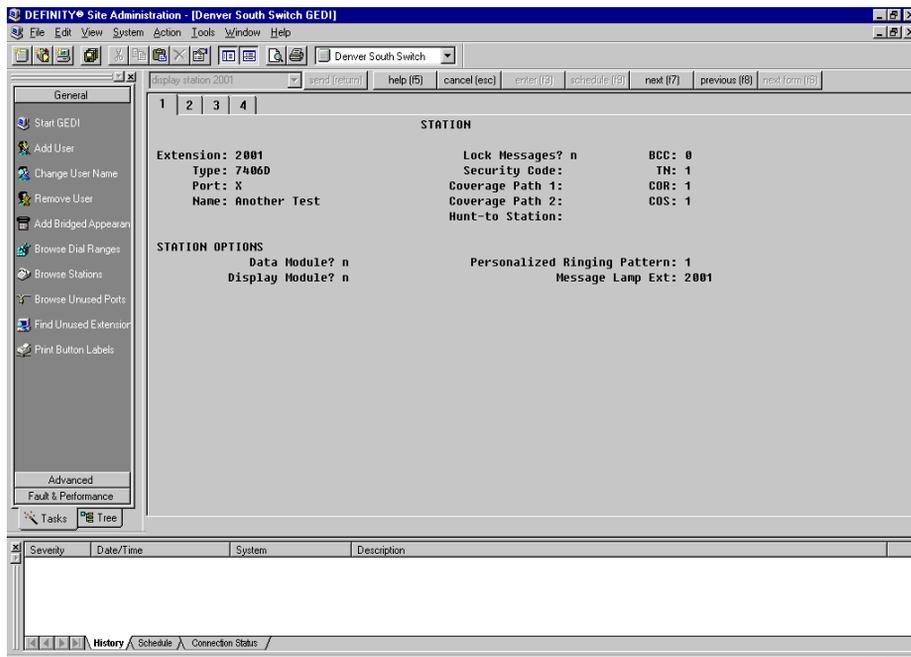


Figure 1-25. Typical Avaya Site Administration screen in GEDI mode

## Connecting a PC

You can connect your PC or laptop to the DEFINITY ECS R10si/R10csi/R10r either directly (50 ft [15 m] or less) or remotely through a data module or a modem.

### Connecting directly to the DEFINITY ECS

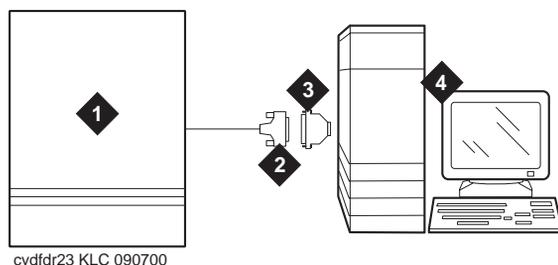
You can connect directly from the PC if it is 50 ft (15 m) or less from the DEFINITY ECS.

1. Connect the equipment as shown in [Figure 1-26](#). See [Table 1-6](#) for the connections by platform.



#### CAUTION:

For a DC-powered system, install an EIA 116A Isolator (comcode 106005242) in series between the cable and the TERM, DOT, or Terminal Active connector.



#### Figure Notes

- |                                     |  |
|-------------------------------------|--|
| 1. DEFINITY ECS (PPN on R10r)       | 3. 9-to-25 pin adapter if needed           |
| 2. 50-ft (15-m) M25A cable (RS-232) | 4. Computer with Avaya Site Administration |

Figure 1-26. A typical direct connection

Table 1-6. PC connections by platform

Reliability	R10r	R10si	R10csi
Standard	Terminal Active	TERM	TERM
High/Critical	—	DOT	—

## Connecting remotely to the DEFINITY ECS

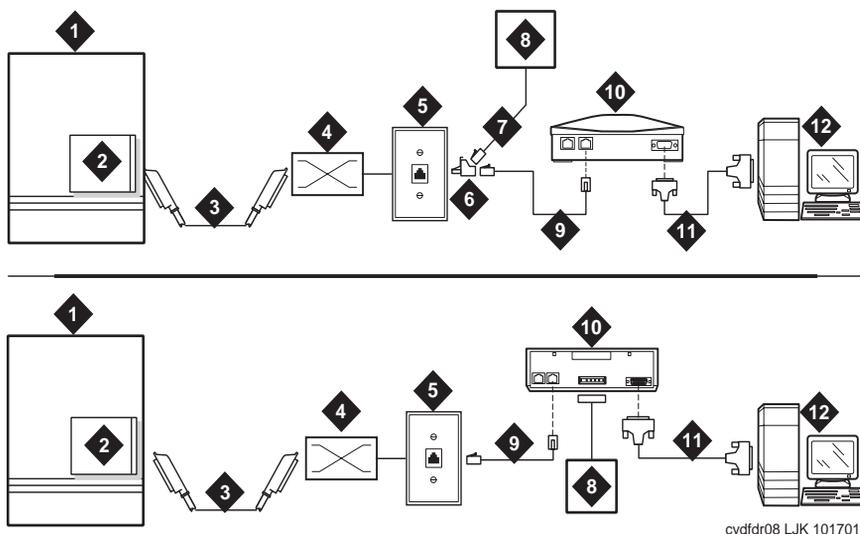
To connect remotely to the system, you need one of the following pieces of hardware:

- [Connecting through a data module](#)
- [Connecting by analog modem to INADS port](#)

### Connecting through a data module

If more than 50 ft (15 m) from the DEFINITY ECS, you can connect the PC through a data module.

1. Connect the equipment as shown in [Figure 1-27](#).



cydfdr08 LJK 101701

### Figure Notes

- |                                  |   |
|----------------------------------|---|
| 1. DEFINITY ECS                  | 8. Data module power supply                       |
| 2. Digital line circuit pack     | 9. 7-ft (2-m) D8W modular cord                    |
| 3. B25A 25-pair cable            | 10. Data module (8400B+ [top] or 7400B+ [bottom]) |
| 4. Main distribution frame (MDF) | 11. 50-ft (15-m) M25A cable (RS-232)              |
| 5. 103A or modular wall jack     | 12. Computer with Avaya Site Administration       |
| 6. 400B2 adapter                 |   |
| 7. D6AP power cord (8400B+ only) |   |

Figure 1-27. A typical remote connection using an 8400B (top) or 7400B (bottom) data module

 NOTE:

With a 7400A or 7400B+ data module, use a 4-wire digital line circuit pack.  
With the 8400B+ data module, use a 2-wire digital line circuit pack.

In place of a 7400B+ data module, you can use a 7400A data module. If you do, set the 7400A to DCE Mode.

2. Wire the digital line circuit pack to the wall jack as follows:
  - For a 7400B+, wire to the second and third pair of the wall jack.
  - For an 8400B+, wire to the first pair of the wall jack.

### Setting the Data Module to DCE Mode

1. Cycle the power to the data module. The unit performs a self test and displays its operating mode.
2. Observe the display.
  - a. If the display reads DCE mode, proceed to the next section.
  - b. If the display reads DTE mode, complete the following steps:
    1. Remove the power cord from the unit.
    2. Remove the cover from the top rear of the unit.
    3. Remove the mode select circuit board and turn it around.
    4. Replace the cover.
    5. Connect the power cord. The unit performs a self test.

 NOTE:

The power LED must be steady on. If the power LED is blinking, the data module is not communicating with the DEFINITY ECS. Check the wiring at the MDF, wall jacks, and data module.

### Adding a Data Module to the Switch

1. Add the data module to the switch by entering **add data-module number** or **add data-module next**.
2. In the `Type` field, type **pdm** and press `Enter`.
3. In the `Port` field, type the location of the digital line circuit pack connected to the data module (for example 01A1503).
4. If system access ports and hunt groups have not been set up, set them up. Refer to *DEFINITY ECS Administrator's Guide*.

## Testing Hardware Connections

In the following table, find your data module and follow the instructions for testing and troubleshooting it.

Type of Data Module	How to Test and Troubleshoot
8400B+	The red LED should be steady on. If the red and green LEDs are blinking, the unit is not communicating with the DEFINITY ECS. Check the wiring at the MDF, wall jack, and the 8400B+.
7400B+	The Power and TR LEDs should be steady on. If the Power and Data LEDs are blinking, the unit is not communicating with the DEFINITY ECS. Check the wiring at the MDF, wall jack, and the 7400B+.
7400A	Set the 7400A to DCE mode. The Power LED must be steady on. The DTR, DSR, DCD, RTS, and CTS settings must be highlighted in the display. If the Power LED is blinking, the data module is not communicating with the DEFINITY ECS. Check the wiring at the MDF, wall jack, and 7400A.

## Setting the Data Module Operating Mode

1. Connect an RS-232 cable from the DSA/DNA computer to the data module. If you are using an 8400B+, connect the DSA/DNA computer to the data module using the supplied adapter cable.
2. Using a terminal emulator, connect to the serial port to which the data module is connected, and set the emulation to *vt100* mode.
3. Type **AT** at the prompt and press **Enter**. The data module should return an OK. If it does not, be sure that a standard RS-232 or EIA-232 cable is connected (not a null modem cable).
4. Set the operating mode as described in the following table.

Type of Data Module	How to set the operating mode
8400B+	Type <b>AT&amp;F</b> and press <b>Enter</b> . Type <b>ATS24=1</b> and press <b>Enter</b> . Type <b>AT&amp;W0</b> and press <b>Enter</b> to save the operating mode into non-volatile RAM.
7400A 7400B+	Type <b>AT&amp;F</b> and press <b>Enter</b> . Type <b>AT&amp;W0</b> and press <b>Enter</b> to save the operating mode into non-volatile RAM.

5. Disconnect the terminal from the data module and reconnect the data module to the system cabling.

## Setting the 7400B+ Options

1. Set the DIP switches for the 7400B+ using [Table 1-7](#). The DIP switches are located inside the unit. To access them
  - a. Remove the power cord from the unit.
  - b. Remove the cover from the top rear of the unit.
  - c. Set the dip switches.
  - d. Replace the cover.
  - e. Connect the power cord. The unit performs a self test.
2. If any switches were set in step 1, cycle the power to the data module so that the firmware can read the new switch settings.

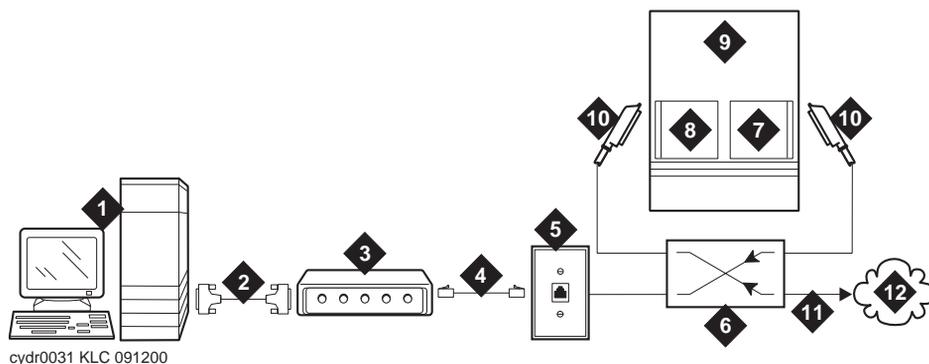
**Table 1-7. DIP Switch Settings (7400B+)**

Option	DIP Switch	Setting
No Telephone Connected	1	On
Data Metering	5	Off
Suppress Touch-tone/Dial Tone	6	Off
Speakerphone Disable/Enable	7	Off
Busyout on Local Loop	8	Off
Unused DIP Switches	2, 3, and 4	Off

## Connecting by analog modem to INADS port

You can connect a PC to the DEFINITY ECS through a modem.

1. Connect the equipment as shown in [Figure 1-28](#).



### Figure Notes

- |  |   |
|--|---|
| 1. Computer with Avaya Site Administration                         | 8. Analog trunk circuit pack<br>Packet data line (R10r)<br>Data line (R10r) |
| 2. 50-ft (15-m) M25A cable (RS-232—<br>9-25 pin adapter if needed) | 9. DEFINITY ECS   |
| 3. Analog modem  | 10. B25A cable  |
| 4. 7-ft (2-m) D2W modular cord                                     | 11. Analog line   |
| 5. 103A or modular wall jack                                       | 12. Central office  |
| 6. Main distribution frame (MDF)                                   |   |
| 7. Analog line circuit pack  |   |

**Figure 1-28. A typical remote connection through a modem**

Follow these steps to connect to the DEFINITY ECS through a modem.

1. Connect the computer to the modem.
2. Connect an analog telephone line to the left most analog-line port on the modem.
3. Make sure that the modem's DIP switches are set as shown in [Table 1-8](#) on page 1-52.

Table 1-8. U.S. Robotics Modem Dip Switch Settings

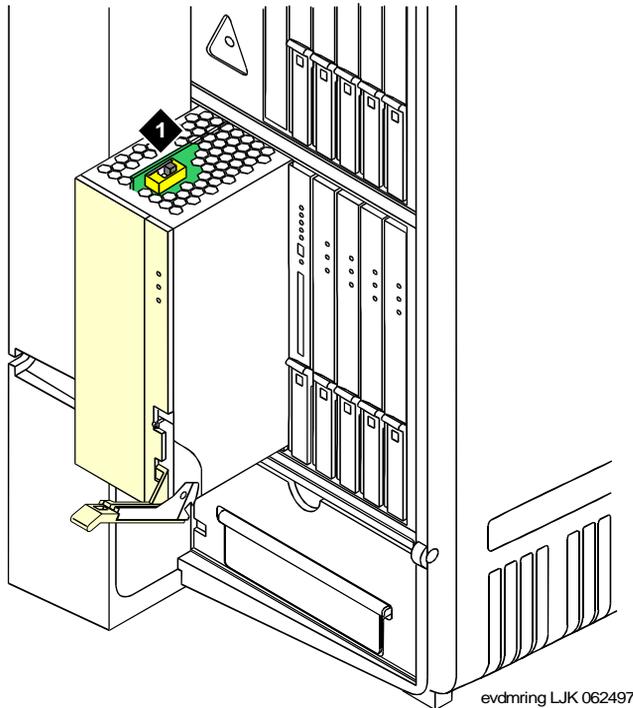
Dip Switch	Setting	Description
1	UP <b>DOWN</b>	Data Terminal Ready normal <b>Data Terminal Ready override</b>
2	UP <b>DOWN</b>	Verbal result codes <b>Numeric result codes</b>
3	UP <b>DOWN</b>	Suppress result codes <b>Display result codes</b>
4	UP <b>DOWN</b>	Echo offline commands <b>No echo, offline commands</b>
5	<b>UP</b> DOWN	<b>Auto answer on first ring or higher if specified in NVRAM</b> Auto answer off
6	UP <b>DOWN</b>	Carrier detect normal <b>Carrier detect override</b>
7	UP <b>DOWN</b>	Load NVRAM defaults <b>Load factory defaults</b>
8	UP <b>DOWN</b>	Dumb mode <b>Smart mode</b>

4. Plug the modem into an AC power outlet.
5. Turn on the modem.
6. Set the following port settings:

Baud rate	9600
Data bits	8
Parity	None
Stop bits	1
Flow control	hardware

## Set Ringing Option

---



### Figure Notes

1. Ringing option switch

---

### Figure 1-29. Ringing Option Selection

1. Check the ringing option for the country of installation (20 Hz, 25 Hz, or 50 Hz). See [Figure 1-29](#).
2. Set the slide switch to the proper setting. Refer to the label on the side of the power unit.

## Activate and Administer the System

---

### NOTE:

The CMC is a PPN cabinet only. Cabinet A is the control carrier and Cabinets B and C are port carriers.

## Power Up System

---

### Single Cabinet Installations

1. Insert the translation card into the slot in the TN2402 Processor circuit pack.
2. Fully seat the 650A Power Unit in the cabinet.
3. Set the circuit breaker at the AC load center to ON. This starts the system reboot process. In about 2 minutes, verify the screen displays: `Login:`

### Multi-Cabinet Installations

1. Insert the translation card into the slot in the TN2402 Processor circuit pack.

### NOTE:

Power up the port carriers first and the control carrier last.

2. Set the circuit breakers at the AC load center to ON.
3. Insert the power supplies into the port cabinets.
4. Insert the power supply into the control carrier. This starts the system reboot process. In about 2 minutes, verify the terminal screen displays:  
`Login:`

## Deliver or Install the License File

---

If you have a direct switch connection:

1. Go to the RFA website, and, following the instructions in the "Deliver to G3r/G3si/G3csi" chapter of the RFA Job Aid, deliver the License File.

### NOTE:

This procedure sends the License File to the switch and installs it.

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If you do not have a direct connection:

1. Go to the RFA website, and, following the instructions in the “Deliver to G3r/G3si/G3csi” chapter of the RFA Job Aid, deliver the License File to your laptop/PC.
2. Open the License Installation Tool (LIT) application at your laptop/PC.
3. Use the LIT instructions to add a switch connection profile to the tool.
4. Use the LIT instructions to install the License File on the switch.

## Administer No-License/Emergency Numbers

1. At the SAT type **change system-parameters features** and press RETURN.

The Feature-Related System Parameters screen displays:

```
change system-parameters features

                                FEATURE-RELATED SYSTEM PARAMETERS

SYSTEM-WIDE PARAMETERS
    Switch Name: Albania
    Emergency Numbers - Internal: XXXXXX External: XXXXXXXXXXXXXXXXXXXXXXXX
    No-License Incoming Call Number: XXXXX

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:
```

### Screen 1-1. Feature-Related System Parameters screen

2. In the **Emergency Numbers - Internal** field (optional) type a valid extension (up to 5 digits).
3. In the **Emergency Number - External** field (required) type a 21-digit, dialpad-valid character string that can include trunk access codes. The default for this field is 911.
4. In the **No-License Incoming Call Number** field (optional) type a valid extension (up to 5 digits).
5. Press ENTER to save the changes.

## System Administration

---



### NOTE:

To use Access Security Gateway (ASG), see [Appendix B, "Access Security Gateway"](#).

## Log into the System

1. Verify the screen displays: `Login:`
2. Type **craft** and press `Enter`.
3. Type **crftpw** and press `Enter`. The password does not display as it is typed. The screen displays the system software version and the terminal types.  
`Terminal Type (513, 715, 4410, 4425, VT220): [513]`
4. Enter the type of management terminal (such as 715) and press `Enter`.

## Check System Status

The system status may suggest problem areas. Refer to *DEFINITY Enterprise Communications Server Maintenance for R10csi*.

1. Type **status system all-cabinets** and press `Enter`.
2. Verify the screen displays a service state of `in` for all appropriate areas.

## Check Customer Options

Certain features are part of the basic software package and do not require activation. They default to **y** (yes) on the Optional Features form.

- ARS/AAR Partitioning
- Emergency Access to Attendant
- Hospitality (Basic)
- Service Observing

1. Type **display system-parameters customer-options** and press `Enter`.
2. Using the customer order, ensure that the optional features purchased by the customer (as shown by PEC codes on the customer order) are enabled.



### NOTE:

For detailed mapping of SAP material codes to DEFINITY features, capacities, release, platform, and offer category, go to the RFA website Information Page, in the **Help Info** section, click on the "Material Code/Feature Job Aid" link.

## Set Country Options

Some country options need to be set to turn off the red alarm LEDs.

1. Enter **change system-parameters country options** and press Enter. A screen similar to [Screen 1-2](#) displays on the terminal. The cursor is set on the Companding Mode field.

```
change system-parameters country-options                               Page 1 of 23
                               SYSTEM PARAMETERS COUNTRY-OPTIONS

      Companding Mode: Mu-Law                                     Base Tone Generator 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
      Display Character Set: Roman
      Howler Tone After Busy? n   Disconnect on No Answer by Call Type? n

TONE DETECTION PARAMETERS
      Tone Detection Mode: 6
      Interdigit Pause: short
```

### Screen 1-2. Typical System Parameters Country-Options Screen

2. The default (United States) companding mode is mu-Law. If the country uses A-Law companding, type A-Law. Press Enter when finished.

#### NOTE:

Other items eventually need to be entered on this screen, but this is all that is needed to turn the red alarm LEDs off.

3. Set the country codes as needed in the following fields. Refer to [Table 1-9 on page 1-58](#) for the country codes. The United States country code (1) is shown in the example above.

- Digital Loss Plan:
- Analog Ringing Cadence:
- Analog Line Transmission:

Table 1-9. Country Codes

Country	Code	Country	Code
USA	1	France	12
Australia	2	Germany	13
Japan	3	Czechoslovakia	14
Italy	4	Russia	15
The Netherlands	5	Argentina	16
Singapore	6	Greece	17
Mexico	7	China	18
Belgium	8	Hong Kong	19
Saudi Arabia	9	Thailand	20
United Kingdom	10	Macedonia	21
Spain	11		

4. If all red LEDs remain on, reseal any *port* circuit packs displaying red LEDs.
5. If the red LEDs remain on, refer to *DEFINITY Enterprise Communications Server Maintenance for R10csi*.

**NOTE:**

Ignore the red LED on any TN767 or TN464 DS1 circuit pack until after it is administered. Refer to [Chapter 2, "Completing Installation and Cable Pinouts"](#) to set the switches on these circuit packs.

**NOTE:**

Alarms appear in the Alarm Log when power is applied to the system before all equipment connecting to port circuit packs is installed. Some alarms are logged when power is applied, but resolve quickly. If no equipment is connected to the port circuit packs, alarms associated with these ports can take up to 4 hours to log, but clear automatically after all equipment is installed and operating correctly.

## Change Craft Password

The password for the craft login *must* be changed by the installing technician to prevent unauthorized administration changes.



### CAUTION:

*After the password is changed, the new password must be safeguarded so no unauthorized administration changes can be made. This password **MUST NOT BE REVEALED** to the customer or to any unauthorized person.*

1. Login as **craft** and enter **change password craft**. Press Enter. See [Screen 1-3](#). The cursor is positioned on Password for Login Making Change:

```
change password craft                                     Page 1 of 1
                PASSWORD ADMINISTRATION

Password of Login Making Change:

LOGIN BEING CHANGED
                Login Name: craft

LOGIN'S PASSWORD INFORMATION
                Login's Password:
                Reenter Login's Password:
```

### Screen 1-3. Typical Change Password Screen

2. Type the password for the craft login (assigned as *crftpw* when the system is shipped) and press Enter.
3. Enter the new password (obtained from the regional CSA). Valid passwords consist of a combination of 4 to 11 alpha or numeric characters. Use at least 1 letter and 1 number.
4. In the Reenter Login's Password: field, type the new password again and press Enter.

## Set Daylight Savings Rules

You can set up to 15 customized daylight savings time rules. If you have switches in several different time zones, you can set up rules for each. A daylight savings time rule specifies the exact time when you want to transition to and from daylight savings time. It also specifies the increment at which to transition.

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The default daylight savings rule is 0, no daylight savings.

1. Type **change daylight-savings-rules** and press Enter.

DAYLIGHT SAVINGS RULES						
Rule	Change Day	Month	Date	Time	Increment	
0:	No Daylight Savings					
1:	Start: first <u>Sunday</u>	on or after	<u>April</u>	<u>1</u>	at <u>2:00</u>	<u>01:00</u>
	Stop: first <u>Sunday</u>	on or after	<u>October</u>	<u>25</u>	at <u>3:00</u>	
2:	Start: first _____	on or after	_____	_____	at _____	
	Stop: first _____	on or after	_____	_____	at _____	
3:	Start: first _____	on or after	_____	_____	at _____	
	Stop: first _____	on or after	_____	_____	at _____	
4:	Start: first _____	on or after	_____	_____	at _____	
	Stop: first _____	on or after	_____	_____	at _____	
5:	Start: first _____	on or after	_____	_____	at _____	
	Stop: first _____	on or after	_____	_____	at _____	
6:	Start: first _____	on or after	_____	_____	at _____	
	Stop: first _____	on or after	_____	_____	at _____	
7:	Start: first _____	on or after	_____	_____	at _____	
	Stop: first _____	on or after	_____	_____	at _____	

Screen 1-4. Daylight Savings Rules screen

2. Type the appropriate start and stop information in the Change Day, Month, Date, Time, and Increment (for example, **1:00** equals one hour) fields for each rule.



**NOTE:**

You can change any rule except rule 0 (zero). You cannot delete a daylight savings rule if it is in use on either the Locations or Date and Time screens.

3. Press Enter.

Set Date and Time

1. Enter **set time** and press Enter.

DATE AND TIME					
DATE					
Day of the Week:	<u>Tuesday</u>	Month:	<u>February</u>		
Day of the Month:	<u>8</u>	Year:	<u>2000</u>		
TIME					
Hour:	<u>20</u>	Minute:	<u>30</u>	Second:	<u>XX</u>
		Daylight Savings Rule:	<u>0</u>	Type:	<u>standard</u>

Screen 1-5. Date and Time screen

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2. In the `Day of the Week`: field, type the day of the week in English (Sunday through Saturday). See [Table 1-10](#) for English day of the week names.

**Table 1-10. English Day of the Week Names**

---

Day Number	Day Name
1	Sunday
2	Monday
3	Tuesday
4	Wednesday
5	Thursday
6	Friday
7	Saturday

---

3. In the `Month`: field, type the current month in English (January through December). See [Table 1-11](#) for English month names.

**Table 1-11. English Month Names**

---

Month Number	Month Name
1	January
2	February
3	March
4	April
5	May
6	June
7	July
8	August
9	September
10	October
11	November
12	December

---

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4. In the `Day of the Month`: field, type the day of month (1 through 31).
5. In the `Year`: field, type the current year.
6. In the `Hour`: field, type the current hour for a 24-hour clock.
7. In the `Minute`: field, type current minute (0 through 59). Seconds cannot be set.
8. If the area observes daylight savings, set the `Daylight Savings Rule`: field to the appropriate rule.



**NOTE:**

The default daylight savings rule is **0**, no daylight savings.

9. Press `Enter` to effect the changes.

## Circuit Pack Administration

After the equipment is installed (including circuit packs), the circuit packs must be administered. Refer to *DEFINITY Enterprise Communications Server Administrator's Guide*, for more information.

The following describes general administration information:

- Use the `Circuit Packs` form to administer circuit packs to carrier slots. The circuit packs must be installed (or assigned using the `Circuit Packs` form) before administering voice terminals, attendant consoles, or trunks.
- Each page of the form represents 1 carrier in the cabinet shown on the command line. All carriers and slots appear even if they are not included in the hardware.
- It is not necessary to fill in the `Circuit Packs` form if the circuit packs are installed at the time of administration.
- Refer to *DEFINITY Communications System Generic 3 Planning and Configuration*, 555-230-601, for more information about circuit pack administration and port assignment records (the DS1 circuit pack and translations are covered in Chapter 2 and Chapter 3).
- For initial installation, assign circuit packs to slots using the hardware configuration layout record from the factory or Customer Services Organization. Do not arbitrarily assign circuit packs to slots.
- When a circuit pack in a slot differs from what has been administered on the form, a “#” displays between the “Sfx” and “Name” fields.

## Set System Maintenance Parameters

### CAUTION:

To prevent unnecessary trouble tickets, do not enable the system alarms (Alarm Origination feature) until all installation and administration procedures are completed.

1. Enter **change system-parameters maintenance** and press Enter.
2. Enter the alarm notification and scheduled maintenance information into each field on Page 1 of the form.
3. Enter the appropriate information on Page 2 of the form.
4. Press Enter when finished.

## Administer the Attendant Console

If no attendant console is installed, proceed to [Save Translations](#).

1. Enter **display system-parameters country-options** and press Enter. Verify the system's companding mode for its local stations (usually, A-Law for Europe and mu-Law for North America and Japan).
2. If necessary, enter **change terminal-parameters 603/302B1** to change the default system-level parameters and audio levels for these terminals.

### NOTE:

For information about changing the default parameters and audio levels, refer to *DEFINITY Application Notes* available through the ITAC (International Technical Assistance Center).

3. Administer other forms listed under "Attendant Console" in *DEFINITY Enterprise Communications Server Administrator's Guide*.

To administer an eConsole IP Attendant see *DEFINITY Enterprise Communications Server Administrator's Guide*.

## Save Translations

1. Enter **save translation** and press Enter. This copies the current system translations onto the translation card and takes about 10 minutes.
2. Remove the original translation card and replace with the backup card.
3. Repeat Step 1 for the backup translation card.
4. Remove the backup card and replace with the original translation card.
5. Label the backup card with the date and time of the backup and store in a secure place.

## Add Translations

1. Refer to *DEFINITY Enterprise Communications Server Administrator's Guide*, to add new terminals.

## Install and Wire Telephones and Other Equipment

---

### NOTE:

Only 1 pair of wires is available for emergency transfer, and 1 pair of wires is available for attendant console power.

The wiring procedures are the same for most of the DEFINITY System telephones and other equipment.

This chapter provides wiring examples of these similar installation procedures. These are examples only and actual wiring procedures may vary at each site.

The system can connect to all DTE terminals. The system can have RS-232 (or EIA-232) or DCP interfaces.

All wiring pinouts for port circuit packs are in the tables at the end of this chapter.

Refer to [Figure 1-21 on page 1-38](#) for punch-down information for common circuit packs. The figure shows the colors of the punch-downs and is best viewed from CD-ROM or on-line.

After installing the hardware, the data for the system and telephone features is administered. These procedures are provided in *DEFINITY Enterprise Communications Server Administrator's Guide*.

## DCP, analog, and ISDN-BRI

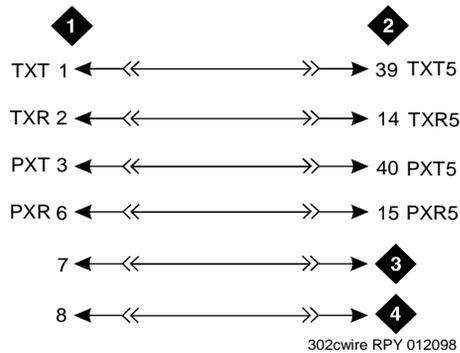
The 302C1 Attendant Console describes a typical telephone connection. This information is typical of the 603E, 84xx (4-wire), and 94xx telephones. The attendant console always requires auxiliary (adjunct) power (-48 VDC). See [Figure 1-30 on page 1-65](#). Only 1 console can be powered by the system through the AUX connector. The primary console should be powered from the system so it has the same power failure backup as the system.

The maximum cabling distance for the console powered from the cabinet is 350 feet (100 m) using 24 AWG (#5) (0.26 mm<sup>2</sup>) wire.

The general steps to connect a telephone are:

1. Choose a device to connect such as a 302C1 Attendant Console.
2. Choose the port circuit pack and its carrier and slot number, such as TN754B, Cabinet 1, Carrier A, Slot 06.

3. Choose a port circuit on the port circuit pack, such as Port 05.



### Figure Notes

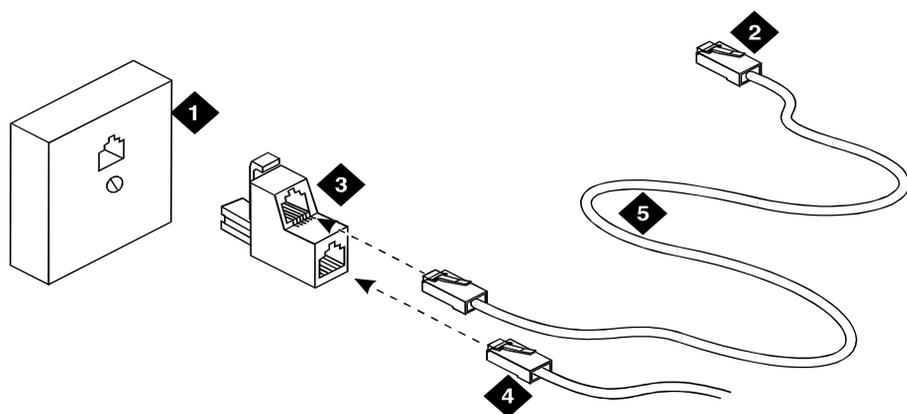
- |                                     |                               |
|-------------------------------------|-------------------------------|
| 1. 302C1 attendant console          | 3. -48 VDC from adjunct power |
| 2. 4-wire digital line circuit pack | 4. Ground from adjunct power  |

Figure 1-30. 302C1 to Digital Line Circuit Pack Wiring

4. Install cross-connect jumpers to wire the terminal to the port circuit pack. See [Figure 1-30](#). This pinout is for a 4-wire Digital Line circuit pack.

### Connect Adjunct Power

The 400B2 adapter is convenient for connecting local -48 VDC power to a modular plug. See [Figure 1-31](#).



r749428 RPY 012098

### Figure Notes

- |   |   |
|---|---|
| 1. Surface-mounted information outlet                 | 4. To telephone                                       |
| 2. To individual power unit (such as 1151A or 1151A2) | 5. Destination service access point (DSAP) power cord |
| 3. 400B2 adapter                                      |   |

Figure 1-31. 400B2 Adapter Connecting to a Modular Plug

Adjunct power can be provided from the equipment room or equipment closet with 1145B power unit. The AUX connector (J1) on the processor interface cable can provide power for 1 attendant console. See [Table 2-7 on page 2-15](#).

Adjunct power can be provided locally at the telephone or console by the 1151A or 1151A2 Power Supply.

### Analog Station or 2-Wire Digital Station Example

This example is typical of the 2-wire digital stations, 2-wire analog stations, analog CO trunks, DID trunks, and external alarms. See [Figure 1-32](#).



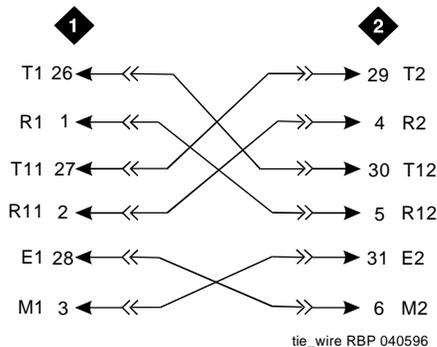
**Figure Notes**

- 1. 2500-type analog station
- 2. 2-wire analog line circuit pack

**Figure 1-32. 2500-Type Analog Telephone Wiring**

1. Choose a peripheral to connect (such as a 2-wire digital station).
2. Choose the port circuit pack to use and its carrier and slot number. For example, TN2183 Analog Line, Cabinet 1, Carrier C, Slot 1.
3. Choose a port circuit on the port circuit pack, for example port 3.
4. Install cross-connect jumpers to connect the pins from the 2-wire station to the appropriate pins on the port circuit pack.
5. Administer using *DEFINITY Enterprise Communications Server Administrator's Guide*.

**Analog Tie Trunk Example**



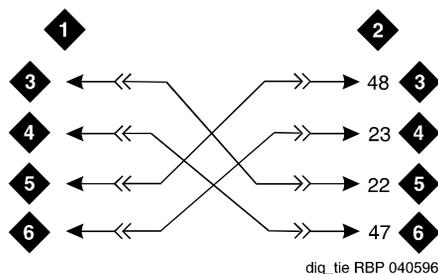
**Figure Notes**

- 1. External trunk or adapter
- 2. Tie trunk circuit pack

**Figure 1-33. Analog Tie Trunk Wiring**

1. Before installing the Tie Trunk circuit pack, set the option switches as described in [Chapter 2, "Completing Installation and Cable Pinouts"](#).
2. Install cross-connect jumpers to connect the pins from the Tie Trunk circuit pack to the appropriate leads on the external tie trunk. Names of the tie trunk leads must be determined from the manufacturer or supplier of the external trunk circuit. The example in [Figure 1-33](#) shows a DEFINITY System tie trunk connected to a DEFINITY System tie trunk.
3. Administer on the Trunk Group Screen. See *DEFINITY Enterprise Communications Server Administrator's Guide*.

## Digital Tie Trunk Example



### Figure Notes

- |  |                              |
|--|------------------------------|
| 1. External trunk                            | 4. LO (Balanced output pair) |
| 2. DS1 interface circuit pack, position 1C06 | 5. LI                        |
| 3. LO  | 6. LI (Balanced input pair)  |

**Figure 1-34. Digital Tie Trunk Wiring**

1. Before installing the DS1 Interface circuit pack, set the option switches according to [Chapter 2, "Completing Installation and Cable Pinouts"](#).
2. Install cross-connect jumpers to connect the pins from the digital trunk circuit pack to appropriate pins on the external digital trunk.
3. Administer the DS1 Interface circuit pack on the DS1 and Trunk Group Screens. See *DEFINITY Enterprise Communications Server Administrator's Guide*.

## DS1 Tie Trunk Example

DS1 tie trunks provide a 1.544 Mbps (T1) or 2.048 Mbps (E1) digital data service between 2 collocated systems or between the system and a data network. The following cables can be used:

- **C6C connector cable** — 50-foot (15.2 m) shielded cable with a 50-pin male connector on 1 end and a 15-pin male connector on the other end. Use to connect a DS1 tie trunk circuit pack to a Channel Service Unit.
- **C6D connector cable** — 50-foot (15.2 m) shielded cable with a 50-pin male connector on each end. Use to connect a DS1 tie trunks in collocated cabinets.
- **C6E connector cable** — 100-foot (30.5 m) shielded cable with a 50-pin male connector on 1 end and a 50-pin female connector on the other end. Use as an “extension” cable between the DS1 tie trunk circuit pack and other connector cables.
- **C6F connector cable** — 50-foot (15.2 m) shielded cable with a 50-pin male connector on 1 end and a 3 inch (7.62 cm) stub on the other end. Use to connect the DS1 tie trunk circuit pack to channel multiplexers requiring hardwired connections. See [Table 1-12](#) for a pinout.

**Table 1-12. Pinout of C6F Cable**

Wire Color	Lead Designation	Pin Number
White/Green	LI (High Side)	47
Green	LI	22
White/Brown	LO	48
Brown	LO (High Side)	23
White/Slate	LBACK2	49
Slate	LBACK1	24

## Collocated DS1 Tie Trunks

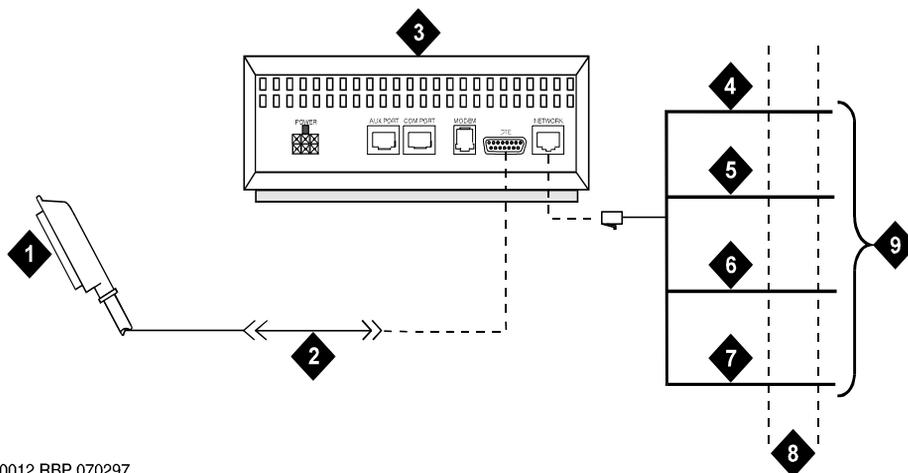
Two DS1 tie trunk circuit packs can be in collocated systems. A DS1 tie trunk circuit pack in 1 system can connect to a DS1 tie trunk in another system. Use a C6D cable if the distance is less than 50 feet (15.24 m). If the distance is greater than 50 feet (15.24 m), use a C6E cable.

**NOTE:**

The maximum distance between cabinets is 1310 feet (399.3 m).

## DS1 Tie Trunks Using T1 Channel Service Unit

Figure 1-35 shows a DS1 tie trunk connected to an external T1 Channel Service Unit (CSU). A 120A2 enhanced Integrated Channel Service Unit (ICSU) can be used in place of a T1 external CSU. The CSU or ICSU interfaces the DS1 tie trunks with the 1.544 Mbps digital facility. Contact your Avaya Inc. representative for maximum cabling distances.



0012 RBP 070297

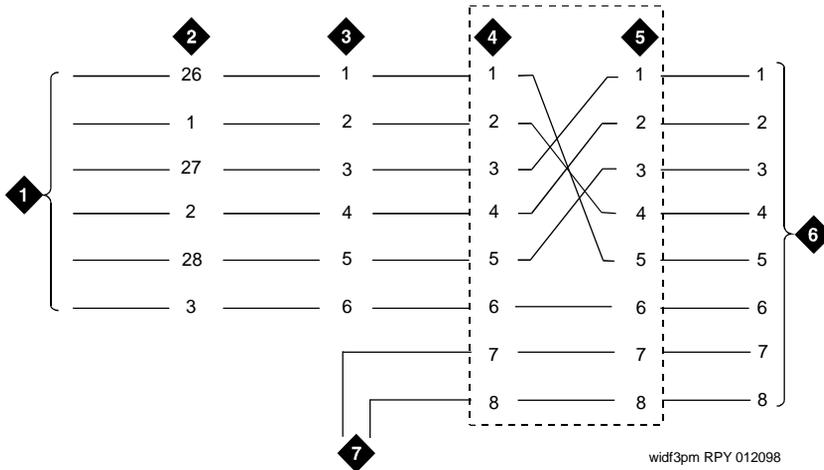
### Figure Notes

- |  |                            |
|--|----------------------------|
| 1. To DS1 tie trunk circuit pack                                     | 5. Ring (R)                |
| 2. C6C cable (If distance is over 50 feet (15.24 m), use C6E cable.) | 6. Tip 1(T1)               |
| 3. T1 external CSU or 120A2 ICSU                                     | 7. Ring1 (R1)              |
| 4. Tip (T)   | 8. 1.544 Mbps T1 interface |
|  | 9. To T1 carrier           |

Figure 1-35. Typical Connections to Channel Service Unit

### 3-Pair and 4-Pair Modularity

Figure 1-36 shows 3-pair and 4-pair modularity from the port circuit pack to the voice or data terminal. Most terminals connect to an information outlet (modular jack) installed at the work location.



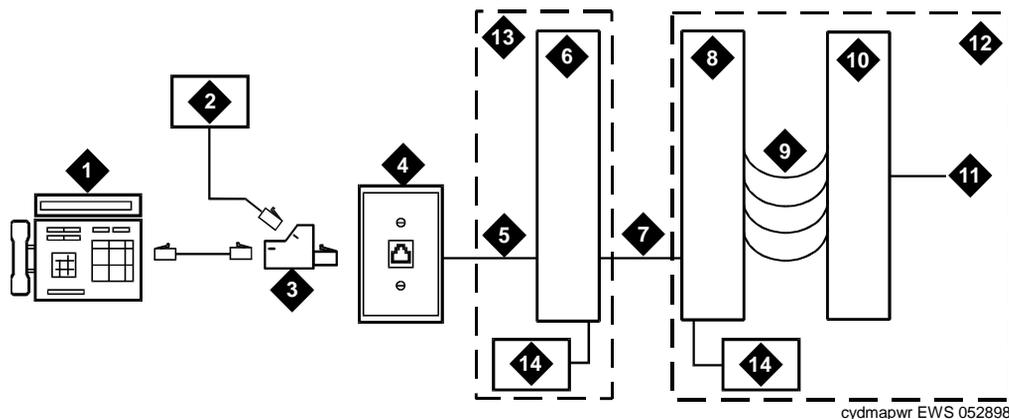
#### Figure Notes

- |  |   |
|--|---|
| 1. Port circuit pack                               | 5. Output from information outlet (4-pair modularity) |
| 2. 25-pair connector pins (3-pair modularity)      | 6. Voice or data terminal pins                        |
| 3. MDF pins (3-pair modularity)                    | 7. Adjunct power                                      |
| 4. Input to information outlet (4-pair modularity) |   |

Figure 1-36. 3-Pair and 4-Pair Modularity

## Adjunct Power Connections

Figure 1-37 shows typical connection locations for adjunct power.



cydmapwr EWS 052898

### Figure Notes

- |   |  |
|---|--|
| 1. Typical display telephone  | 9. 100P6A patch cord or jumpers  |
| 2. Individual power supply (Such as 1151A)<br>(Not used if item 14 is used) | 10. System side of MDF   |
| 3. 400B2 adapter  | 11. 25-pair cable to digital line circuit pack   |
| 4. Information outlet (modular jack)  | 12. Equipment room   |
| 5. 4-pair D-Inside Wire (DIW) cable   | 13. Satellite location   |
| 6. Satellite site or adapter location                                       | 14. Bulk power supply (Such as 1145B).<br>Install at satellite location or equipment<br>room (not both). |
| 7. 25-pair D-Inside Wire (DIW) cable  |  |
| 8. Station side of MDF  |  |

Figure 1-37. Example Adjunct Power Connections

## Local and Phantom Power

An attendant console's maximum distance from the system is limited. See [Table 1-13](#).

**Table 1-13. Attendant Console Cabling Distances**

Enhanced Attendant Console (302C1)	24 AWG Wire (0.26 mm <sup>2</sup> )		26 AWG Wire (0.14 mm <sup>2</sup> )	
	Feet	Meters	Feet	Meters
With Selector Console				
Phantom powered	800	244	500	152
Locally powered	5000	1524	3400	1037
Without Selector Console				
Phantom powered	1400	427	900	274
Locally powered	5000	1524	3400	1037

## Auxiliary Power

The nonessential functions of an attendant console and its optional 26A1 or 24A1 selector console derive power from an auxiliary power source. Provide auxiliary power for an attendant console through this cable so the console remains fully operational during short power outages.

### NOTE:

Only 1 console can derive auxiliary power from the system and through the auxiliary cable located in the trunk/auxiliary field.

A console's maximum distance from its auxiliary power source is:

- 800 feet (244 m) for a 302A1
- 350 feet (107 m) for a 301B1 and 302C1

An attendant console can also derive auxiliary power from:

- Individual 1151A or 1151A2 power supply
- MSP-1 power supply
- 258A-type adapters
- Bulk power supplies such as the 1145A1

## Administer IP Stations and Trunks

For complete information on administering IP stations and trunks, refer to Chapter 3, "Managing Phones," in *DEFINITY Enterprise Communications Server Administrator's Guide*.

## Install Attendant Console — Optional

1. Position the attendant console in the desired location and connect the modular cord to the information outlet.
2. Install labels per the Attendant Console form and Display Module form assignments.
3. Install a Digital Line circuit pack in the assigned carrier slot (if required).
4. Administer the Attendant Console forms in *DEFINITY Enterprise Communications Server Administrator's Guide*.

## Hard-Wire Bridging



### **CAUTION:**

*Bridging or paralleling these endpoints can cause electrical damage to the consoles or cause the circuit pack to remove power from the consoles.*

Analog type hard-wire bridging is not allowed for 4-wire (only) DCP endpoints. This is because hard-wire bridging provides no way of combining the digital output of 2 bridged DCP sets. Also, a bridged endpoint causes the added load to degrade the DCP signal.

## Dual Wiring of 2-Wire and 4-Wire Endpoints

Do not simultaneously wire a 2-wire and 4-wire endpoint to the same equipment location in an MDF, even though they connect to different colored wire pairs. The system uses separate circuit packs to interface 2- and 4-wire endpoints, and none are capable of interfacing both.

## Install 26B1 Selector Console — Optional

1. Connect the supplied 3-foot (0.9 m) D8AC cable to the modular jack on the bottom of the 26B1 Selector Console.
2. Route the cable to the attendant console and connect to the DXS/BLF jack.
3. Attach labels according to the Attendant Console form.
4. Administer the console using *DEFINITY Enterprise Communications Server Administrator's Guide*.

## Connect External Alarms and Auxiliary Connections

### NOTE:

The AUX connector is part of the Processor Interface cable assembly (J1).

### Alarm Input

Alarms can be generated on adjunct equipment, sent to the DEFINITY System, and recorded and reported as “external alarms.” A typical major alarm *input* is from a UPS.

1. Connect 1 major alarm *input* wire pair and 1 minor alarm *input* wire pair to the auxiliary field from the AUX connector (J1 on Processor Interface Cable). See [Table 1-14](#).

**Table 1-14. Alarm Inputs at AUX Connector**

Alarm Input Type	Color	AUX Connector
Major	White-Blue	AP1 (Pin 26)
	Blue-White	Ground (Pin 1)
Minor	White-Orange	AP2 (Pin 27)
	Orange-White	Ground (Pin 2)

### Alarm Output

The system provides a relay contact that can operate a customer-provided alarm, such as a light or bell. The circuitry and power source are customer-provided. The alarm device must not exceed a rating of more than 30 VAC RMS or 60 VDC at 0.75 Amps.

1. Connect the external alarm *output*. See [Table 1-15](#).
2. Give this information to your Avaya Inc. representative for troubleshooting purposes.

**Table 1-15. Alarm Output at AUX Connector**

Alarm Output Type	Color	AUX Connector
EXTALMA	Violet-Green	(Pin 48)
EXTALMB	Green-Violet	Ground (Pin 23)

## Emergency Transfer and Auxiliary Power



**NOTE:**

Only 1 emergency transfer power panel and 1 auxiliary power connection is provided per system.

Connect emergency transfer power and auxiliary power as shown in [Table 1-16](#). Auxiliary power includes power to an attendant console or adjunct device.

**Table 1-16. Emergency Transfer and Auxiliary Power**

Power Type	Color	AUX Connector
Emergency Transfer	Black-Blue	XFER48 (Pin 36)
	Blue-Black	Ground (Pin 11)
Auxiliary (Adjunct) -48 VDC	Brown-Yellow	ACC48A (Pin 19)
	Yellow-Brown	Ground (Pin 44)

## Telephone Pin Designations

[Table 1-17](#) provides port circuit pack and telephone pin designations.

**Table 1-17. Port Circuit Pack and Telephone Pin Designations**

Pin on Modular Plug	4-wire; 302C1, 8400-Series, 603E, 9403, 9434	2-wire; 302C1, 8400-Series, 603E, 9403, 9410, 9434	8510T BRI (with adjunct speaker phone)	Analog Station, Modem	Z3A1 & Z3A2 ADU, Data Module
1	TXT				TXT
2	TXR			T	TXR
3	PXT		TXT	R	PXT
4		T	PXR		
5		R	PXT		
6	PXR		TXR		PXR
7	-48VDC	(-48VDC)	(-48VDC)		
8	GRD	GRD	GRD		
circuit pack	4-wire digital (8 port)	2-wire digital (16 or 24 port)	4-wire BRI Trunk Side	Analog line (16 or 24 port)	Data Line

PX PBX transmit      T Tip (A)  
TX Terminal transmit      R Ring(B)

## CAMA/E911 Installation

### Configuration

The CAMA/E911 feature will only work on R10 CMC if TN429C CO trunk circuit packs (or later suffix) are used.

Port Networks (PNs) that include TN429C circuit packs used to interface to CAMA trunks may require some CPTR resources to be either TN744D V2 or TN2182B circuit packs, since TTR/CPTR or General Purpose Tone Receiver (GPTR) resources are selected from the pool available in the PN when needed.

### Hardware Setup

1. Insert the TN429C or later CO trunk circuit pack in any available port slot.
2. Be sure the TN744D Call Classifier - Detector circuit pack is Vintage 2 or later.
3. Wire the CAMA trunk to the MDF (the trunk from the CO). Refer to the pinouts in [Table 2-13 on page -22](#).

### Administration Setup

1. At the prompt, type **add trunk next** and press Enter.

```
Page 1 of 11

TRUNK GROUP

Group Number: 1                Group Type: cama        CDR Reports: y
Group Name:  cama Trunk Group - E911  COR: 1      TN: 1      TAC: 701
Direction: outgoing           Outgoing Display? y  CESID I Digits Sent: 0
                               Busy Threshold: 99

TRUNK PARAMETERS
  Trunk Type: wink-start
Outgoing Dial Type: rlmf
Trunk Termination: rc
```

#### Screen 1-6. CAMA Trunk Group form (page 1)

2. On the Trunk Group screen (page 1), in the `Group Type:` field, enter **cama**.
3. In the `Group Name:` field, enter the desired name.
4. In the `TAC:` field, enter the desired trunk access code.

1 Installing and Cabling the Cabinets  
CAMA/E911 Installation

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5. In the `Outgoing Display:` field, enter `y`.
6. In the `CESID I Digits Sent:` field, enter the number directed by the Central Office (CO) or the Public Safety Answering Point (PSAP).
7. Scroll to page 3 of the form.

```

Page 3 of 11

TRUNK GROUP

ADMINISTRABLE TIMERS

Outgoing Disconnect (msec): 400
Cama Outgoing Dial Guard (msec): 75
Outgoing Glare Guard (msec): 1000

Cama Wink Start Time (msec): 5000
Outgoing End of Dial (sec): 1   Outgoing Seizure Response (sec): 4
Disconnect Signal Error (sec): 30
    
```

**Screen 1-7. Administrable Timers form (page 3)**

8. On the Administrable Timers screen (page 3), you may need to adjust these fields according to your CO. Scroll to page 5.

```

Page 5 of 11

TRUNK GROUP

Administered Members (min/max): 1/2
Total Administered Members: 2

GROUP MEMBER ASSIGNMENTS
Port Code Sfx Name

1: 01C0401 TN429 C
2: 01C0402 TN429 C
3:
4:
5:
6:
7:
8:
9:
10:
11:
12:
13:
    
```

**Screen 1-8. Group Member Assignments form (page 5)**

9. On the Group Member Assignments screen, in the `Port` field, add the trunk members and press `Enter` when finished.

10. At the prompt, type **change feature-access-code** and press Enter.

```
Page 1 of 5
FEATURE ACCESS CODE (FAC)
Abbreviated Dialing List1 Access Code: ____
Abbreviated Dialing List2 Access Code: ____
Abbreviated Dialing List3 Access Code: ____
Abbreviated Dial - Prgm Group List Access Code: ____
Announcement Access Code: ____
Answer Back Access Code: ____
Auto Alternate Routing (AAR) Access Code: ____
Auto Route Selection (ARS) Access Code 1: 9__ Access Code 2: ____
Automatic Callback Activation: ____ Deactivation: ____
Call Forwarding Activation Busy/DA: ____ All: ____ Deactivation: ____
Call Park Access Code: ____
Call Pickup Access Code: ____
CAS Remote Hold/Answer Hold-Unhold Access Code: ____
CDR Account Code Access Code: ____
Change Coverage: ____
Data Origination Access Code: ____
Data Privacy Access Code: ____
Directed Call Pickup Access Code: ____
Emergency Access To Attendant Access Code: ____
Extended Call Fwd Activate Busy D/A: ____ All: ____ Deactivation: ____
Facility Test Calls Access Code: ____
Flash Access Code: ____
```

**Screen 1-9. Feature Access Code (FAC) form (page 1)**

11. The Feature Access Code (FAC) screen (page 1) appears.
12. In the Auto Route Selection (ARS) Access Code 1: field, administer the ARS access code (in the example above, type **9**) and press Enter (must match dial plan).
13. At the prompt, enter **change ars analysis <9>** and press Enter.



24. At the prompt, type **change route-pattern <number>** (the route pattern to be changed; in the example below, the route pattern is 11) and press Enter.

Page 1 of X

Pattern Number: 11

Grp. No.	FRL	NPA	Pfx Mrk	Hop Lmt	Toll List	No. Del Digits	Inserted Digits	IXC
1:	1	0						user
2:								user
3:								user
4:								user
5:								user
6:								user

	BCC	VALUE	TSC	CA-TSC	ITC	BCIE	Service/Feature	Numbering	LAR	
	0	1	2	3	4	W	Request	Format		
1:	y	y	y	y	y	n	y none		both ept	outwats-bnd BAND: none
2:	y	y	y	y	y	n	n		rest	next
3:	y	y	y	y	y	n	n		rest	rehu
4:	y	y	y	y	y	n	n		rest	none
5:	y	y	y	y	y	n	n		rest	none
6:	y	y	y	y	y	n	n		rest	none

Screen 1-11. Route Pattern form (Page 1)

25. On the Route Pattern screen, in Grp. No. field, enter the CAMA trunk group number.
26. In the FRL field, enter 0.



**NOTE:**

For the following step, if the Central Office (CO) wants KP11ST as the dialed digit string, then leave blank. If the CO wants KP911ST, then insert a "9" in the Inserted Digits field.

27. Administer the Inserted Digits field if needed and press Enter.

28. At the prompt, type **change route-pattern <number>** (the route pattern to be changed; in the example below, the route pattern is 12) and press Enter.

Page 1 of X

Pattern Number: 12

Grp. No.	FRL	NPA	Pfx Mrk	Hop Lmt	Toll List	No. Del Digits	Inserted Digits	IXC
1:	1	0				1		user
2:								user
3:								user
4:								user
5:								user
6:								user

	BCC	VALUE	TSC	CA-TSC	ITC	BCIE	Service/Feature	Numbering	LAR	
	0	1	2	3	4	W	Request	Format		
1:	y	y	y	y	y	n	y none		both ept	outwats-bnd BAND: none
2:	y	y	y	y	y	n	n		rest	next
3:	y	y	y	y	y	n	n		rest	rehu
4:	y	y	y	y	y	n	n		rest	none
5:	y	y	y	y	y	n	n		rest	none
6:	y	y	y	y	y	n	n		rest	none

Screen 1-12. Route Pattern form (Page 1)

29. On the Route Pattern screen, in Grp. No. field, type the CAMA trunk group number and press Enter.
30. In the FRL field, type 0.



**NOTE:**

For the following step, if the Central Office (CO) wants KP911ST as the dialed digit string, then leave blank. If the CO wants KP11ST, then delete one digit.

31. Administer No. Del Digits field if needed and press Enter.
32. At the prompt, type **change cama-numbering** and press Enter.

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CAMA NUMBERING - E911 FORMAT

System CESID Default: 5241100\_\_\_\_\_

Ext Len	Ext Code	CESID	Total Length	Ext Len	Ext Code	CESID	Total Length
4_	101_	5381234_____	7_	—	_____	_____	—
4_	1_	555_____	7_	—	_____	_____	—
—	_____	_____	—	—	_____	_____	—
—	_____	_____	—	—	_____	_____	—
—	_____	_____	—	—	_____	_____	—
—	_____	_____	—	—	_____	_____	—
—	_____	_____	—	—	_____	_____	—
—	_____	_____	—	—	_____	_____	—
—	_____	_____	—	—	_____	_____	—
—	_____	_____	—	—	_____	_____	—
—	_____	_____	—	—	_____	_____	—
—	_____	_____	—	—	_____	_____	—
—	_____	_____	—	—	_____	_____	—
—	_____	_____	—	—	_____	_____	—

**Screen 1-13. CAMA Numbering Format form**

- 33. In the CAMA Numbering - E911 Format screen (page 1), in System CESID Default: field, enter your own system default and press Enter. This is the number outpulsed when the extension code is not found in the CAMA Numbering table. See [Screen 1-13](#).
- 34. In the Ext Len, Ext Code, CESID, and Total Length fields, fill out to your own CAMA numbering plan and press Enter. Be sure to cover all extensions.
- 35. At the prompt, type **change cor <number>** (the class of restriction (COR) to be changed) and press Enter. Change all CORs that are defined for stations in order to remove any calling party restrictions for 911 calls.

CLASS OF RESTRICTION

Page 1 of 3

COR Number: 10  
COR Description: supervisor

FRL: 0	APLT? y
Can Be Service Observed? n	Calling Party Restriction: none
Can Be A Service Observer? n	Called Party Restriction: none
Time of Day Chart: 1	Forced Entry of Account Codes? n
Priority Queuing? n	Direct Agent Calling? n
Restriction Override: none	Facility Access Trunk Test? n
Restricted Call List? n	Can Change Coverage? n
Unrestricted Call List?	
Access to MCT? y	Fully Restricted Service? n
Category For MFC ANI: 7	Hear VDN of Origin Annc.? n
Send ANI for MFE? n_	Add/Remove Agent Skills? n
Hear System Music on Hold? y	PASTE (Display PBX Data on Phone)? n
Automatic Charge Display? n	
Can Be Picked Up By Directed Call Pickup? n	
Can Use Directed Call Pickup? n	

Screen 1-14. Class of Restriction form (page 1)

36. On the Class of Restriction screen (page 1), in the Calling Party Restriction: field, type **none** and press Enter.
37. Type **Save Translation** and press Enter.

## Install the BRI Terminating Resistor

The resistors balance the cable plant between the receiver and the transmitter on the interface. When using the TN2198 ISDN-BRI 2-Wire U Interface circuit pack, an NT1 is required. A terminating resistor is always required near the terminal when the BRI S-type interface circuit pack (TN556 BRI 4-Wire S-NT Line circuit pack) is used (see *#5ESS Switch Integrated Services Digital Network Customer Premises Planning Guide*, 533-700-100).

The resistor is built into the NT1 and can be 1 of 3 values, depending on the configuration and the distance from the NT1 to the ISDN terminal. The resistor value is controlled from the NT1. A terminating resistor adapter may be needed near the terminal and can be placed in the satellite closet or work location.



### **CAUTION:**

*The 440A4 terminating resistor and 110RA1-12 terminating resistor block are UL listed. Most new installations are the 110RA1-12 terminating resistor block. The following installation instructions should be observed.*

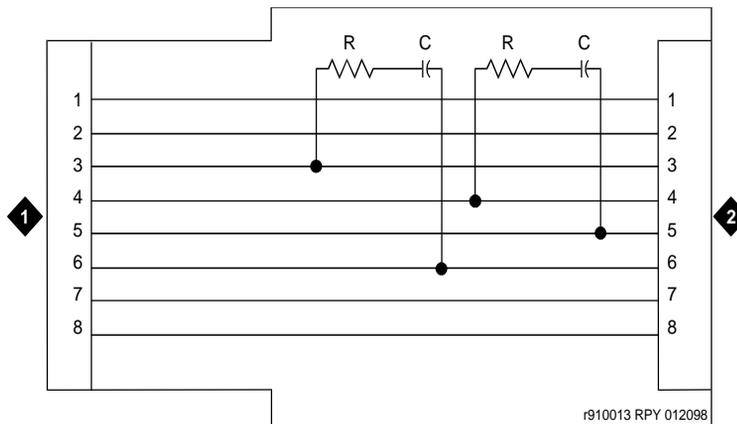
- *Never install telephone wiring during a lightning storm.*
- *Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.*
- *Never touch uninsulated wires or terminals unless the telephone line has been disconnected at the network interface.*
- *Use caution when installing or modifying telephone lines.*

## Terminating Resistor Adapter

[Figure 1-38](#) shows an 8-pin 440A4 terminating resistor adapter. The adapter has an 8-wide plug at 1 end, a short cord, and an 8-wide jack at the opposite end.

1 Installing and Cabling the Cabinets  
Install the BRI Terminating Resistor

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**Figure Notes**

1. 8-wide plug

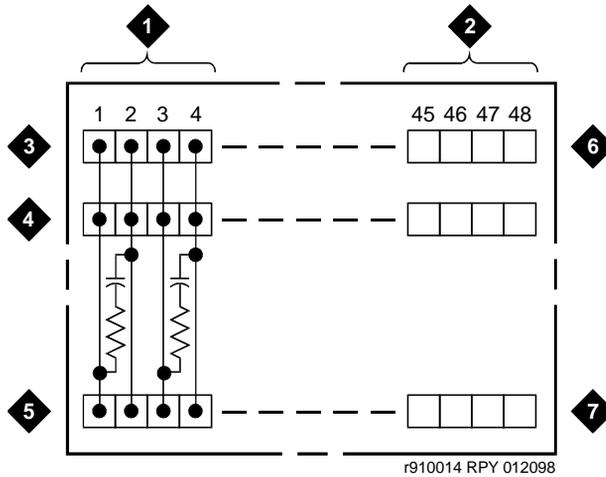
2. 8-wide jack

Figure 1-38. 8-Wide Terminating Resistor Adapter (440A4)

**Closet Mounted (110RA1-12)**

The 110RA1-12 terminating resistor block consists of twelve 2-pair circuits and provides the 100 Ohm termination used for ISDN-BRI circuits.

Figure 1-39 shows the wiring of the 110RA1-12. Three rows of 110D-4 connector blocks contain resistors and capacitors. The bottom row is designated as the input row and the top and middle rows are designated as the output rows. The circuit assembly is mounted on a standard 110A-100 pair mounting base.

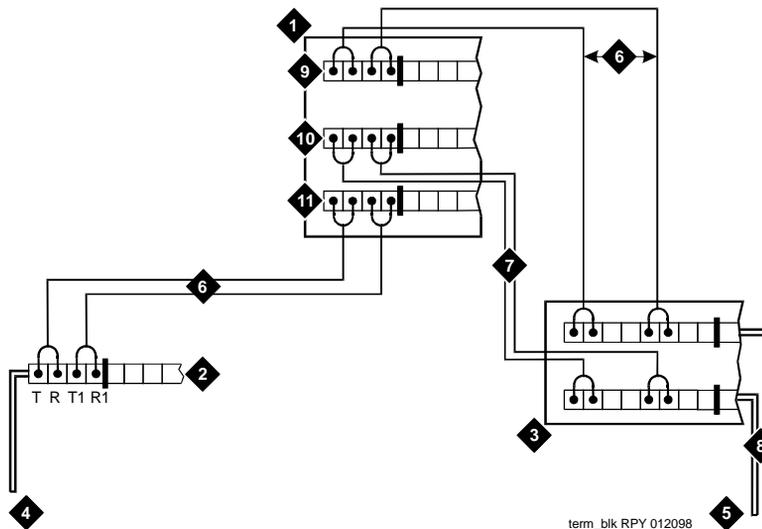


### Figure Notes

- |                   |  |
|-------------------|--|
| 1. Circuit 1      | 5. Input row "C"   |
| 2. Circuit 12     | 6. Only first circuit shown to all 12<br>circuits (2APR) per block |
| 3. Output row "A" | 7. 110D-4 connector block  |
| 4. Output row "B" |  |

Figure 1-39. Terminating Resistor Block (110RA1-12)

Figure 1-40 shows the wiring connections for the 110RA1-12 terminal block. The TN556 BRI switch port is terminated to bottom row C.



### Figure Notes

- |   |                             |
|---|-----------------------------|
| 1. Part of terminating resistor block     | 7. Basic multi-point option |
| 2. White or purple field                  | 8. 4-pair horizontal cables |
| 3. Part of 4-pair blue field              | 9. Row "A"                  |
| 4. From ISDN T-interface circuit (2-pair) | 10. Row "B"                 |
| 5. To ISDN S/T-interface terminals        | 11. Row "C"                 |
| 6. 2-pair cross-connect                   |                             |

Figure 1-40. Typical Installation of Terminating Resistor Block

For point-to-point wiring, the top row connects to the blue station field. The pair connects from the 110RA1-12 to the standard 4-pair circuit. Pair 1 from the 110RA1-12 is connected to Pair 1 of the station field, and Pair 2 is connected to Pair 3 of the station field.

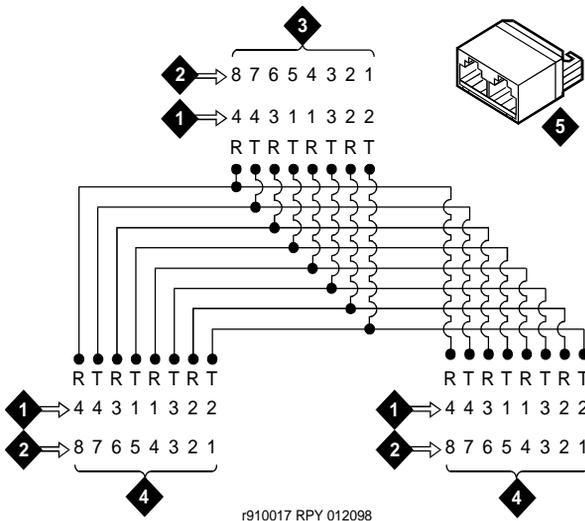
Two terminal basic multi-point applications are accommodated by connecting row B (output) to the second terminal common to the multi-point circuit.

## Install Multi-point Adapters

Use multi-point adapters to provide signal fanout of the T-interface. BR851-B or the 367A perform fanout at the work station. These adapters support more than 1 ISDN terminal per horizontal 4-pair D-inside wire (DIW). To support multiple horizontal runs, a MDF with multiple common rows performs fanout in the satellite closet. The 110RA1-12 provides fanout for two horizontal runs and contains the 100 ohm terminating resistor. Use this for basic multi-point or point-to-point with terminating resistor in the closet. Other fanout blocks include the 110AB1-025M and the 110AB1-050M.

### BR851-B Adapter (T-Adapter)

The BR851-B supports 2 terminals on 1 multi-point BRI at the work station and is used to fanout transmission and power. See [Figure 1-41](#).



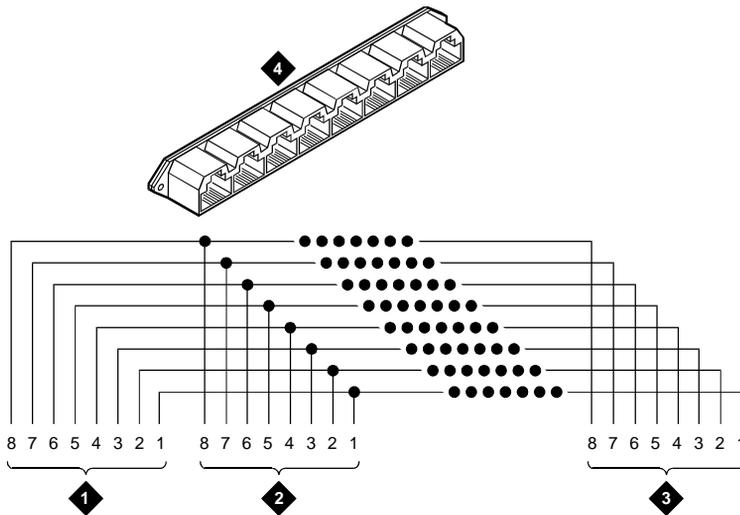
#### Figure Notes

- |                        |                             |
|------------------------|-----------------------------|
| 1. Wire pairs          | 4. Female                   |
| 2. Pin numbers         | 5. T-Type adapter (BR851-B) |
| 3. Modular plug (male) |                             |

Figure 1-41. Wiring Diagram of BR851-B

## 367A Adapter

The 367A adapter provides fanout for up to 7 terminals. See [Figure 1-42](#).



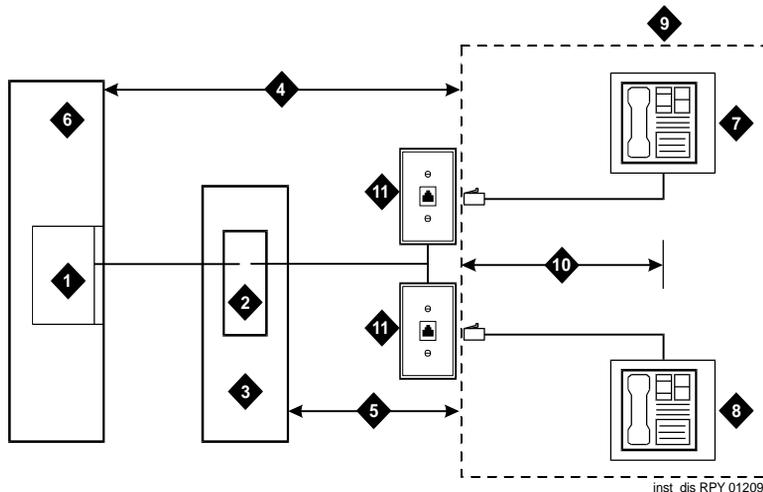
### Figure Notes

- |           |                 |
|-----------|-----------------|
| 1. Jack 1 | 3. Jack 8       |
| 2. Jack 2 | 4. 367A adapter |

Figure 1-42. Wiring Diagram of 367A Adapter

## Basic Multi-point Installation Distances

Figure 1-43 provides cabling information for fanout of ISDN-BRI multi-point installations. In Figure 1-43, the terminating resistor is located in the satellite closet. All distances assume 24 AWG (#5) (0.26 mm<sup>2</sup>) D-Inside Wire (DIW).



### Figure Notes

- |  |   |
|--|---|
| 1. S-interface source (TN556)  | 6. System cabinet   |
| 2. Terminating resistor  | 7. Terminating endpoint 1   |
| 3. Satellite closet  | 8. Terminating endpoint 2   |
| 4. Maximum distance from S-interface source to work location (1600 feet) (488 m) | 9. Work location  |
| 5. Maximum distance from satellite closet to work location (250 feet) (76 m)     | 10. Maximum distance from information outlet to terminating endpoint (33 feet) (10 m) |
|  | 11. Information outlet  |

Figure 1-43. Basic Multi-point with One Work Location

## Install Off-Premises Station Wiring

---

The cabling for off-premises stations is provided by the local telephone company. These stations can appear on any of the RJ21X network interfaces provided for the CO trunks.



### CAUTION:

*Use only an FCC-approved (or equivalent) analog type telephone (such as a 2500-type) as an off-premises station. The TN746B and TN2183 Analog Line circuit packs can be connected to off-premises stations.*

1. Install an A25D cable between the RJ21X network interface and a sneak fuse panel.
2. At the MDF, connect jumper wires between 1 row/connecting block in the green field and up to 3 rows/connecting blocks in the purple field to concentrate the analog line pairs.
3. Connect an A25D cable between the sneak fuse panel and the terminal block connector associated with the green row in Step 2.
4. Install a green label on the terminal block to identify the remote location.
5. Administer per *DEFINITY Enterprise Communications Server Administrator's Guide*.

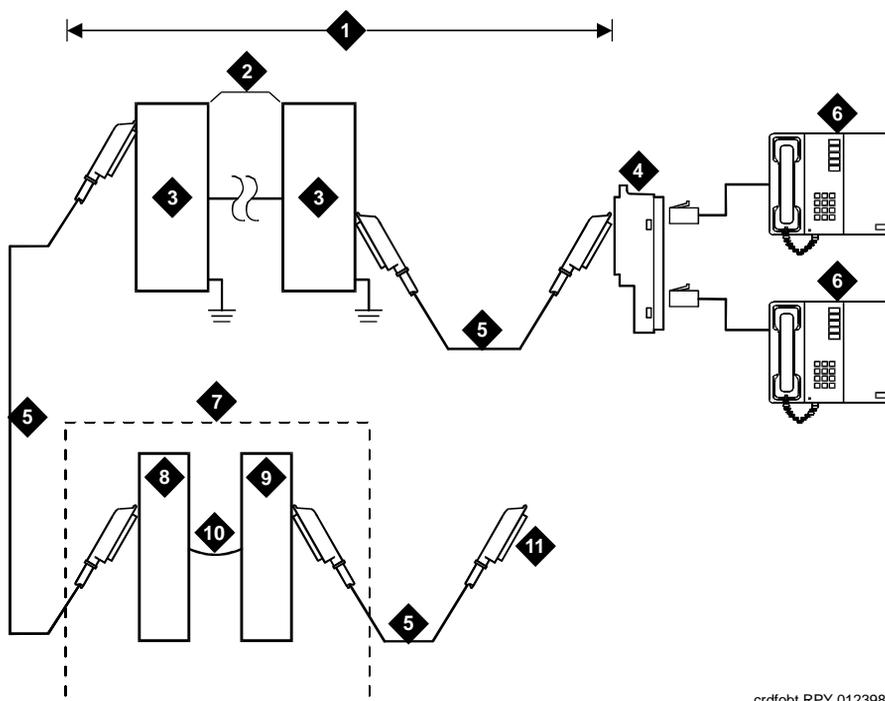
## Install Off-Premises or Out-of-Building Stations

Out-of-building campus stations are those telephones not physically located in the same building as the equipment room but are located on the same property.

### Analog Off-Premises Stations

[Figure 1-44 on page 1-93](#) shows the connections for 1 to 8 off-premises analog telephones. Only analog telephones connected to TN746B, TN2183, or TN769 Analog Line circuit packs can be installed out-of-building.

The maximum distance from the system cabinet to the out-of-building voice terminal is 6000 feet (1828.8 m) using 24 AWG (#5) (0.26 mm<sup>2</sup>) wire.



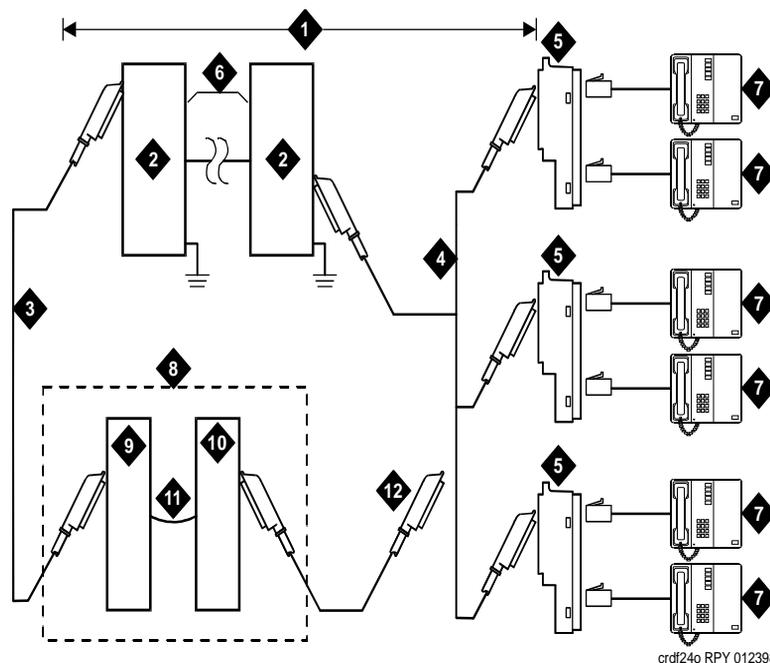
crdfobt RPY 012398

**Figure Notes**

- |  |  |
|--|--|
| 1. Locally engineered cables   | 7. Part of MDF   |
| 2. Out-of-building wiring  | 8. Station side (white field)                              |
| 3. Multi-pair protector units (primary protectors with heat coils or equivalent with sneak current protection) | 9. System side (purple field)                              |
| 4. 356A adapter  | 10. Cross-connect jumpers                                  |
| 5. B25A cable  | 11. To analog line circuit pack (TN2183, TN769, or TN746B) |
| 6. Out-of-building analog telephones   |  |

**Figure 1-44. Connections for 1 to 8 Out-of-Building Analog Telephones**

Figure 1-45 shows the connections for up to 24 off-premises analog telephones. Concentrations of analog line pairs are used at both buildings to minimize the off-premises wiring required. At the MDF, jumpers must be connected between 1 row/connecting block in the white field and up to 3 rows/connecting blocks in the purple field. At the station location, a WP-90929, List 1 Concentrator Cable is used. There are 8 station appearances on each of the 3 fingers of the concentrator cable.



crdf24a RPY 012398

### Figure Notes

- |  |  |
|--|--|
| 1. Locally engineered cables   | 7. Out-of-building analog telephones                     |
| 2. Multi-pair protector units (primary protectors with heat coils or equivalent with sneak current protection) | 8. Part of MDF   |
| 3. B25A cable  | 9. Station side (white field)                            |
| 4. Concentrator cable (WP90929 List 1)   | 10. System side (purple field)                           |
| 5. 356A adapter  | 11. Cross-connect jumpers                                |
| 6. Out-of-building wiring  | 12. To TN2183, TN769, or TN746B analog line circuit pack |

Figure 1-45. Connections to 24 Out-of-Building Telephones

### Circuit Protectors

Carbon block, or equivalent protection is required at both building entrances. Also sneak current protection is required. Protection can be provided by a 4-type protector or a 3-type protector plus a separate sneak current protector. The 4-type protector is equipped with a heat coil.

The 4-type protector is the preferred device. For installations not using primary protection, 4-type protectors should always be used. When the 3-type protector is already installed, a separate sneak current protector is required. The multi-pair protector units and the off-premises cabling must be locally engineered.

Connectorized multi-pair protector units (female 25-pair connector) are recommended. [Table 1-18](#) shows the recommended protectors.

**Table 1-18. Analog Line Circuit Protectors**

<b>Protectors</b>		
<b>Primary<sup>1</sup></b>	<b>Primary (with heat coil)</b>	<b>Sneak Current Protectors<sup>1</sup></b>
3B1A (carbon)	4B1C (carbon)	220029 Fuse
3B1E-W (wide gap gas tube)	4B1E-W (wide gap gas tube)	SCP-1
3C1S (solid state)	4C1S (solid state)	

1. The 3-type protectors should only be used if they are already part of the existing protection system. A sneak current protector is always required when a 3-type primary protector is used.

The maximum range of out-of-building analog telephones (500-, 2500-, or 7100-types) connected to an analog line circuit pack should be such that the maximum loop resistance does not exceed 1300 ohms.

The following voice terminals *cannot* be installed in an exposed environment:

- 7300-type voice terminals connected to TN762 Hybrid Line circuit packs
- Multi-button Electronic Telephone (MET) sets connected to TN735 MET Line circuit packs
- Analog telephones connected to TN746 Analog Line circuit packs

Refer to [Table 1-2 on page 1-6](#) for circuit protector ordering information (comcodes).

## Digital Out-of-Building Telephones

Protection is required at both building entrances for digital out-of-building voice terminals. There are 2 different types of protectors that can be used to protect digital voice terminals and digital line circuit packs. The 2 protectors to use are the 4C3S-75 Enhanced protector and the ITW Linx Enhanced Protector. These units provide primary and sneak current protection. The 4C3S-75 is equipped with a heat coil for sneak current protection. The ITW Linx is equipped with replaceable fuses for sneak current protection.

The 4C3S-75 is only used with Vintage 14 or newer TN754 circuit packs. The 4C3S-75 can be used on all vintages of the TN754B circuit packs. The ITW Linx may be used on all vintages of the TN754 circuit packs. [Table 1-19](#) lists the approved protectors.

**NOTE:**

The TN2181 (2-Wire 16 Port Digital Line circuit pack) may not be approved for some out-of-building uses. Contact your Avaya Inc. representative for more information.

**Table 1-19. Digital Voice Circuit Protectors**

Circuit Pack	Enhanced Primary Protector (With Sneak Current Protection)
TN754 V13 or earlier	ITW Linx Only
TN754 V14 or later	4C3S-75 or ITW Linx
TN754B all vintages	4C3S-75 or ITW Linx
TN2181	4C3S-75 or ITW Linx
TN2224	4C3S-75 or ITW Linx

When possible, all new and reused wiring installations should use blocks that accept the standard 5-pin plug-in 4C3S-75 protector. However, this may not be cost-effective in some cases. For these installations, the ITW Linx protector may be installed. An example of this is where screw-type carbon block protectors (or other non plug-compatible types) are in place and it is too costly to re-terminate the outside plant cable on a 5-pin mounting block for only a few out-of-building terminals.

The ITW Linx Enhanced Protector may be installed in series with existing primary protection. Note the 4C3S-75 protector cannot be installed in series with other types of primary protection. It must be installed as the only protection on the line entering the building. For the 4C3S-75 protector, various 25-, 50-, and 100-pair protector panels are equipped with 110-type connecting blocks and/or RJ21X connectors. The ITW Linx Enhanced Protector mounts directly on connecting blocks and requires a separate ground bar.

The maximum range for out-of-building digital voice terminals is 3400 feet (1036 m) when using 24 AWG (#5) (0.26 mm<sup>2</sup>) wire and 2200 feet (670 m) when using 26 AWG (#4) (0.14 mm<sup>2</sup>) wire. The range can extend to 5000 feet (1524 m) using 24 AWG (#5) (0.26 mm<sup>2</sup>) wire or 4000 feet (1219 m) using 26 AWG (#4) (0.14 mm<sup>2</sup>) wire with the use of a data link protector. The protector is an isolating transformer used to remove phantom power on the system side and re-introduce it on the terminal side.

When a protector is used, the voice terminal must be locally powered by an external power supply or through the AC power cord provided with some of the 7400-type voice terminals. The protector is installed on the equipment side of the protection in both buildings.

Refer to [Table 1-2 on page 1-6](#) for circuit protector and data link protector comcodes.

## **Install Emergency Transfer Unit and Associated Telephones**

---

### **⇒ NOTE:**

Install only 1 emergency transfer power panel per system.

Emergency transfer capability is provided by an 808A Emergency Transfer Panel (or equivalent) mounted next to the trunk/auxiliary field. See [Figure 1-46 on page 1-98](#). Also refer to [Table 1-16 on page 1-76](#) for the pinout of the AUX (J1) connector.

Use analog telephones for emergency transfer. The 500-and 2500-type telephones can also be used as normal extensions. Emergency transfer capability may be provided on analog CO and Wide Area Telecommunications Service (WATS) trunks.

The transfer panel provides emergency trunk bypass or power-fail transfer for up to 5 incoming CO trunk loops to 5 selected station sets. The 808A equipment's Ringer Equivalency Number (REN) is 1.0 Amp.

At the MDF, the unit is controlled by a connection to a yellow terminal row/connecting block in the trunk/auxiliary field. The unit is controlled by -48 VDC from the EM TRANS RELAY PWR terminals.

### **Install the Emergency Transfer Panel**

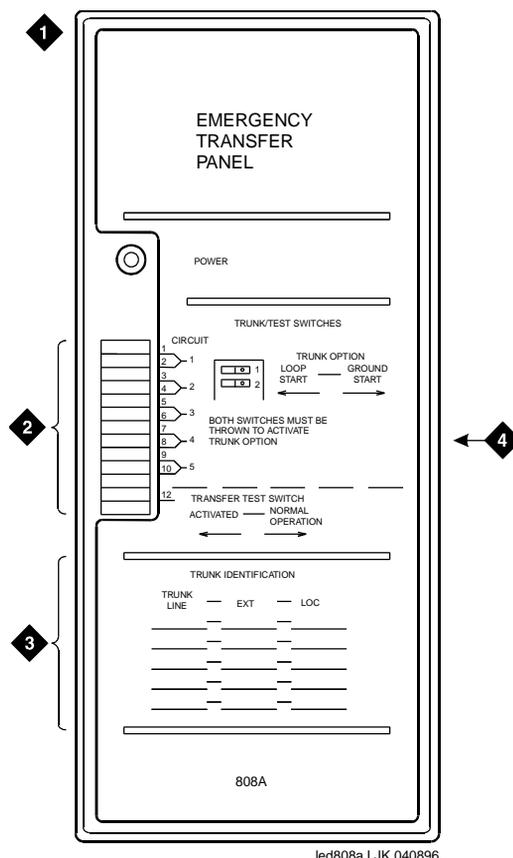
The 808A Emergency Transfer Panel is used in the following installation example.

1. Install the transfer panel on any mounting frame in either a vertical or horizontal position. The housing has ears for screw-mounting and cutouts for snap-mounting the unit in an 89-type mounting bracket.

### **⇒ NOTE:**

Install the panel so it can be accessed only by authorized personnel. The location must meet standard environmental considerations such as temperature, humidity, and so forth.

2. Verify dial tone is present at each trunk circuit.



**Figure Notes**

- 1. 808A emergency transfer panel
- 2. Circuit start selection switches
- 3. Trunk identification label
- 4. 25-pair male connector

**Figure 1-46. 808A Emergency Transfer Panel**

3. Locate the circuit start selection switches. See [Figure 1-46 on page 1-98](#). These are the first 10 two-position switches on the left side of the 808A. The switches set each of the 5 incoming trunk lines to either loop start or ground start. Two switches are used for each of the 5 circuits; switches 1 and 2 are used for circuit 1, switches 3 and 4 are used for circuit 2, and so forth. See [Table 1-20](#).

For loop start, set the switches to the **left**. For ground start, set the switches to the **right**.

Table 1-20. Trunk/Test Switches

---

Switch Number	Circuit Number
1	1
2	1
3	2
4	2
5	3
6	3
7	4
8	4
9	5
10	5
11	Not Used
12	Test Switch

---

4. Connect a 25-pair cable between the male RJ21 25-pair connector on the 808A and the yellow field on the MDF. [Table 1-21 on page 1-100](#) shows the pinouts.
5. Make cross-connections for each emergency trunk/emergency station pair. See [Figure 1-47 on page 1-102](#) and [Figure 1-48 on page 1-103](#).
6. On the trunk identification label at the bottom of the panel, record the trunk line, extension, and location for each circuit.
7. To each voice terminal designated as an emergency terminal, attach a label identifying it as such. The labels are provided with the unit.
8. Check the system for normal operation as follows:
  - a. Place the test switch (switch 12) in NORMAL OPERATION.
  - b. Ensure the power supply is providing -48 VDC at 80 mA maximum. The power LED should be ON.
  - c. Check wiring connections.
  - d. Verify there is dial tone on all emergency transfer sets.

**Table 1-21. Pin Assignments for 25-Pair Connector on 808A**

<b>Pin</b>	<b>Color</b>	<b>Designation</b>	<b>Connector/Description</b>
26	W-BL	TTC1	Tip-PBX Trunk Circuit 1
1	BL-W	RTC1	Ring-PBX Trunk Circuit 1
27	W-O	TTK1	Tip-CO Trunk Circuit 1
2	O-W	RTK1	Ring-CO Trunk Circuit 1
28	W-G	TLC1	Tip-PBX Line Port 1
3	G-W	RLC1	Ring-PBX Line Port 1
29	W-BR	TST1	Tip-Emergency Terminal 1
4	BR-W	RST1	Ring-Emergency Terminal 1
30	W-S	TTC2	Tip-PBX Trunk Circuit 2
5	S-W	RTC2	Ring-PBX Trunk Circuit 2
31	R-BL	TTK2	Tip-CO Trunk Circuit 2
6	BL-R	RTK2	Ring-CO Trunk Circuit 2
32	R-O	TLC2	Tip-PBX Line Port 2
7	O-R	RLC2	Ring-PBX Line Port 2
33	R-G	TST2	Tip-Emergency Terminal 2
8	G-R	RST2	Ring-Emergency Terminal 2
34	R-BR	TTC3	Tip-PBX Trunk Circuit 3
9	BR-R	RTC3	Ring-PBX Trunk Circuit 3
35	R-S	TTK3	Tip-CO Trunk Circuit 3
10	S-R	RTK3	Ring-CO Line Port 3
36	BK-BL	TLC3	Tip-PBX Line Port 3
11	BL-BK	RLC3	Ring-PBX Line Port 3
37	BK-O	TST3	Tip-Emergency Terminal 3
12	O-BK	RST3	Ring-Emergency Terminal 3
38	BK-G	TTC4	Tip-PBX Trunk Circuit 4
13	G-BK	RTC4	Ring-PBX Trunk Circuit 4
39	BK-BR	TTK4	Tip-CO Trunk Circuit 4
14	BR-BK	RTK4	Ring-CO Trunk Circuit 4
40	BK-S	TLC4	Tip-PBX Line Port 4
15	S-BK	RLC4	Ring-PBX Line Port 4

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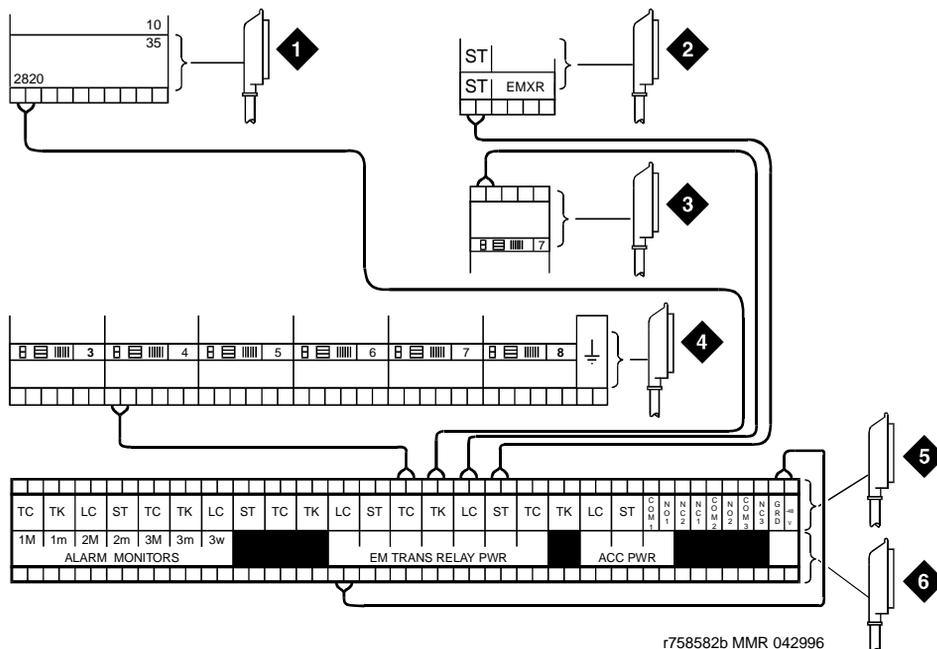
**Table 1-21. Pin Assignments for 25-Pair Connector on 808A — Continued**

Pin	Color	Designation	Connector/Description
41	Y-BL	TST4	Tip-Emergency Terminal 4
16	BL-Y	RST4	Ring-Emergency Terminal 4
42	Y-O	TTC5	Tip-PBX Trunk Circuit 5
17	O-Y	RTC5	Ring-PBX Trunk Circuit 5
43	Y-G	TTK5	Tip-CO Trunk Circuit 5
18	G-Y	RTK5	Ring-CO Trunk Circuit 5
44	Y-BR	TLC5	Tip-PBX Line Port 5
19	BR-Y	RLC5	Ring-PBX Line Port 5
45	Y-S	TST5	Tip-Emergency Terminal 5
20	S-Y	RST5	Ring-Emergency Terminal 5
46	V-BL	COM1	Common 1 Relay Contact
21	BL-V	NO1	Normally Open 1 Contact
47	V-O	NC2	Normally Closed 2 Contact
22	O-V	NC1	Normally Closed 1 Contact
48	V-G	COM2	Common 2 Relay Contact
23	G-V	NO2	Normally Open 2 Contact
49	V-BR		
24	BR-V		
50	V-S	GRD	Ground From PBX
25	S-V	-48PX	-48V from Alarm Panel (AUX Cable)

9. Check the system for emergency transfer operation as follows:
  - a. Place the test switch (switch 12) in the ACTIVATED position.
  - b. The power LED should be OFF.
  - c. Verify there is dial tone on all emergency transfer sets.
10. Connect the 808A to the MDF with a B25A or A25B cable. [Figure 1-47](#) shows the connections at the trunk/auxiliary field for a telephone used only for emergency transfer.



Figure 1-48 shows the connections at the trunk/auxiliary field for a telephone used for emergency transfer and as a normal extension.



r758582b MMR 042996

### Figure Notes

1. To network interface facility
2. To blue or white station field
3. To analog line circuit pack
4. To CO trunk circuit pack
5. To power transfer unit
6. To control carrier AUX connector

Figure 1-48. Connections for Telephone Used for Emergency Transfer and as Normal Extension

## Install Telephone for Power Transfer Unit

### Trunk/Auxiliary Field: Telephone Used Only for Emergency Transfer

1. Connect a pair of wires between the -48V and GRD terminals on the yellow emergency transfer row/connecting block and the EM TRANS RELAY PWR terminal. See Figure 1-47 on page 1-102.
2. Connect CO trunk leads from the purple field to the TC terminals on the yellow emergency transfer row/connecting block for each trunk.
3. Connect CO trunk leads from the green field to the TK terminals on the yellow emergency transfer row/connecting block for each trunk.

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*Install Emergency Transfer Unit and Associated Telephones*

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4. Connect the ST leads on the yellow emergency transfer row/connecting block for each emergency transfer telephone to the ST terminal appearance in the yellow trunk/auxiliary field. The ST terminal leads should be terminated on the following pairs: 1, 4, 7, 10, 13, 16, 19, or 22 (the first pair of any 3-pair group).
5. Connect the ST leads from the terminal in Step 4 to the assigned terminal in the blue or white station distribution field.

### **Trunk/Auxiliary Field: Telephone Used for Emergency Transfer and as Normal Extension**

1. Connect a pair of wires between the -48V and GRD terminals on the yellow emergency transfer row/connecting block to the EM TRANS RELAY PWR terminal. See [Figure 1-48 on page 1-103](#).
2. Connect CO trunk leads from the purple field to the TC terminals on the yellow emergency transfer row/connecting block for each trunk.
3. Connect CO trunk leads from the green field to the TK terminals on the yellow emergency transfer row/connecting block for each trunk.
4. Connect telephone leads from the purple analog line board row/ connecting block to the LC terminals on the yellow emergency transfer row/connecting block for each telephone.
5. Connect ST leads on the yellow emergency transfer row/connecting block for each emergency transfer telephone to the ST terminal appearance in the purple trunk/auxiliary field.
6. Connect the ST leads from the terminal in Step 5 to the assigned terminal in the blue or white station distribution field.

### **Telephone Installation**

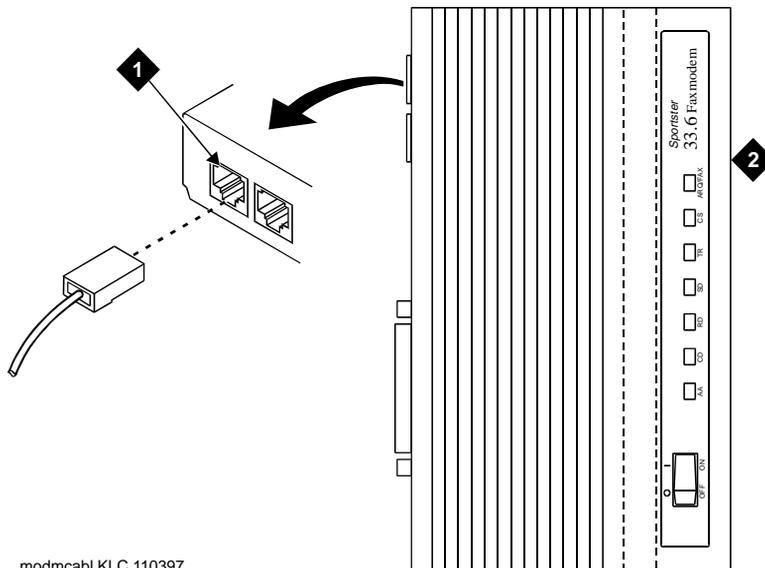
1. Connect the telephone to the information outlet.
2. Install patch cords/jumper wires between the system side and the station side of the station distribution field on the MDF.

# Connect Modem to Telephone Network

1. Cross-connect the network jack on the modem to the network interface (via a 103A or modular wall jack). See [Table 1-22](#) for the pinout.

**Table 1-22. Pinout of Network Jack**

Pin Number	Signal
1	Unused
2	Tip
3	Ring
4	Unused



modmcabl KLC 110397

## Figure Notes

1. Pin 1 of network jack

2. Modem

**Figure 1-49. Network Jack on U.S. Robotics Modem**

## External Modem Option Settings

---

The U.S. Robotics Sportster Model USR 33.6 EXT external modem is the recommended external modem for Release 10 CMC. A locally obtained, type-approved external modem may be used. Contact your Avaya representative for information.

1. If a non-U.S. Robotics Model 839 modem is installed, refer to the setup instructions provided with that modem. Refer to [Table 1-24 on page 1-107](#) while setting up the modem. Go to Step 4 to complete the modem administration.
2. If no modem is installed, skip to step 5. If a U.S. Robotics Model 839 modem is installed, perform the following.
3. Use [Table 1-23](#) to set the 8 option switches on the U.S. Robotics modem

Table 1-23. U.S. Robotics Model 839 External Modem Dip Switch Settings

Dip Switch	Setting	Description
1	UP DOWN	<b>Data Terminal Ready normal</b> Data Terminal Ready override
2	UP DOWN	<b>Verbal result codes</b> Numeric result codes
3	UP DOWN	Suppress result codes <b>Display result codes</b>
4	UP DOWN	<b>Echo offline commands</b> No echo, offline commands
5	UP DOWN	<b>Auto answer on first ring or higher if specified in NVRAM</b> Auto answer off
6	UP DOWN	<b>Carrier detect normal</b> Carrier detect override
7	UP DOWN	<b>Load NVRAM defaults</b> Load factory defaults
8	UP DOWN	Dumb mode <b>Smart mode</b>

4. Type **change system-parameters maintenance** and press Enter. Scroll to page 3 of the form.

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Connect Modem to Telephone Network

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5. Set the Modem Connection: field to **external** if a modem is installed. Set the field to **none** if no modem is installed. This field must be administered or alarms will be generated.



**NOTE:**

The Modem Connection: field cannot be set to **none** if Alarm Origination is activated.

6. Set the Data Bits: field to **8** (default).
7. Set the Parity: field to **none** (default).
8. For non-United States installations, set the remaining modem fields as shown in [Table 1-24](#).
9. Press Enter when the modem fields are properly administered.

**Table 1-24. CMC Modem Fields**

Field	Description
Modem Connection	Default is <b>none</b> . Set to <b>external</b> if a modem is used.
Modem Name	This field is 20 characters long and permits alphanumeric characters to provide a unique qualifier for a given modem.
RTS/CTS Enabled	Informs modem that communication with the data source UART is driven with RTS/CTS flow control. The default 6-character field name is <b>&amp;H1</b> . Set the field name to \Q3 for Intel modems. This field is not case-sensitive.
Asynchronous Data Mode	Configures modem as an asynchronous device. This 8-character field name has a default value of <b>&amp;M0</b> . Set the field to &M0&Q0 for Intel modems. This field is not case-sensitive.
DTE Auto-Data Speed	Adjusts the speed of the data source (DTE) UART to the outgoing (modem-to-modem) data rate. At maximum, this speed is 9600 baud. It is not desirable to have the serial data fill the modem buffer faster than the outgoing data rate, since data compression is disabled. The field name has a 6-character blank default value. The Paradyne products use S90=1 to enable this functionality while the Intel product uses \J1 to enable similar functionality. This field is not case-sensitive.
Disable Data Compression	Turns off the default data compression algorithms used by most modems. The field has a blank field of 6 characters as default. The AT commands that control this are supported by similar commands; however, these commands do not operate in the same manner. The Intel modems require H0%C0 to disable V.42bis & MNP Class 5 data compression algorithms. The Paradyne products only use %C0 to disable both algorithms. This field is not case-sensitive.

*Continued on next page*

Table 1-24. CMC Modem Fields — *Continued*

Field	Description
Enable Error Control	Turns on the V.42 LAPM and MNP error control protocols. The field has a blank default of 6 characters. The Paradyne products use the command \N5 to enable V.42/MNP/Buffer error control while the Intel product uses \N3 to provide similar functionality.
Misc. Init. Param	This field has a 20-character blank default and supports any initialization parameters not already specified. The AT commands specified in this field are always the last initialization parameters to be sent to the external modem. This field is not case-sensitive.
Auto-Answer Ring Number	This field controls the number of rings required before the modem answers an incoming call. This field should be set to S0=10.
Dial Type	This field controls the type of interregister signaling used between the modem and the CO. This 3-character field is denoted by "T" for tone dialing (default) and "P" for pulse dialing. This setting depends on type of line (tone or pulse) to the modem.
Adjustable Make/Break Ratio	This field controls the make/break ratios of pulses and DTMF dialing. Most modems have support for different make/ break options for pulse dialing only. Paradyne, Intel, and U.S. Robotics use the default <b>&amp;P0</b> to select a ratio of 39% make and 61% break for communication for the United States and Canada. The option <b>&amp;P1</b> sets a ratio of 33% make and 67% break for the United Kingdom and Hong Kong. This is a 5-character blank field (default) and is not case-sensitive.
Dial Command	This field has a default of "D" in a 3-character field. This field denotes the standard dialing command of the modem and is not case-sensitive.
No Answer Time-Out	Most modems provide a timer that abandons any outbound data call after a predetermined interval. This is a non-administrable parameter.

## Completing Installation and Cable Pinouts

# 2

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### System Administration

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 **NOTE:**

Some of the interface units used between the system and other types of equipment require specific configuration settings and administration for each application. Refer to the user's guide for each equipment type for information on how to locate and set the configuration and option switches.

1. Administer the system by adding the customer data to match the wiring, telephones, and other equipment. See *DEFINITY Enterprise Communications Server Administrator's Guide*.
2. Return to this section when finished.

 **NOTE:**

Refer to *DEFINITY Enterprise Communications Server Installation for Adjuncts and Peripherals*, for data module and other peripheral installation and configuration requirements.

## Alarms and Reporting

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### Resolve Alarms

---

1. Examine the alarm log. Resolve any alarms using *DEFINITY Enterprise Communications Server Maintenance for R10csi*.
2. Refer to [“Power Supply LED Indications” on page 2-8](#) if power supply faults are suspected.

### Enable Alarm Origination to INADS

---

#### No External Modem Installed (or No Alarm Origination to INADS)

1. Type **change system-parameters maintenance** and press Enter.
2. Type **n** in the *Alarm Origination Activated to OSS Numbers* field and press Enter.
3. For some software releases, enable *Cleared Alarm Notification* and *Restart Notification* before the submitting the form.

#### External Modem Installed

1. Type **change system-parameters maintenance** and press Enter.
2. Type **y** in the *Alarm Origination Activated to OSS Numbers* field and press Enter.
3. For some software releases, enable *Cleared Alarm Notification* and *Restart Notification* before the submitting the form.
4. Be sure the system is part of the INADS database by calling the INADS Database Administrator at the Technical Service Center (TSC). Verify that INADS can dial into the system and that the system can dial out to INADS.

#### NOTE:

When calling from a remote modem, you may need to disable error correction to allow the modems to connect successfully. For example, the AT&T Paradyne KeepInTouch<sup>®</sup> modem may require the “ATn0” command.

## Register the Switch for Maintenance

---

The Automatic Registration Tool (ART) is a web-based tool that permits field technicians and TSO Database Administration (DBA) to register U.S. direct channel products.

The product that you are registering must have switch connectivity through:

- the INADS line
- an IP address



**NOTE:**

ART is not accessible from the public internet (outside the Avaya intranet firewall).

1. At your laptop/PC, direct your browser to this URL:

**<http://spiexp1.eng.avaya.com:8000/cgi-bin/ART/ARTstart.cgi>**

You can also save this URL in your *Favorites* or *Bookmarks* list.

The ART User Menu displays.

2. Click on the *Register a Product* button.

The Enter Network Password dialog box appears.

3. Type your ART **User Name** and **Password** in the indicated fields.



**NOTE:**

ART user IDs and passwords are unique to ART, and are not the same as other user IDs and passwords. If you are a first-time user and do not have an ART user ID and password:

- a. Go back to the ART User Menu and click on the *Administer My User ID/Password* button.
- b. Follow the instructions on the User ID and Password page to create your ART user ID and password.

Unless you exit and restart your browser, you do not need to re-enter your user ID and password to perform other ART operations.

The ART Start of Product Registration page appears, and the ART session ID appears in the middle of the screen.

4. Type the Installation Location or Sold-To data in the **FL/Sold-To Number** field.



**NOTE:**

Sold-To number replaces the FL numbers as customer-site identifiers in the Maestro database.

- Sold-To numbers are typically 7 digits long, sometimes beginning with an upper-case “S” followed by two zeros, for example: **S001234567**.
  - FL numbers are 10-12 letters or digits.
5. In the **Session Type** field, select:
    - *NEW INSTALL REGISTRATION* for products that are initially installed at a customer site.
    - *UPGRADE REGISTRATION* for all subsequent product registrations.
  6. In the **Product Type** field choose *DEFINITY* for the following products:
  7. Click on the *Start Product Registration* button.

If the data you have entered matches a Maestro database record, the Customer Verification page appears.

8. Verify the information in the **Customer Name** and **Customer Address** fields.



**NOTE:**

If the information is not what you expected, ensure that you entered the customer’s FL/Sold-To number correctly (Step 4 above). If you entered an incorrect number:

- a. Click on the *Abort Upgrade Registration Session* button at the bottom of the screen.



**CAUTION:**

*DO NOT exit your browser to abort the session. This can result in an incomplete upgrade registration.*

- b. Return to the ART User Menu page to begin a new session.

If the FL/Sold-To number matches multiple customers in the database, ART displays the name and address of each customer with a button to select for this registration session.

9. In the **Customer Type** field, select
  - *GOODYEAR, MOTEL 6, STATE FARM*
  - *IN CINCINNATI BELL SERVICE AREA*
  - *OTHER*



**NOTE:**

This verification might be done automatically in the future.

10. Click on the *Continue Upgrade Registration* button.

The DEFINITY Product List page appears.

11. Look in the product table (first column heading is "#") to find the row for the product that you want to register. Click on the number in the far-left column ("#") of the correct row.



**NOTE:**

It might be helpful to identify the product by looking at the *Product Nickname, Product Alarm ID, INADS Number, Serial Number, or IP Address* columns in the table.

If the product is not shown in the table, or if you are not sure whether a listed product is the one you want to register, contact the DBA group for assistance (1-800-248-1234, selecting prompt, 2, prompt 6, then prompt 2).

Four new fields appear.

12. In the **Data Lock** field, choose:
  - *YES* for products with ASG enabled
  - *NO* for all others
13. In the **Dialing Type** field choose the dialing type that the product will use to report alarms:
  - *DON'T CHANGE* to leave the product's dialing type unchanged
  - *TONE* for DTMF dialing
  - *PULSE* for rotary or pulse dialing
14. In the **Alarm Origination** field choose:
  - *DON'T CHANGE* to leave the product's current alarm origination status unchanged (the common choice for upgrades).
  - *YES* to enable alarm origination.
  - *NO* for no alarm origination.

15. In the **Alarm Destination** field, choose
  - *DON'T CHANGE* to leave the product's currently-administered alarm origination number unchanged (the common choice for upgrades).
  - *SET NUMBER TO* and type the complete alarm destination telephone number, including any dialing prefix (for example, "9" or "\*9"). The default value in this field is the TSO-Denver number (18005353573).
16. Click on the *Continue Registration* button at the bottom of the page.

ART begins automatically registering the product and displays progress messages to indicate the current status.



**CAUTION:**

*DO NOT exit your browser or click on the Refresh, Back, Stop, or Home buttons while ART displays these progress messages.*

*If you have to abort your registration, click on the **Abort Session** button that appears with one of the progress messages.*

If the preceding steps have been completed successfully, ART displays the DEFINITY Upgrade Registration Report.

17. Review the information displayed in the report.

If any of the data are incorrect, contact the DBA Group (1-800-248-1234, selecting prompt, 2, prompt 6, then prompt 2) immediately for assistance.
18. Save the DEFINITY Upgrade Registration Report in a file for future reference or print the report and keep the copy.

## Place a Test Call

---

1. From any telephone connected to a digital line circuit pack, call any nearby telephone connected to an analog line circuit pack.
2. Verify that the dial tone, ringing pattern, and talk path are acceptable.
3. Place a call through the Central Office (outside call) to any nearby telephone. Verify that the dial tone, ringing pattern, and talk path are acceptable.

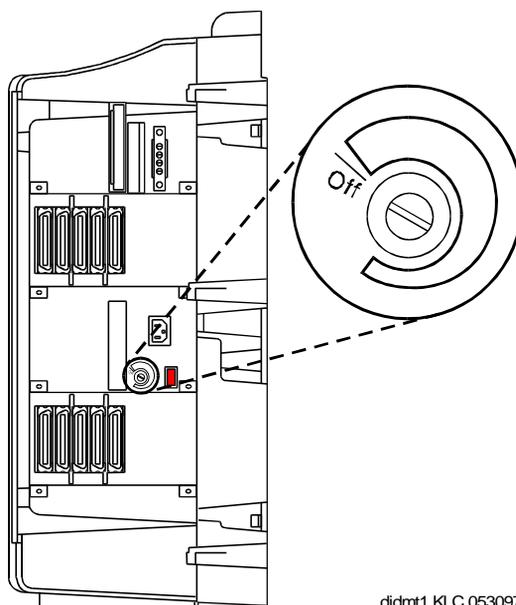
## Set Neon Voltage — Ring Ping

⇒ NOTE:

If the ringing option is set to 50 Hz, neon voltage is not available. If 25 Hz is selected, the maximum voltage is 120 volts. Refer to [“Set Ringing Option” on page 1-53](#).

⇒ NOTE:

Set the control to OFF if there are no *neon* message waiting lamps or if LED message lamps are used. See [Figure 2-1](#).



didmt1 KLC 053097

Figure 2-1. Setting the Neon Voltage

1. Call a telephone with a neon message indicator and leave a message.
2. Check for “ring ping” (single ring pulse) each time the lamp flashes (approximately every 3 seconds).
3. Adjust the control clockwise in small increments until the ring ping stops. Be sure that the message lamp still lights when the adjustment is finished.

## Installation Completion

---

1. Type **logoff** and press Enter to prevent unauthorized changes to data.
2. Set the left and right doors onto the hinge pins and close the doors. The doors must be closed to prevent EMI emissions. Tighten the door screws.
3. Set the right cover panel onto the right panel and secure. Do not use force.

## Power Supply LED Indications

---

It is not possible to view the alarm log to determine which power unit in a multi-cabinet system is defective. Use the LEDs on the front of each power unit to determine its state.

[Table 2-1](#) shows the LED and alarm conditions. Ring voltage and neon bus output do not activate alarm status.

**Table 2-1. LED and Alarm Conditions**

Condition	LED Status	Alarm State	Fan Alarm
Normal	Red off Yellow on	open	high
No Input Power	Red off Yellow off	closed	open
Any DC Output not Present	Red on Yellow off	closed	no state
Fan Alarm	Red on Yellow off	closed	low

---

## TN760D Tie Trunk Option Settings

The TN760D Tie Trunk circuit pack interfaces between 4 tie trunks and the TDM bus. Two tip and ring pairs form a 4-wire analog transmission line. An E and M pair are DC signaling leads used for call setup. The E-lead receives signals from the tie trunk and the M-lead transmits signals to the tie trunk.

To choose the preferred signaling format (Table 2-2 and Table 2-3), set the switches on the TN760D and administer the port using Figure 2-2 on page 2-10 and Table 2-4 on page 2-10.

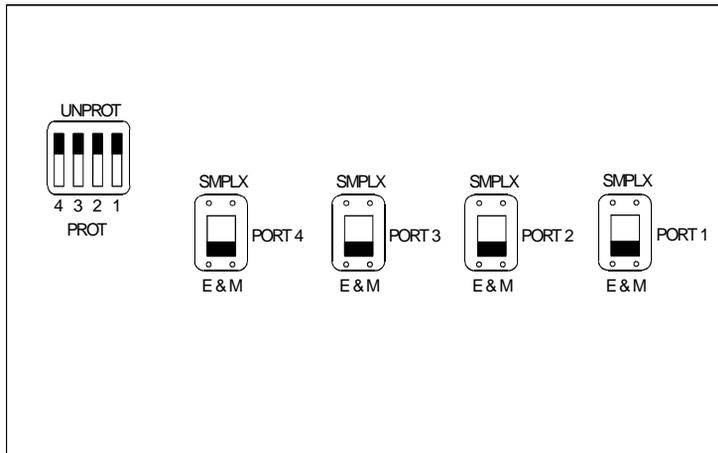
Table 2-2. Signaling Formats for TN760D

Mode	Type
E & M	Type I Standard (unprotected)
E & M	Type I Compatible (unprotected)
Protected	Type I Compatible, Type I Standard
Simplex	Type V
E & M	Type V
E & M	Type V Revised

Table 2-3. Signaling Type Summary

Signaling Type	Transmit (M-Lead)		Receive (E-Lead)	
	On-Hook	Off-Hook	On-Hook	Off-Hook
Type I Standard	ground	battery	open <sup>1</sup> /battery	ground
Type I Compatible	open <sup>1</sup> /battery	ground	ground	open <sup>1</sup> /battery
Type V	open <sup>1</sup> /battery	ground	open	ground
Type V Reversed	ground	open	ground	open

1. An open circuit is preferred instead of battery voltage.



r758183 RBP 050896

Figure 2-2. TN760D Tie Trunk Circuit Pack (Component Side)

Table 2-4. TN760D Option Switch Settings and Administration

Installation Situation		Preferred Signaling Format		E&M/SMPLX Switch	Prot/Unprot Switch	Administered Port
Circumstance	To	System	Far-End			
Collocated	DEFINITY	E&M Type 1 Compatible	E&M Type 1 Standard	E&M	Unprotected	Type 1 Compatible
Inter-Building	DEFINITY	Protected Type 1 Compatible	Protected Type 1 Standard Plus Protection Unit	E&M	Protected	Type 1 Compatible
Collocated	Net Integrated	E&M Type 1 Standard	Any PBX	E&M	Unprotected	Type 1

## TN464F/GP and TN2464BP Option Settings

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The TN464F/GP DS1/E1 Interface - T1/E1 circuit pack interfaces between a 24- or 32-channel Central Office/ISDN or tie trunk and the TDM bus.

**NOTE:**

The P designation means the circuit pack is programmable, a feature available with Release 9 or later. Refer to [“Downloading Firmware to Port Circuit Packs”](#) on page 5-2 for more information.

Set the switches on the circuit pack to select bit rate and impedance match. See [Table 2-5](#) and [Figure 2-3](#) on page 2-12. If the top switch setting is set to 32 channel, then set the lower switch setting to either 120 ohms or 75 ohms.

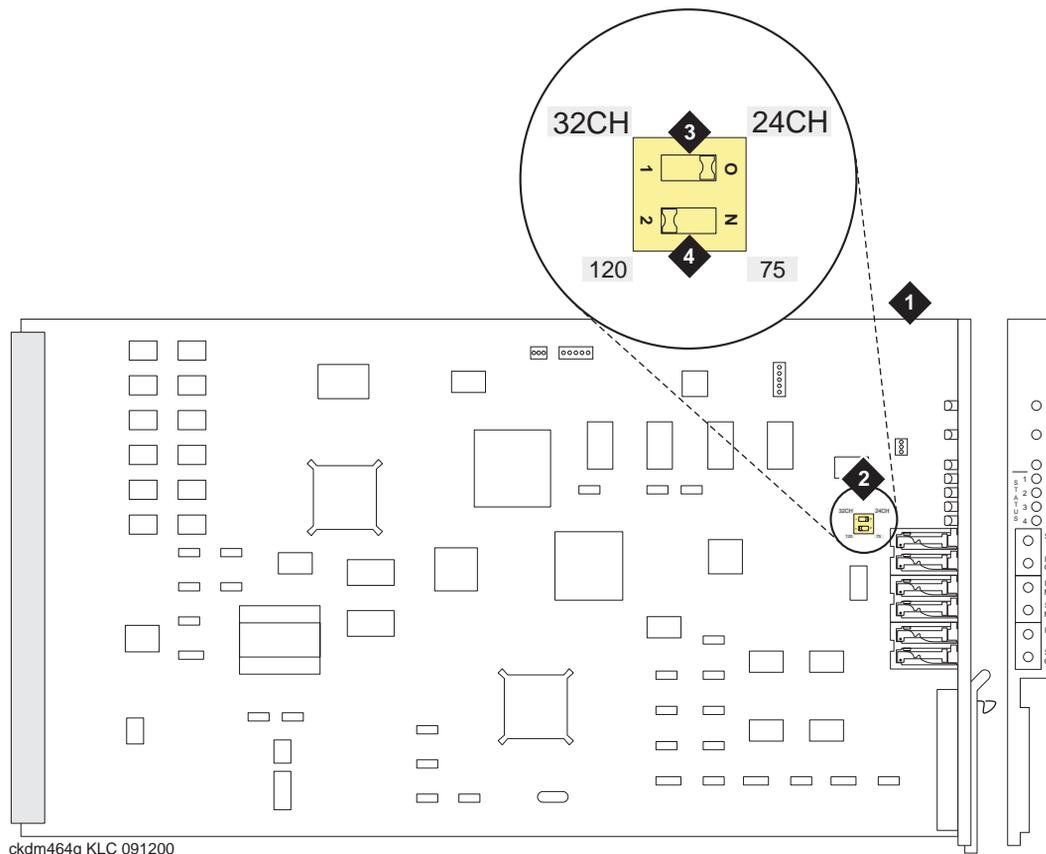
**Table 2-5. Option Switch Settings on TN464F/GP and TN2464BP**

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120 ohms	Twisted pair
75 ohms	Coaxial requiring 888B adapter
32 Channel <sup>1</sup>	2.048 Mbps
24 Channel <sup>1</sup>	1.544 Mbps

---

1. If the 24/32 channel switch is not set per administration (or vice versa), the circuit pack alarms and will not be present in the list configuration command.
-



**Figure Notes**

- |  |                           |
|--|---------------------------|
| 1. TN464F/GP or TN2464BP<br>DS1/E1 Interface | 3. 24/32 Channel Selector |
| 2. Option switch                             | 4. 75/120 ohm Selector    |

Figure 2-3. TN464F/GP and TN2464BP Option Settings

## Connector and Cable Diagrams — Pinout Charts

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See [Table 2-6](#) for typical lead designations. The circuit packs and auxiliary equipment are classified as shown in the following tables.

**Table 2-6. Lead and Color Designations**

Cross-Connect Pin	Color	Amphenol Pin	Backplane Pin
1	W-BL	26	102
2	BL-W	01	002
3	W-O	27	103
4	O-W	02	003
5	W-G	28	104
6	G-W	03	004
7	W-BR	29	105
8	BR-W	04	005
9	W-SL	30	106
10	SL-W	05	006
11	R-BL	31	107
12	BL-R	06	007
13	R-O	32	108
14	O-R	07	008
15	R-G	33	109
16	G-R	08	009
17	R-BR	34	110
18	BR-R	09	010
19	R-SL	35	111
20	SL-R	10	011
21	BK-BL	36	112
22	BL-BK	11	012
23	BK-O	37	113
24	O-BK	12	013

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*Continued on next page*

Table 2-6. Lead and Color Designations — *Continued*

Cross-Connect Pin	Color	Amphenol Pin	Backplane Pin
25	BK-G	38	302
26	G-BK	13	202
27	BK-BR	39	303
28	BR-BK	14	203
29	BK-SL	40	304
30	SL-BK	15	204
31	Y-BL	41	305
32	BL-Y	16	205
33	Y-O	42	306
34	O-Y	17	206
35	Y-G	43	307
36	G-Y	18	207
37	Y-BR	44	308
38	BR-Y	19	208
39	Y-SL	45	309
40	SL-Y	20	209
41	V-BL	46	310
42	BL-V	21	210
43	V-O	47	311
44	O-V	22	211
45	V-G	48	312
46	G-V	23	212
47	V-BR	49	313
48	BR-V	24	213
49	V-SL	50	300
50	SL-V	25	200

## Processor Interface Cable Pinout

Table 2-7 shows the pinout for the Processor Interface Cable.

Table 2-7. Processor Interface Cable Pinout

Signal Name	Processor (P1) (Amphenol Connector)	AUX (J1)	TERM (J3)	DCE (J2)	Modem (P2)
ACC48A	40	19			
AP1 (alarm in)	2	26			
AP2 (alarm in)	27	27			
EXTALMA	5	48			
EXTALMB	30	23			
XFER48	38	36			
MOD-CTS	21				5
MOD-DCD	46				8
MOD-DSR	8				6
MOD-DTR	7				20
MOD-GRD	20				1 & 7
MOD-RTS	34				4
MOD-RXD	33				3
MOD-TXD	45				2
TERM-CTS	9		5		
TERM-DTR	47		20		
TERM-GRD	35		1 & 7		
TERM-RXD	10		3		
TERM-TXD	22		2		
CDR-CTS	49			5	
CDR-DCD	24			8	
CDR-DSR	12			6	
CDR-DTR	37			20	
CDR-GRD	23			1 & 7	
CDR-RXD	36		3	3	
CDR-TXD	48		2	2	
GRD	25, 50	1-7, 11-17, 44-46	1, 7	1, 7	1, 7

2 Completing Installation and Cable Pinouts  
Connector and Cable Diagrams — Pinout Charts

2-16

Table 2-8. Port Circuit Pack Lead Designations

Cross-Connect Pin	TN742/B TN747B TN753 TN769 TN2147 TN465	TN754 TN726	TN760/B TN760C TN760D TN2209	TN762/B	TN763 TN763B TN763C	TN735	TN767B TN464GP TN2207	TN746/B TN2183 TN793 TN2793	TN2224/B
1	T.1		T.1	T.1	T.1	T.1	C_5	T.1	T.1
2	R.1		R.1	R.1	R.1	R.1		R.1	R.1
3		TXT.1	T1.1	TXT.1	SZ.1	BT.1	C_ENAB	T.2	T.2
4		TXR.1	R1.1	TXR.1	SZ1.1	BR.1		R.2	R.2
5		PXT.1	E.1	PXT.1	S.1	LT.1	C_SYNC*	T.3	T.3
6		PXR.1	M.1	PXR.1	S1.1	LR.1		R.3	R.3
7	T.2		T.2	T.2	T.2	T.2	C2D-DATA	T.4	T.4
8	R.2		R.2	R.2	R.2	R.2	RDATA*	R.4	R.4
9		TXT.2	T1.2	TXT.2	SZ.2	BT.2	TDATA*		T.5
10		TXR.2	R1.2	TXR.2	SZ1.2	BR.2	TRSYSNC		R.5
11		PXT.2	E.2	PXT.2	S.2	LT.2	GRD		T.6
12		PXR.2	M.2	PXR.2	S1.2	LR.2	SCLK*		R.6
13	T.3		T.3	T.3	T.3	T.3			T.7
14	R.3		R.3	R.3	R.3	R.3			R.7
15		TXT.3	T1.3	TXT.3	SZ.3	BT.3			T.8
16		TXR.3	R1.3	TXR.3	SZ1.3	BR.3	PAHER*		R.8
17		PXT.3	E.3	PXT.3	S.3	LT.3		T.5	T.9
18		PXR.3	M.3	PXR.3	S1.3	LR.3	C_48V	R.5	R.9
19	T.4		T.4	T.4	T.4	T.4		T.6	T.10
20	R.4		R.4	R.4	R.4	R.4		R.6	R.10
21		TXT.4	T1.4	TXT.4	SZ.4	BT.4	C_P2SCLK	T.7	T.11
22		TXR.4	R1.4	TXR.4	SZ1.4	BR.4	LI (RX)	R.7	R.11
23		PXT.4	E.4	PXT.4	S.4	LT.4	LO* (TX)	T.8	T.12
24		PXR.4	M.4	PXR.4	S1.4	LR.4	LBACK1	R.8	R.12
25	T.5		T.5	T.5	T.5	T.5	GND	T.9	T.13
26	R.5		R.5	R.5	R.5	R.5	C_5V	R.9	R.13
27		TXT.5	T1.5	TXT.5	SZ.5	BT.5		T.10	T.14
28		TXR.5	R1.5	TXR.5	SZ1.5	BR.5		R.10	R.14
29		PXT.5	E.5	PXT.5	S.5	LT.5		T.11	T.15
30		PXR.5	M.5	PXR.5	S1.5	LR.5	C_RST	R.11	R.15
31	T.6		T.6	T.6	T.6	T.6		T.12	T.16
32	R.6		R.6	R.6	R.6	R.6		R.12	R.16
33		TXT.6	T1.6	TXT.6	SZ.6	BT.6	RDATA		T.17
34		TXR.6	R1.6	TXR.6	SZ1.6	BR.6	TDATA		R.17
35		PXT.6	E.6	PXT.6	S.6	LT.6	TRSYNC		T.18
36		PXR.6	M.6	PXR.6	S1.6	LR.6	GRD		R.18
37	T.7		T.7	T.7	T.7	T.7	SCLK		T.19
38	R.7		R.7	R.7	R.7	R.7			R.19
39		TXT.7	T1.7	TXT.7	SZ.7	BT.7			T.20

Continued on next page

Table 2-8. Port Circuit Pack Lead Designations — Continued

Cross-Connect Pin	TN742/B TN747B TN753 TN769 TN2147 TN465	TN754 TN726	TN760/B TN760C TN760D TN2209	TN762/B	TN763 TN763B TN763C	TN735	TN767B TN464GP TN2207	TN746/B TN2183 TN793 TN2793	TN2224/B
40		TXR.7	R1.7	TXR.7	SZ1.7	BR.7			R.20
41		PXT.7	E.7	PXT.7	S.7	LT.7	GRD	T.13	T.21
42		PXR.7	M.7	PXR.7	S1.7	LR.7		R.13	R.21
43	T.8		T.8	T.8	T.8	T.8	C_PRES*	T.14	T.22
44	R.8		R.8	R.8	R.8	R.8		R.14	R.22
45		TXT.8	T1.8	TXT.8	SZ.8	BT.8		T.15	T.23
46		TXR.8	R1.8	TXR.8	SZ1.8	BR.8	DC2_DATA	R.15	R.23
47		PXT.8	E.8	PXT.8	S.8	LT.8	LI* (RX)	T.16	T.24
48		PXR.8	M.8	PXR.8	S1.8	LR.8	LO (TX)	R.16	R.24
49	GRD	GRD	GRD	GRD	GRD	GRD	LBACK2	GRD	GRD
50	GRD	GRD	GRD	GRD	GRD	GRD	GRD	GRD	GRD

\* Denotes high side of line.

Table 2-9. DS1Interface Cable H600-307 (and C6C)

50-Pin			15-Pin		
Pin	Color	Designation	Pin	Color	Designation
02	W-BL				
03	BL-W				
47	W-G	LI (High)	11	W-G	LI (High)
22	G-W	LI	03	G-W	LI
48	W-BR	LO	09	W-BR	LO
23	BR-W	LO (High)	01	W-BR	LO (High)
49	W-SL	LOOP2	06	W-SL	LOOP2
24	SL-W	LOOP1	05	SL-W	LOOP1

All other pins are empty.

Table 2-10 shows the pinouts for the TN2185 ISDN-BRI 4-wire S Interface.

**Table 2-10. TN2185 ISDN-BRI — 4-Wire S Interface Pinout**

Port	Signal	Cross-Connect Pin	Color	Amphenol Pin	Backplane Pin
1	TXT.1	1	W-BL	26	102
	TXR.1	2	BL-W	01	002
	PXT.1	3	W-O	27	103
	PXR.1	4	O-W	02	003
2	TXT.2	5	W-G	28	104
	TXR.2	6	G-W	03	004
	PXT.2	7	W-BR	29	105
	PXR.2	8	BR-W	04	005
3	TXT.3	9	W-SL	30	106
	TXR.3	10	SL-W	05	006
	PXT.3	11	R-BL	31	107
	PXR.3	12	BL-R	06	007
4	TXT.4	13	R-O	32	108
	TXR.4	14	O-R	07	008
	PXT.4	15	R-G	33	109
	PXR.4	16	G-R	08	009
5	TXT.5	17	R-BR	34	110
	TXR.5	18	BR-R	09	010
	PXT.5	19	R-SL	35	111
	PXR.5	20	SL-R	10	011
6	TXT.6	21	BK-BL	36	112
	TXR.6	22	BL-BK	11	012
	PXT.6	23	BK-O	37	113
	PXR.6	24	O-BK	12	013
7	TXT.7	25	BK-G	38	302
	TXR.7	26	G-BK	13	202
	PXT.7	27	BK-BR	39	303
	PXR.7	28	BR-BK	14	203
8	TXT.8	29	BK-SL	40	304
	TXR.8	30	SL-BK	15	204
	PXT.8	31	Y-BL	41	305
	PXR.8	32	BL-Y	16	205

Table 2-11 shows the pinout for the TN793 and TN2793 24-Port Analog Line circuit pack.

**Table 2-11. TN793 Analog Line Circuit Pack Pinout**

Port	Signal	Cross-Connect Pin	Color	Amphenol Pin	Backplane Pin
1	T.1	1	W-BL	26	102
	R.1	2	BL-W	01	002
2	T.2	3	W-O	27	103
	R.2	4	O-W	02	003
3	T.3	5	W-G	28	104
	R.3	6	G-W	03	004
4	T.4	7	W-BR	29	105
	R.4	8	BR-W	04	005
5	T.5	9	W-SL	30	106
	R.5	10	SL-W	05	006
6	T.6	11	R-BL	31	107
	R.6	12	BL-R	06	007
7	T.7	13	R-O	32	108
	R.7	14	O-R	07	008
8	T.8	15	R-G	33	109
	R.8	16	G-R	08	009
9	T.9	17	R-BR	34	110
	R.9	18	BR-R	09	010
10	T.10	19	R-SL	35	111
	R.10	20	SL-R	10	011
11	T.11	21	BK-BL	36	112
	R.11	22	BL-BK	11	012
12	T.12	23	BK-O	37	113
	R.12	24	O-BK	12	013
13	T.13	25	BK-G	38	302
	R.13	26	G-BK	13	202

*Continued on next page*

Table 2-11. TN793 Analog Line Circuit Pack Pinout — *Continued*

Port	Signal	Cross-Connect Pin	Color	Amphenol Pin	Backplane Pin
14	T.14	27	BK-BR	39	303
	R.14	28	BR-BK	14	203
15	T.15	29	BK-SL	40	304
	R.15	30	SL-BK	15	204
16	T.16	31	Y-BL	41	305
	R.16	32	BL-Y	16	205
17	T.17	33	Y-O	42	306
	R.17	34	O-Y	17	206
18	T.18	35	Y-G	43	307
	R.18	36	G-Y	18	207
19	T.19	37	Y-BR	44	308
	R.19	38	BR-Y	19	208
20	T.20	39	Y-SL	45	309
	R.20	40	SL-Y	20	209
21	T.21	41	V-BL	46	310
	R.21	42	BL-V	21	210
22	T.22	43	V-O	47	311
	R.22	44	O-V	22	211
23	T.23	45	V-G	48	312
	R.23	46	G-V	23	212
24	T.24	47	V-BR	49	313
	R.24	48	BR-V	24	213
25		49	V/SL	50	314
50		50	SL/V	25	214

**Table 2-12. Circuit Pack and Auxiliary Equipment Classifications**

Analog Line (8)	2-Wire Digital & Analog Line (16) and (24)	Data Line & Digital Line 4-Wire	2-Wire Digital & Analog 24 Ports	Hybrid Line	MET <sup>1</sup> Line	AUX Trunk	Central Office Trunk	Central Office Trunk 3-Wire	DID/DIOD <sup>2</sup> Trunk	Tie Trunk	DS1 Tie Trunk	Four Port DIOD <sup>3</sup>
TN467	TN2149	TN726B	TN2224	TN762	TN735	TN417	TN429	TN2199	TN429	TN478	TN483	TN2184
TN432	TN2135	TN754B	TN2214	TN762B		TN763	TN493		TN2139	TN458	TN722	
TN431	TN468B	TN564B	TN793			TN763 D	TN422		TN459B	TN449	TN767	
TN411B	TN448	TN413	TN2793				TN421		TN436B	TN760 D	TN722B	
TN742	TN746		TN2214B				TN438B		TN753	TN760 C	TN464GP	
TN769	TN746B		TN2224B				TN447		TN2146	TN434	TN2207	
	TN2181		TN793B				TN465C		TN414	TN415	TN2464BP	
	TN2183		TN2793B				TN747B			TN2209		
	TN793						TN2138					
	TN2793						TN2147 C					
	TN2215						TN2148					
	TN791											
	TN2214											

1. MET = Multibutton Electronic Telephone
2. DID/DIOD = Direct Inward Dialing/Direct Inward Outward Dialing
3. DIOD = Direct Inward Outward Dialing

**Table 2-13. Circuit Pack and Auxiliary Equipment Leads (Pinout Charts)**

Color	Connector Pin Numbers	Analog Line 8 ports	2-Wire Digital Line & Analog Line 16 ports	Data Line and Digital Line 4-wire	2-Wire Digital Line & Analog Line 24 Ports	Hybrid Line	MET Line	AUX Trunk	CO Trk	CO Trunk 3-wire	DID/ DIOD Trunk	Tie Trk	DS1 Tie Trunk	Four Port DIOD
W-BL	26	T1	T1		T1	V1T1	T1	T1	T1	A1	T1	T1		T1
BL-W	01	R1	R1		R1	V1R1	R1	R1	R1	B1	R1	R1		R1
W-O	27		T2	TXT1	T2	CT1	TXT1	SZ1				T11		
O-W	02		R2	TXR1	R2	CR1	TXR1	SZ11				R11		
W-G	28		T3	PXT1	T3	P-1	PXT1	S1				E1		
G-W	03		R3	PXR1	R3	P+1	PXR1	S11		C1		M1		
W-BR	29	T2	T4		T4	V1T2	T2	T2	T2	A2	T2	T2		T2
BR-W	04	R2	R4		R4	V1R2	R2	R2	R2	B2	R2	R2		R2
W-S	30			TXT2	T5	CT2	TXT2	SZ2				T12		
S-W	05			TXR2	R5	CR2	TXR2	SZ12				R12		
R-BL	31			PXT2	T6	P-2	PXT2	S2				E2		
BL-R	06			PXR2	R6	P+2	PXR2	S12		C2		M2		
R-O	32	T3			T7	V1T3	T3	T3	T3	A3	T3	T3		T3
O-R	07	R3			R7	V1R3	R3	R3	R3	B3	R3	R3		R3
R-G	33			TXT3	T8	CT3	TXT3	SZ3				T13		
G-R	08			TXR3	R8	CR3	TXR3	SZ13				R13		
R-BR	34		T5	PXT3	T9	P-3	PXT3	S3				E3		
BR-R	09		R5	PXR3	R9	P+3	PXR3	S13		C3		M3		
R-S	35	T4	T6		T10	V1T4	T4	T4	T4	A4	T4	T4		T4
S-R	10	R4	R6		R10	V1R4	R4	R4	R4	B4	R4	R4		R4
BK-BL	36		T7	TXT4	T11	CT4	TXT4	SZ4				T14		
BL-BK	11		R7	TXR4	R11	CR4	TXR4	SZ14				R14		

Continued on next page

**Table 2-13. Circuit Pack and Auxiliary Equipment Leads (Pinout Charts) — Continued**

Color	Connector Pin Numbers	Analog Line 8 ports	2-Wire Digital Line & Analog Line 16 ports	Data Line and Digital Line 4-wire	2-Wire Digital Line & Analog Line 24 Ports	Hybrid Line	MET Line	AUX Trunk	CO Trk	CO Trunk 3-wire	DID/ DIOD Trunk	Tie Trk	DS1 Tie Trunk	Four Port DIOD
BK-O	37		T8	PXT4	T12	P-4	PXT4	S4				E4		
O-BK	12		R8	PXR4	R12	P+4	PXR4	S14				M4		
BK-G	38	T5	T9		T13	V1T5			T5		T5			
G-BK	13	R5	R9		R13	V1R5			R5		R5			
BK-BR	39		T10	TXT5	T14	CT4								
BR-BK	14		R10	TXR5	R14	CR4								
BK-S	40		T11	PXT5	T15	P-5								
S-BK	15		R11	PXR5	R15	P+5								
Y-BL	41	T6	T12		T16	V1T6			T6		T6			
BL-Y	16	R6	R12		R16	V1R6			R6		R6			
Y-O	42			TXT6	T17	CT6								
O-Y	17			TXR6	R17	CR6								
Y-G	43			PXT6	T18	P-6								
G-Y	18			PXR6	R18	P+6								
Y-BR	44	T7			T19	V1T7			T7		T7			
BR-Y	19	R7			R19	V1R7			R7		R7			
Y-S	45			TXT7	T20	CT7								
S-Y	20			TXR7	R20	CR7								
V-BL	46		T13	PXT7	T21	P-7								
BL-V	21		R13	PXR7	R21	P+7								
V-O	47	T8	T14		T22	V1T8			T8		T8		LI*	
O-V	22	R8	R14		R22	V1R8			R8		R8		LI	

*Continued on next page*

**Table 2-13. Circuit Pack and Auxiliary Equipment Leads (Pinout Charts) — Continued**

Color	Connector Pin Numbers	Analog Line 8 ports	2-Wire Digital Line & Analog Line 16 ports	Data Line and Digital Line 4-wire	2-Wire Digital Line & Analog Line 24 Ports	Hybrid Line	MET Line	AUX Trunk	CO Trk	CO Trunk 3-wire	DID/ DIOD Trunk	Tie Trk	DS1 Tie Trunk	Four Port DIOD
V-G	48		T15	TXT8	T23	CT8							LO	
G-V	23		R15	TXR8	R23	CR8							LO*	
V-BR	49		T16	PXT8	T24	P-8							LBACK2	
BR-V	24		R16	PXR8	R24	P+8							LBACK1	
V-S	50													
S-V	25													

The wire colors in this chart apply only to B25A and A25B cables. H600-307 cable colors are not shown.

The following abbreviations apply for all circuit packs unless otherwise noted:

T,R PBX transmit voice T Tip(A) Green  
 T1,R1 PBX receive voice R Ring(B) Red  
 M PBX transmit signal S Sleeve  
 E PBX receive signal PX PBX transmit  
 TX Terminal transmit  
 LI, LI\* Digital Trunk IN LO, LO\*Digital Trunk OUT

The following wire colors apply in the above chart:

W White S Slate (Grey)  
 BL Blue R Red  
 O Orange BK Black  
 G Green Y Yellow  
 BR Brown V Violet

## Upgrading R6csi/R7csi/R8csi to R10csi

# 3

---

This chapter provides the information on upgrading from a DEFINITY ECS Release 6csi, Release 7csi, or Release 8csi to a Release 10csi. As part of this upgrade, you must replace the TN798/B Processor with a TN2402 Processor. Refer to the *DEFINITY Enterprise Communications Server Maintenance for R10csi* book for changing the processor circuit pack.

*DEFINITY Enterprise Communications Server Release 10 Administrator's Guide* lists DEFINITY ECS Release 10 features and functions and provides the commands, procedures, and forms to initialize and administer the system.

### Read This First

---

#### License File

---

Remote Feature Activation (RFA) is a Web-based application that enables the creation and deployment of License Files for all switches beginning with R10. The License File enables the switch's software category, release, features, and capacities. License Files are created using SAP order information and/or current customer configuration information. *Without a license file, the switch does not provide normal call processing.*

#### Service Interruption

---

The upgrade process requires a service interruption of about 10 minutes and must be closely coordinated with the customer and the local account team.

## Contact Network Technicians

---

Contact the technician for each public and private network before the update or upgrade begins. Otherwise, it is possible that network access trunk facilities will be busied out at the far end.

## Translation Card Upgrade Procedures

---

Releases 6, 7, and 8 formatted translation cards are compatible for read-only operations with Release 10 systems. New formatted translation cards are shipped with each upgrade.

## Usable Circuit Packs

---

Every port or control circuit pack used in the upgraded system must conform to the minimum usable vintage requirements for Release 10. Those circuit packs must meet the usable vintage specifications.

Refer to *Technical Quarterly, Reference Guide for Circuit-Pack Vintages and Change Notices*, and to the *Software Release Letter* for current information about usable vintages. For information about usable vintages of international circuit packs, refer to the *ITAC Technical Alert* from your regional distributor.

## Software Upgrade

---

Even though the Releases 6, 7 and 8 translations upgrade automatically to Release 10, several features require special attention because of screen changes or potential naming conflicts in the update or upgrade procedure.

Between customer confirmation and the actual upgrade, the Software Specialist and Associate should check these forms to ensure the upgraded translations are appropriate for the customer's needs. Enter these translations either locally or remotely. If done remotely, contact the Field Support Administration Center (FSAC), with possible assistance from the upgrade technician, for the remote entry. For more information, refer to *DEFINITY Enterprise Communications Server Release 10 Administrator's Guide*

Make no administration changes during the upgrade procedure. There can be time gaps between steps, and because the system cannot prevent administration changes, make sure that none are attempted during the entire upgrade process.

## Antistatic Protection

---



### CAUTION:

*When handling circuit packs or any components of a DEFINITY ECS, always wear an antistatic wrist ground strap. Connect the strap to an approved ground such as ground jack on the DEFINITY ECS.*

## Task Table

---

Table 3-1 provides the high-level tasks to perform the upgrades in this chapter. Refer to the appropriate page for instructions for each step.

Table 3-1. Tasks to Upgrade to Release 10csi

✓	Task Description	Page
	Pre-upgrade checklist	3-4
	Duplicate System Software	3-7
	Pre-upgrade checklist	3-4
	Check SPE	3-7
	Verify Software Version	3-7
	Verify System Status	3-7
	Disable Scheduled Maintenance and Alarm Origination to INADS	3-8
	Check Link Status	3-8
	Disable TTI ( <i>Do not skip this section!</i> )	3-8
	Check TTI Status	3-9
	Save Translations	3-9
	Save Announcements (if necessary)	3-9
	Shut Down DEFINITY AUDIX System (if necessary)	3-10
	Replace Circuit Packs	3-10
	Deliver or Install the License File	3-10
	Display Memory-Configuration	3-12
	Set Daylight Savings Rules	3-12
	Set Date and Time	3-13
	Verify the Upgrade	3-15

*Continued on next page*

Table 3-1. Tasks to Upgrade to Release 10csi — *Continued*

✓	Task Description	Page
	Enable TTI	3-15
	Enable Scheduled Maintenance and Alarm Origination	3-16
	Register the Switch for Maintenance	3-16
	Check Customer Options	3-19
	Check Link Status	3-20
	Power Up DEFINITY AUDIX System	3-20
	Resolve Alarms	3-20
	Restore Announcements (if necessary)	3-20
	Check SPE	3-20
	Install R10csi translation card	3-20
	Save Translations (post-upgrade)	3-20
	Save Announcements (if necessary— post-upgrade)	3-20
	Return Equipment	3-20

### Pre-upgrade checklist

In order to be properly prepared for the upgrade, have the items listed in [Table 3-2](#) ready.

Table 3-2. R10csi pre-upgrade checklist

Item No.	Item	✓
1.	Software Release Letter	
2.	Release 10 system software on removable media	
3.	Extra formatted removable media	
4.	Authorized wrist grounding strap	

*Continued on next page*

**Table 3-2. R10csi pre-upgrade checklist — *Continued***

Item No.	Item	✓
5.	Documentation (book or PDF file) for the current release: <ul style="list-style-type: none"> <li>■ DEFINITY Enterprise Communications Server Maintenance for R10csi</li> <li>■ DEFINITY Enterprise Communications Server Administrator's Guide</li> </ul>	
6.	Your personal Single Sign-On (SSO) for RFA website authentication login.	
7.	SAP order number with RTUs	
8.	Processor serial number(s); see faceplate	
9.	Transaction Record number	
10.	System Identification (SID) number	
11.	Switch telephone number or IP address	
12.	Access to the RFA Information page for these items (if not already installed on your PC): <ul style="list-style-type: none"> <li>■ Features Extraction Tool (FET) application</li> <li>■ FET documentation</li> <li>■ License Installation Tool (LIT) application</li> <li>■ LIT documentation</li> </ul>	
13.	Adobe Acrobat Reader application installed on your PC (to read FET and LIT documentation)	
14.	Internet Explorer 5.0 or higher installed on your laptop/PC	
15.	Intranet access to your designated RFA portal (see <a href="#">Go to the RFA website</a> ).	

## Go to the RFA website

The Remote Feature Activation (RFA) website automates some of the upgrade procedures, including generating a License File.

1. At your laptop/PC browser, go to the appropriate website:
  - *Associates*: [http://associate2.avaya.com/sales\\_market/services/](http://associate2.avaya.com/sales_market/services/)  
or the services portal: <http://usservices.avaya.com/>
  - *Business Partners* go to the appropriate regional Business Partner portal:
    - United States: <http://www.avaya.com/businesspartner/>
    - Canada: <https://www.avaya.ca/BusinessPartner>
    - Brazil: <http://www.avaya.com.br/Home.asp>
    - CALA:  
<https://cala-businesspartner.avaya.com/mnc/index.html>
    - EMEA: <https://emea-businesspartner.avaya.com/>
    - APAC: <http://www.avaya-apac.com/bp>
  - *Contractors* go to <http://www.avaya.com/services/rfa/>
  - If you are unable to access RFA using your recommended portal, try: <http://rfa.avaya.com>
2. Using your SSO, log in to the RFA website.
3. Follow the links to the RFA Information page.
4. Complete the information necessary to create a License File.

If you have a direct connection to the switch:

1. Using your RFA Job Aids, run the Features Extraction Tool (FET) from the RFA website to create a Switch Configuration File.
2. When prompted, type in the Transaction ID number.
3. The FET creates and uploads the Switch Configuration File automatically.
4. Do not deliver the License File at this time. You will deliver and install it later in this upgrade procedure.

If you do not have a direct connection to the switch:

1. Run the Features Extraction Tool (FET) from your laptop/PC to create a Switch Configuration File.
2. When prompted, type in the Transaction ID number.
3. Use the FET instructions to create a new switch connection profile.
4. Create the Switch Configuration File.
5. Upload the Switch Configuration File to the RFA website.
6. Deliver the License File to your laptop/PC for installation later in this procedure.

## Duplicate System Software

---

In case the upgrade fails for any reason:

1. Duplicate the switch's software to spare removable media.

## Check SPE

---

Type **status system 1** and press Enter to check the health of the system.

## Verify Software Version

---

1. Type **list configuration software-version** and press Enter. Under the UPDATE FILE column, note whether a patch has been applied.



### NOTE:

If the system must be restored to the old software, this patch must be downloaded onto the system.

## Verify System Status

---

1. Type **display alarms** and press Enter. If the system is not alarm-free, take the needed corrective actions.
2. Type **display errors** and press Enter. Examine the error log and record the error 18s that identify the busy-outs placed by the customer.

Restore the customer-placed busy-outs after you have upgraded the system.

3. Execute the following commands and verify that the information is correct:

**list station**

**list trunk-group**

**list hunt-group**

**list data-module**

**list announcements**

If any command does not complete successfully, escalate the problem immediately.

## Disable Scheduled Maintenance and Alarm Origination to INADS

---

1. Type **change system-parameters maintenance** and press Enter.
2. If scheduled maintenance has begun, set the `Stop Time` field to 1 minute after the current time.

or

If scheduled maintenance has **not** begun, set the `Start Time` field to a time after the upgrade will be completed. For example, if you start the upgrade at 8:00 p.m. and the upgrade takes 90 minutes, set the `Start Time` field to 21:30.



### CAUTION:

*If you do not disable Alarm Origination, the system may generate alarms, resulting in unnecessary trouble tickets.*

3. Type **neither** in the `Alarm Origination to OSS Numbers` field and press Enter.



### NOTE:

Disabling alarm origination prevents the system from generating alarms, thus preventing unnecessary trouble tickets.

For some software loads, set the `Cleared Alarm Notification` and `Restart Notification` fields to disable before pressing Enter.

## Check Link Status

---

1. Enter **display communication-interface links** and press Enter. Write down all enabled links
2. Type **status link number** and press Enter for each enabled link.
3. Write down which links are in service.

## Disable TTI

---



### NOTE:

Do this step only if the Terminal Translation Initialization (TTI) is enabled.



### CAUTION:

*If you do not disable the TTI, the translations can be corrupted.*

1. Type **change system-parameters features** and press Enter.
2. On the second screen, set the `TTI Enable?` field to **n** to de-activate the TTI feature.

## Check TTI Status

---

1. Type **status tti** and press Enter. Wait until the `Percent Complete` field shows **100**.

## Save Translations

---

1. Type **save translation** and press Enter to write all translations from memory to the original translation flashcard, which takes about 10 minutes.

When the save translations is successful, the error code must be a zero; otherwise, the translations are not copied. If the translations were corrupted, the following error message displays when logging in:



### WARNING:

*Translation corruption detected; call Avaya distributor immediately.*



### NOTE:

The **save translation** command cannot function if translations are corrupt. Refer to [“Translation Corruption Detected” on page A-3](#) to clear the problem.

## Save Announcements (if necessary)

---



### NOTE:

The TN750C and TN2501AP Integrated Announcement circuit packs store announcements in nonvolatile memory; saving the announcements to a flashcard is optional.

1. If the PPN contains a TN750/B Announcement circuit pack, type **display announcements** and press Enter.
2. If administered recorded announcements are listed, type **save announcements UUCSS** and press Enter. For example, 01D03. This takes about 30 minutes.



### NOTE:

For some software loads, type **save announcements from UUCSS**. Type **help** and press Enter for complete command syntax.

## Shut Down DEFINITY AUDIX System (if necessary)

---



### WARNING:

*Neglecting to shut down the AUDIX assembly before powering down the system cabinet where it resides can damage the AUDIX disk.*

1. Shut down the AUDIX assembly and allow the disk to completely spin down. Refer to [“DEFINITY AUDIX Power Procedures”](#) on page 3-21.



### CAUTION:

*If leaving AUDIX System in the carrier, back it out about 2 in. (5 cm) to eliminate the possibility of damage due to power surges.*

## Replace Circuit Packs

---



### CAUTION:

*When working with any cabinet hardware, wear a grounded wrist strap to ground yourself against electrostatic discharge (ESD).*

1. Pull out the TN798 processor to power down the cabinet.
2. Insert the Release 10 generic program card into the new TN2402 processor circuit pack.
3. Place the TN2402 processor circuit pack into the slot vacated by the TN798 processor.
4. Lock the TN2402 processor into place to power up the cabinet.
5. Place the Release 10 system software in the slot.

The system reads the Release 10 system software automatically.

6. Install the *original* translation card when the system prompts (beeps)

You have 2 minutes to replace the software card with the translation card.

## Deliver or Install the License File

---

If you have a direct switch connection:

1. Go to the RFA website, and, following the instructions in the “Deliver to G3r/G3si/G3csi” chapter of the RFA Job Aid, deliver the License File.



### NOTE:

This procedure sends the License File to the switch and installs it.

If you do not have a direct connection:

1. Go to the RFA website, and, following the instructions in the “Deliver to G3r/G3si/G3csi” chapter of the RFA Job Aid, deliver the License File to your laptop/PC.
2. Open the License Installation Tool (LIT) application at your laptop/PC.
3. Use the LIT instructions to add a switch connection profile to the tool.
4. Use the LIT instructions to install the License File on the switch.

## Administer No-License/Emergency Numbers

1. At the SAT type **change system-parameters features** and press RETURN.

The Feature-Related System Parameters screen displays:

```
change system-parameters features

                          FEATURE-RELATED SYSTEM PARAMETERS

SYSTEM-WIDE PARAMETERS
      Switch Name: Albania
Emergency Numbers - Internal: XXXXXX External: XXXXXXXXXXXXXXXXXXXXXXXX
No-License Incoming Call Number: XXXXX

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:
```

2. In the Emergency Numbers - Internal field (optional) type a valid extension (up to 5 digits).
3. In the Emergency Number - External field (required) type a 21-digit, dialpad-valid character string that can include trunk access codes. The default for this field is 911.
4. In the No-License Incoming Call Number field (optional) type a valid extension (up to 5 digits).
5. Press ENTER to save the changes.

## Display Memory-Configuration

1. Log in as **craft**. If the Translation Corruption Detected message appears, refer to [“Translation Corruption Detected” on page A-3](#).
2. Type **display memory-configuration** and press Enter. Make sure that in the Total DRAM field the SIMM field in the SPE-A column says **16**.

## Set Daylight Savings Rules

You can set up to 15 customized daylight savings time rules. If you have switches in several different time zones, you can set up rules for each. A daylight savings time rule specifies the exact time when you want to transition to and from daylight savings time. It also specifies the increment at which to transition.

### ⇒ NOTE:

The default daylight savings rule is **0**, no daylight savings.

1. Type **change daylight-savings-rules** and press Enter.

```

DAYLIGHT SAVINGS RULES
Rule          Change Day          Month   Date   Time   Increment
0:   No Daylight Savings
1:   Start: first Sunday   on or after April   1   at 2:00   01:00
    Stop: first Sunday   on or after October 25  at 2:00
2:   Start: first _____ on or after _____ at ____:____
    Stop: first _____ on or after _____ at ____:____
3:   Start: first _____ on or after _____ at ____:____
    Stop: first _____ on or after _____ at ____:____
4:   Start: first _____ on or after _____ at ____:____
    Stop: first _____ on or after _____ at ____:____
5:   Start: first _____ on or after _____ at ____:____
    Stop: first _____ on or after _____ at ____:____
6:   Start: first _____ on or after _____ at ____:____
    Stop: first _____ on or after _____ at ____:____
7:   Start: first _____ on or after _____ at ____:____
    Stop: first _____ on or after _____ at ____:____
    
```

2. Type the appropriate start and stop information in the Change Day, Month, Date, Time, and Increment (for example, **1:00** equals one hour) fields for each rule.

### ⇒ NOTE:

You can change any rule except rule 0 (zero). You cannot delete a daylight savings rule if it is in use on either the Locations or Date and Time screens.

3. Press Enter.

## Set Date and Time

---

1. Type **set time** and press Enter.
2. Verify the screen displays the Date and Time screen. The cursor is positioned on the Day of the Week: field.

```
                                DATE AND TIME
DATE
Day of the Week: Tuesday      Month: November
Day of the Month: 7          Year: 2000

TIME
Hour: 20   Minute: 30   Second: XX   Type: standard
Daylight Savings Rule: 1
```

3. Type the day of the week in English (Sunday through Saturday). See [Table 3-3](#) for English day of the week names.

**Table 3-3. English Day of the Week Names**

---

Day Number	Day Name
1	Sunday
2	Monday
3	Tuesday
4	Wednesday
5	Thursday
6	Friday
7	Saturday

---

4. The cursor is positioned on the `Month:` field. Type the current month in English (January through December). See [Table 3-4](#) for English month names. After the month is entered, press `Tab` to move to next field

**Table 3-4. English Month Names**

Number	Name	Number	Name
1	January	7	July
2	February	8	August
3	March	9	September
4	April	10	October
5	May	11	November
6	June	12	December

5. The cursor is positioned on the `Day of the Month:` field. Type the day of month (1 through 31) and press `Tab` to move to the next field.
6. The cursor is positioned on the `Year:` field. Type the current year and press `TAB` to move to the next field.
7. The cursor is positioned on the `Hour:` field. Type the current hour for a 24-hour clock. Press `Tab` to move to the next field.
8. The cursor is positioned on the `Minute:` field. Type current minute (0 through 59). Seconds cannot be set.
9. Type **standard** or **daylight savings** in the `Type` field.
10. Type the rule (number) in the `Daylight Savings Rule` field.
11. Press `Enter` when the information is correct.
12. Type **display time** and press `Enter` to verify date/time data.

## Verify the Upgrade

---

1. Type **status system 1** and verify that the system is in a normal state.
2. Type **display alarms** and press Enter.  
If the system is not alarm-free, take the needed corrective actions.
3. Type **list configuration software-version** and press Enter. Verify the software configuration.
4. Type **display communication links** and press Enter.  
Status each of the links.



**NOTE:**

ISDN-PRI D-channel links no longer appear on this screen. (For Release 7 and later, ISDN-PRI resides on the network packet circuit pack.) For Release 7 and later, the only way to determine if an ISDN-PRI D-Channel is up is to type **status signaling group** and press Enter.

5. Type **list signal** press Enter. For each signal, type **status *signal*** and press Enter.



**NOTE:**

Check the ISDN-PRI D-channel links here.

6. Execute the following commands and verify that the information is correct:

**list station**

**list trunk-group**

**list hunt-group**

**list data-module**

## Enable TTI

---



**NOTE:**

Do this step only if the TTI is disabled and you want it enabled.

1. Type **change system-parameters features** and press Enter to change the TTI field back to its value before the upgrade.

## Enable Scheduled Maintenance and Alarm Origination

1. Type **change system-parameters maintenance** and press Enter.
2. Enable the scheduled maintenance.
3. If you changed the `Start Time` or `Stop Time` field, change it back to the original time.
4. Re-enable alarm origination.

## Register the Switch for Maintenance

The Automatic Registration Tool (ART) is a web-based tool that permits field technicians and TSO Database Administration (DBA) to register U.S. direct channel products.

The product that you are registering must have switch connectivity through:

- the INADS line
- an IP address

### NOTE:

ART is not accessible from the public internet (outside the Avaya intranet firewall).

1. At your laptop/PC, direct your browser to this URL:

**<http://spiexp1.eng.avaya.com:8000/cgi-bin/ART/ARTstart.cgi>**

You can also save this URL in your *Favorites* or *Bookmarks* list.

The ART User Menu displays.

2. Click on the *Register a Product* button.

The Enter Network Password dialog box appears.

3. Type your ART **User Name** and **Password** in the indicated fields.

### NOTE:

ART user IDs and passwords are unique to ART, and are not the same as other user IDs and passwords. If you are a first-time user and do not have an ART user ID and password:

- a. Go back to the ART User Menu and click on the *Administer My User ID/Password* button.
- b. Follow the instructions on the User ID and Password page to create your ART user ID and password.

Unless you exit and restart your browser, you do not need to re-enter your user ID and password to perform other ART operations.

The ART Start of Product Registration page appears, and the ART session ID appears in the middle of the screen.

4. Type the Installation Location or Sold-To data in the **FL/Sold-To Number** field.

 **NOTE:**

Sold-To number replaces the FL numbers as customer-site identifiers in the Maestro database.

- Sold-To numbers are typically 7 digits long, sometimes beginning with an upper-case "S" followed by two zeros, for example: **S001234567**.
  - FL numbers are 10-12 letters or digits.
5. In the **Session Type** field, select:
    - *NEW INSTALL REGISTRATION* for products that are initially installed at a customer site.
    - *UPGRADE REGISTRATION* for all subsequent product registrations.
  6. In the **Product Type** field choose *DEFINITY* for the following products:
  7. Click on the *Start Product Registration* button.

If the data you have entered matches a Maestro database record, the Customer Verification page appears.

8. Verify the information in the **Customer Name** and **Customer Address** fields.

 **NOTE:**

If the information is not what you expected, ensure that you entered the customer's FL/Sold-To number correctly (Step 4 above). If you entered an incorrect number:

- a. Click on the *Abort Upgrade Registration Session* button at the bottom of the screen.



**CAUTION:**

*DO NOT* exit your browser to abort the session. This can result in an incomplete upgrade registration.

- b. Return to the ART User Menu page to begin a new session.

If the FL/Sold-To number matches multiple customers in the database, ART displays the name and address of each customer with a button to select for this registration session.

9. In the **Customer Type** field, select
  - *GOODYEAR, MOTEL 6, STATE FARM*
  - *IN CINCINNATI BELL SERVICE AREA*
  - *OTHER*



**NOTE:**

This verification might be done automatically in the future.

10. Click on the *Continue Upgrade Registration* button.

The DEFINITY Product List page appears.

11. Look in the product table (first column heading is "#") to find the row for the product that you want to register. Click on the number in the far-left column ("#") of the correct row.



**NOTE:**

It might be helpful to identify the product by looking at the *Product Nickname, Product Alarm ID, INADS Number, Serial Number, or IP Address* columns in the table.

If the product is not shown in the table, or if you are not sure whether a listed product is the one you want to register, contact the DBA group for assistance (1-800-248-1234, selecting prompt, 2, prompt 6, then prompt 2).

Four new fields appear.

12. In the **Data Lock** field, choose:
  - *YES* for products with ASG enabled
  - *NO* for all others
13. In the **Dialing Type** field choose the dialing type that the product will use to report alarms:
  - *DON'T CHANGE* to leave the product's dialing type unchanged
  - *TONE* for DTMF dialing
  - *PULSE* for rotary or pulse dialing
14. In the **Alarm Origination** field choose:
  - *DON'T CHANGE* to leave the product's current alarm origination status unchanged (the common choice for upgrades).
  - *YES* to enable alarm origination.
  - *NO* for no alarm origination.

15. In the **Alarm Destination** field, choose
  - *DON'T CHANGE* to leave the product's currently-administered alarm origination number unchanged (the common choice for upgrades).
  - *SET NUMBER TO* and type the complete alarm destination telephone number, including any dialing prefix (for example, "9" or "\*9"). The default value in this field is the TSO-Denver number (18005353573).
16. Click on the *Continue Registration* button at the bottom of the page.

ART begins automatically registering the product and displays progress messages to indicate the current status.



**CAUTION:**

*DO NOT exit your browser or click on the Refresh, Back, Stop, or Home buttons while ART displays these progress messages.*

*If you have to abort your registration, click on the **Abort Session** button that appears with one of the progress messages.*

If the preceding steps have been completed successfully, ART displays the DEFINITY Upgrade Registration Report.

17. Review the information displayed in the report.

If any of the data are incorrect, contact the DBA Group (1-800-248-1234, selecting prompt, 2, prompt 6, then prompt 2) immediately for assistance.
18. Save the DEFINITY Upgrade Registration Report in a file for future reference or print the report and keep the copy.

## Check Customer Options

1. Type **display system-parameters customer-options** and press Enter.
2. Ensure that the `G3 version:` field is `V10`.
3. If the customer was using Supplementary Services Protocol b or d on an ISDN-PRI trunk group before the upgrade, go to screen 7, QSIG Optional Features, and ensure that the `Basic Call Setup` field is `y`.
4. Press Enter to effect the changes.
5. Press Enter to effect the changes or Cancel if there were no changes.
6. Contact the requester when done.

## Check Link Status

1. Type **display communication-interface links** and press Enter.
2. Type **status link *number*** and press Enter. Repeat this step for each link.
3. Check that DS1 trunks and BRI phones are functioning normally.
4. Refer to *DEFINITY Enterprise Communications Server Maintenance for R10csi* to test or restore the out-of-service links.

## Power Up DEFINITY AUDIX System

1. To power up the AUDIX assembly, refer to [“DEFINITY AUDIX Power Procedures” on page 3-21](#).

## Resolve Alarms

1. Type **display alarms** and press Enter to examine the alarm log. Resolve any alarms using *DEFINITY Enterprise Communications Server Maintenance for R10csi*.

## Restore Announcements (if necessary)

1. Type **restore announcements** and press Enter to copy announcements from the upgraded translation flashcard to memory, which takes about 40 minutes.

## Check SPE

1. Type **status system 1** and press Enter.

## Install R10csi translation card

1. Replace the *original* translation card with the new R10csi ATA flashcard.

## Save Translations (post-upgrade)

1. Type **save translations** and press Enter to copy upgraded translations to the new flashcard, which takes about 20 minutes.

## Save Announcements (if necessary— post-upgrade)

1. Type **save announcements** and press Enter to copy announcements to the new flashcard.

## Return Equipment

1. Return replaced equipment to Avaya.
2. Retain the old translation card for up to 10 business days to verify that the customer is satisfied and that there is no need to reverse the upgrade. Reversing the upgrade also means reinstalling the old TN798/B processor circuit pack.
3. Return the old translation card to Avaya.

## DEFINITY AUDIX Power Procedures

### Power Down the AUDIX System

A yellow caution sticker on the system's power unit notifies technicians to shut down the DEFINITY AUDIX System prior to powering down the system.

1. Log into the AUDIX System as **craft**.
2. Type **reset system shutdown** and press Enter.
3. Press Enter again to start the shutdown process.
4. The SHUTDOWN Completed message appears when the AUDIX is successfully shut down. This takes about 2 minutes.
5. You can now shut down the carrier or remove the AUDIX System for service.



#### **CAUTION:**

*If leaving AUDIX System in the carrier, back it out about 2 in. (5 cm) to eliminate the possibility of damage due to power surges.*

## Power Up the AUDIX System

- If the AUDIX was removed from the cabinet:
  1. Re-install the AUDIX and allow it to power up automatically.
  2. Check for AUDIX System errors.
- If the AUDIX remained in the cabinet but the cabinet was powered down:
  1. Reseat the AUDIX
  2. Power up the cabinet. The AUDIX reboots automatically.
  3. Check for AUDIX System errors.
- If the AUDIX remained in the cabinet and the cabinet was *not* powered down:
  1. At the AUDIX console, hold the `ctrl` key and enter **cc**.
  2. Enter **5** at the prompt. In about 2 minutes, the AUDIX boots up.
  3. When the system initialization is complete, log in as **craft**.
  4. Check for AUDIX System errors.

## Upgrading R9csi to R10csi

# 4

---

This chapter provides the information on upgrading from a DEFINITY Enterprise Communication Server (ECS) Release 9csi to a Release 10csi.

DEFINITY Enterprise Communications Server Release 10 Administrator's Guide lists the features and functions and provides the commands, procedures, and screens to initialize and administer the system.

### Read this first

---

#### License File

---

Remote Feature Activation (RFA) is a Web-based application that enables the creation and deployment of License Files for all switches beginning with R10. The License File enables the switch's software category, release, features, and capacities. License Files are created using SAP order information and/or current customer configuration information. *Without a license file, the switch does not provide normal call processing.*

#### Service interruption

---

The upgrade process requires a non-call-preserving service interruption in a standard reliability system. The service interruption must be closely coordinated with the customer and the local account team. The service outage for standard reliability is 2 to 15 minutes, depending on the size of the installation.

## Call Management System (CMS)

---

The CMS link is dropped and restarted during the upgrade. This causes CMS data to be lost. This data loss can be minimized if the upgrade is performed just after the last CMS measurement interval.

All measurement data is lost during the upgrade (including BCMS). If needed, the reports can be printed before the upgrade begins.

CMS could abort the processing of a call if a measured trunk that was part of the conference dropped off the call before the end of the call. Customers experiencing this symptom and who are running R3V4 CMS should update to r3v4ao.e or higher.

## Software compatibility

---

Before starting the upgrade, always check the Software Release Letter that accompanies the system removable media. Translation corruption occurs if incompatible software is loaded. Also check the Minimum Vintage Table, which is included with the letter, before starting the upgrade.

## Usable circuit packs

---

Every circuit pack used in the Release 10r system must conform to the minimum usable vintage requirements for that system. At a presale site inspection, the remediation process checks the vintages of existing circuit packs to be reused in the Release 10 system. Replace all unusable vintage circuit packs with current vintages.

Refer to Technical Quarterly, Reference Guide for Circuit Pack Vintages, Change Notices, and to the Software Release Letter for information about usable circuit pack vintages. For information about usable vintages of non-U.S. circuit packs, refer to the ITAC Tech Alert from your regional distributor.

## Wireless systems

---

If the system uses Wireless Business System, you need to re-enable the radio controllers after the upgrade. Refer to Chapter 1, "UTAM Disablement" in the DEFINITY Wireless Business System Maintenance book. Refer also to Chapter 2, "Switch Administration" in DEFINITY Wireless Business System Installation and Test.



**NOTE:**

Only the *init* login can perform this activity.

## Antistatic protection

---



### CAUTION:

When handling circuit packs or any components of a DEFINITY ECS, always wear an antistatic wrist ground strap. Connect the strap to an approved ground such as ground jack on the DEFINITY ECS.

## Task table

---

Table 4-1 provides the high-level tasks to perform the upgrades in this section. Refer to the appropriate page for instructions for each step.

Table 4-1. Tasks to upgrade to Release 9 csi to Release 10csi

✓	Task Description	Page
	<a href="#">Pre-upgrade checklist</a>	4-4
	<a href="#">Go to the RFA website</a>	4-6
	<a href="#">Duplicate system software</a>	4-7
	<a href="#">Check SPE</a>	4-7
	<a href="#">Verify software version</a>	4-7
	<a href="#">Verify system status</a>	4-8
	<a href="#">Disable scheduled maintenance and alarm origination</a>	4-8
	<a href="#">Check link status</a>	4-9
	<a href="#">Disable TTI (<i>Do not skip this section!</i>)</a>	4-9
	<a href="#">Check TTI status</a>	4-9
	<a href="#">Save translations</a>	4-10
	<a href="#">Save announcements (if necessary)</a>	4-10
	<a href="#">Upgrade the software</a>	4-10
	<a href="#">Deliver or install the License File</a>	4-11
	<a href="#">Administer no-license/emergency numbers</a>	4-12
	<a href="#">Set daylight savings rules</a>	4-12
	<a href="#">Set date and time</a>	4-13
	<a href="#">Verify the upgrade</a>	4-12
	<a href="#">Check link status</a>	4-15

*Continued on next page*

Table 4-1. Tasks to upgrade to Release 9 csi to Release 10csi — Continued

✓	Task Description	Page
	Enable TTI	4-16
	Check TTI status	4-16
	Enable scheduled maintenance and alarm origination	4-16
	Register the switch for maintenance	4-17
	Resolve alarms	4-20
	Restore busyouts	4-20
	Restore announcements	4-21
	Check SPE	4-21
	Save translations (post-upgrade)	4-21
	Save announcements (post-upgrade)	4-21
	Return equipment	4-21
	Backing out of a Release 10csi upgrade	4-21

### Pre-upgrade checklist

In order to be properly prepared for the upgrade, have the items listed in [Table 4-2](#) ready.

Table 4-2. R10csi pre-upgrade checklist

Item No.	Item	✓
1.	Software Release Letter	
2.	Release 10 system software on removable media	
3.	Extra formatted removable media	
4.	Authorized wrist grounding strap	

*Continued on next page*

Table 4-2. R10csi pre-upgrade checklist — *Continued*

Item No.	Item	✓
5.	Documentation (book or PDF file) for the current release: <ul style="list-style-type: none"> <li>■ DEFINITY Enterprise Communications Server Maintenance for R10si</li> <li>■ DEFINITY Enterprise Communications Server Administrator's Guide</li> </ul>	
6.	Your personal Single Sign-On (SSO) for RFA website authentication login.	
7.	SAP order number with RTUs	
8.	Processor serial number(s); type <b>list config license (long)</b>	
9.	Transaction Record number	
10.	System Identification (SID) number	
11.	Switch telephone number or IP address	
12.	Access to the RFA Information page for these items (if not already installed on your PC): <ul style="list-style-type: none"> <li>■ Features Extraction Tool (FET) application</li> <li>■ FET documentation</li> <li>■ License Installation Tool (LIT) application</li> <li>■ LIT documentation</li> </ul>	
13.	Adobe Acrobat Reader application installed on your laptop/PC (to read FET and LIT documentation)	
14.	Internet Explorer 5.0 or higher installed on your laptop/PC	
15.	Intranet access to your designated RFA portal (see <a href="#">Go to the RFA website</a> ).	

## Go to the RFA website

---

The Remote Feature Activation (RFA) website automates some of the upgrade procedures, including generating a License File.

1. At your laptop/PC browser, go to the appropriate website:
  - *Associates*: [http://associate2.avaya.com/sales\\_market/services/](http://associate2.avaya.com/sales_market/services/)  
or the services portal: <http://usservices.avaya.com/>
  - *Business Partners* go to the appropriate regional Business Partner portal:
    - United States: <http://www.avaya.com/businesspartner/>
    - Canada: <https://www.avaya.ca/BusinessPartner>
    - Brazil: <http://www.avaya.com.br/Home.asp>
    - CALA:  
<https://cala-businesspartner.avaya.com/mnc/index.html>
    - EMEA: <https://emea-businesspartner.avaya.com/>
    - APAC: <http://www.avaya-apac.com/bp>
  - *Contractors* go to <http://www.avaya.com/services/rfa/>
  - If you are unable to access RFA using your recommended portal, try: <http://rfa.avaya.com>
2. Using your SSO, log in to the RFA website.
3. Follow the links to the RFA Information page.
4. Complete the information necessary to create a License File.

If you have a direct connection to the switch:

1. Using your RFA Job Aids, run the Features Extraction Tool (FET) from the RFA website to create a Switch Configuration File.
2. When prompted, type in the Transaction ID number.  
The FET creates and uploads the Switch Configuration File automatically.
3. Do not deliver the License File at this time. You will deliver and install it later in this upgrade procedure.

If you do not have a direct connection to the switch:

1. Run the Features Extraction Tool (FET) from your laptop/PC to create a Switch Configuration File.
2. When prompted, type in the Transaction ID Number.
3. Use the FET instructions to create a new switch connection profile.
4. Create the Switch Configuration File.

4 Upgrading R9csi to R10csi  
Task table

4-7

5. Upload the Switch Configuration File to the RFA website.
6. Deliver the License File to your PC for installation later in this procedure.

## Duplicate system software

In case the upgrade fails for any reason:

1. Duplicate the switch's software to spare removable media.

## Check SPE

1. Type **status system 1** and press RETURN.

Check these fields for the corresponding values:

- Maj/Min alarms = 0
- Service State = `in service`

## Verify software version

1. Type **list configuration software-version** and press RETURN.

The Software Versions screen appears.

2. In the UPDATE FILE section, check the `Update State` field for a software patch:
  - If there is a patch number, then a patch has been applied.
  - If the field is `none in memory`, there is no software patch in system memory.

 **NOTE:**

If you need to restore the system to the old software version, you must also download a patch onto the system.\

3. In the SOFTWARE VERSION section note the current software version listed in the `Memory Resident` field.

 **NOTE:**

Ensure that the current software version is compatible with this software-only upgrade path from Release 9csi to Release 10csi.

## Verify system status

---

1. Type **status system 1** and press RETURN.  
Check these fields for the corresponding values:
  - In the `SPE ALARMS` section, `MAJOR` and `MINOR` alarms = 0
  - `Service State = in service`
2. If there are alarms, take the necessary corrective actions (**display alarms**).
3. Type **display errors** and press RETURN.
4. Examine the Hardware Error Log and record any Error Code 18 alarm that identifies existing busyouts. After the upgrade you will restore the busyouts as they were.
5. Execute the following commands to see whether the switch has administration:
  - **list station**
  - **list trunk-group**
  - **list hunt-group**
  - **list data-module**
  - **list announcements**

If any command does not complete successfully, escalate the problem immediately. After the upgrade you will check the same administration to ensure that the translations are intact.

## Disable scheduled maintenance and alarm origination

---

To prevent scheduled daily maintenance from interfering with the upgrade:

1. Type **change system-parameters maintenance** and press RETURN.
2. If scheduled maintenance is in progress, set the `Stop Time` field to 1 minute after the current time.

*or*

If scheduled maintenance is not in progress, set the `Start Time` field to a time after the upgrade will be completed.

For example, if you start the upgrade at 8:00 P.M. and the upgrade takes 90 minutes, set the `Start Time` field to 21:30.



### CAUTION:

*If you do not disable Alarm Origination, the system can generate alarms, resulting in unnecessary trouble tickets.*

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Task table

4-9

3. Type **neither** in the Alarm Origination to OSS Numbers field and press ENTER.



**NOTE:**

Disabling alarm origination prevents the system from generating alarms, thus preventing unnecessary trouble tickets.

## Check link status

---

1. Enter **display communication-interface links** and press RETURN.
2. Note all administered links.
3. Type **status link number** and press RETURN for each administered link.

Check the following fields for the values listed:

- Link Status = connected
- Service State = in service



**NOTE:**

For Release 7 and later, the only way to determine if an ISDN-PRI D-Channel is up is to type **status signaling group** and press RETURN.

4. If any of the links are not up, take the necessary corrective action to restore the link before continuing with the upgrade.

## Disable TTI

---

1. Type **change system-parameters features** and press RETURN.
2. Go to the second page and set the Terminal Translation Initialization (TTI) Enabled? field to **n** and press RETURN to de-activate the TTI feature. If the field is already n, cancel the command.



**CAUTION:**

If you do not disable the TTI feature, the translations can be corrupted.

## Check TTI status

---

1. Type **status tti** and press RETURN.
2. Check the Percent Complete field.  
If the value is **100**, then go on to the next section.  
If the value is less than 100, repeat Steps 1 and 2.

## Save translations

---

1. Type **save translation** and press RETURN to write all translations from memory to the translation flashcard (about 10 minutes).
2. Ensure that the **save translation** command was successful (error code must be zero). If the value is anything else, the translations were not copied to the flashcard. If the translations are corrupted, the following error message appears when logging in:



### WARNING:

*Translation corruption detected; call an Avaya distributor immediately.*



### NOTE:

The **save translation** command does not run if the translations are corrupt or do not match (duplicated systems only).

## Save announcements (if necessary)

---



### NOTE:

The TN750C and the TN2501AP Integrated Announcement circuit packs store announcements in nonvolatile memory; saving the announcements to a flashcard is optional.

1. If the PPN contains a TN750/B Announcement circuit pack, type **display announcements** and press RETURN.
2. If administered recorded announcements are listed, type **save announcements UUCSS** and press RETURN. For example, **01D03**.

The time necessary for this depends upon the length and number of the announcements on the circuit pack.



### NOTE:

For some software loads, type **save announcements from UUCSS**. Type **help** and press RETURN for the complete command syntax.

## Upgrade the software

---

1. Insert the Release 10 generic program card (orange) into the TN2402 processor circuit pack.
2. Type **upgrade software** and press RETURN to upgrade the software to Release 10.

This process takes about 10-12 minutes.

4 Upgrading R9csi to R10csi  
Task table

4-11

3. When the system prompts (beeps), insert the original translation card into the processor circuit pack.

 NOTE:

You have 2 minutes to replace the software card with the translation card. If you miss this window, the system comes up without translations. Correct this by inserting the original translation card into the processor circuit pack and use the **reset system 3** command at the SAT.

4. Log off the system and log in again as craft.

## Deliver or install the License File

If you have a direct switch connection:

1. Go to the RFA website, and, following the instructions in the “Deliver to G3r/G3si/G3csi” chapter of the RFA Job Aid, deliver the License File.

 NOTE:

This procedure sends the License File to the switch and installs it.

If you do not have a direct connection:

1. Go to the RFA website, and, following the instructions in the “Deliver to G3r/G3si/G3csi” chapter of the RFA Job Aid, deliver the License File to your laptop/PC.
2. Open the License Installation Tool (LIT) application at your laptop/PC.
3. Use the LIT instructions to add a switch connection profile to the tool.
4. Use the LIT instructions to install the License File on the switch.

## Administer no-license/emergency numbers

1. At the SAT type **change system-parameters features** and press RETURN.

The Feature-Related System Parameters screen displays:

```
change system-parameters features

                                FEATURE-RELATED SYSTEM PARAMETERS

SYSTEM-WIDE PARAMETERS
                                Switch Name: Albania
Emergency Numbers - Internal: XXXXXX External: XXXXXXXXXXXXXXXXXXXXXXXX
No-License Incoming Call Number: XXXXX

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:
```

2. In the Emergency Numbers - Internal field (optional) type a valid extension (up to 5 digits).
3. In the Emergency Number - External field (required) type a 21-digit, dialpad-valid character string that can include trunk access codes. The default for this field is 911.
4. In the No-License Incoming Call Number field (optional) type a valid extension (up to 5 digits).
5. Press ENTER to save the changes.

## Set daylight savings rules

You can set up to 15 customized daylight savings time rules. If you have switches in several different time zones, you can set up rules for each. A daylight savings time rule specifies the exact time when you want to transition to and from daylight savings time and the amount of time offset at the point of transition.

1. Type **change daylight-savings-rules** and press RETURN.

DAYLIGHT SAVINGS RULES						
Rule	Change	Day	Month	Date	Time	Increment
0:	No Daylight Savings					
1:	Start:	first	<u>Sunday</u>	on or after	April 1 at <u>2:00</u>	<u>01:00</u>
	Stop:	first	<u>Sunday</u>	on or after	October 25 at <u>2:00</u>	
2:	Start:	first	_____	on or after	_____ at _____	
	Stop:	first	_____	on or after	_____ at _____	
3:	Start:	first	_____	on or after	_____ at _____	
	Stop:	first	_____	on or after	_____ at _____	
4:	Start:	first	_____	on or after	_____ at _____	
	Stop:	first	_____	on or after	_____ at _____	
5:	Start:	first	_____	on or after	_____ at _____	
	Stop:	first	_____	on or after	_____ at _____	

**⇒ NOTE:**

The default daylight savings rule is **0**, meaning no daylight savings transition.

2. Type the appropriate Start and Stop information in the Change Day, Month, Date, Time, and Increment fields for each rule. For example, **1:00** in the Increment field means to move the clock forward or back by one hour at the transition point.

**⇒ NOTE:**

You can change any rule except rule 0 (zero). You cannot delete a daylight savings rule if it is in use on either the Locations or Date and Time screens.

3. Press ENTER.

## Set date and time

1. Type **set time** and press RETURN.

The Date and Time screen appears, and The cursor is positioned on the Day of the Week field.

```

set time

                                DATE AND TIME

DATE
  Day of the Week: Monday      Month: July
  Day of the Month: 2           Year: 2001

TIME
  Hour: 20 Minute: 30 Second: 55 Type: standard
  Daylight Savings Rule: 1

WARNING: Changing the date or time impacts BCMS, CDR and MEASUREMENTS
    
```

4 Upgrading R9csi to R10csi  
Task table

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2. Type the day of the week in English (Sunday through Saturday). Use the following table for English day of the week names.

Day Number	Day Name
1	Sunday
2	Monday
3	Tuesday
4	Wednesday
5	Thursday
6	Friday
7	Saturday

3. The cursor is positioned on the `Month` field. Type the current month in English (January through December). Use the following table for English month names. After the month is entered, press `TAB` to move to next field

Number	Name	Number	Name
1	January	7	July
2	February	8	August
3	March	9	September
4	April	10	October
5	May	11	November
6	June	12	December

4. The cursor is positioned on the `Day of the Month` field. Type the day of month (1 through 31) and press `TAB` to move to the next field.
5. The cursor is positioned on the `Year` field. Type the current year and press `TAB` to move to the next field.
6. The cursor is positioned on the `Hour` field. Type the current hour for a 24-hour clock. Press `TAB` to move to the next field.
7. The cursor is positioned on the `Minute` field. Type current minute (0 through 59). Seconds cannot be set.
8. Press `ENTER` when you have entered all of the information.
9. Type **display time** and press `RETURN` to verify date/time data.

## Verify the upgrade

---

1. Type **status system 1** and verify that the system is in a normal state.  
Check these fields for the corresponding values:
  - In the `SPE ALARMS` section, `MAJOR` and `MINOR` alarms = 0
  - `Service State` = `in service`
2. Type **display alarms** and press RETURN.  
If there are alarms, take the necessary corrective actions.
3. Type **list configuration software-version** and press RETURN.  
The Software Versions screen appears.
4. In the `UPDATE FILE` section, check the `Update State` field for a software patch:
  - If there is a patch number, then a patch has been applied.
  - If the field is `none in memory`, there is no software patch in system memory.

 **NOTE:**  
If you need to restore the system to the old software version, you must also download a patch onto the system.
5. In the `SOFTWARE VERSION` section note the current software version listed in the `Memory Resident` field.

## Check link status

---

1. Type **display communication-links** and press RETURN.  
Ensure that the link administration is the same as before the upgrade.
2. Type **status link number** and press RETURN for each administered link.  
Check these fields for the corresponding values:
  - `Link Status` = `connected`
  - `Service State` = `in service`If any of the links are not up, take the necessary corrective action to restore the link.
3. Type **list signaling-group** press RETURN.  
Check the system to ensure that the signaling group administration is the same as before the upgrade.

## 4 Upgrading R9csi to R10csi Task table

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4. For each signaling group, type **status signal number** and press RETURN.  
Ensure that the `Group State` field is in-service.  
If the system had ISDN-PRI D-channel links administered, check that those links are in-service.
5. Execute the following commands to ensure that the administration is the same as before the upgrade:
  - **list station**
  - **list trunk-group**
  - **list hunt-group**
  - **list data-module**

### Enable TTI

---



#### NOTE:

Perform this step only if you disabled TTI in the [Disable TTI](#) section.

1. Type **change system-parameters features** and press RETURN.
2. Go to the second page and set the `Terminal Translation Initialization (TTI) Enabled?` field to **y** and press ENTER.

### Check TTI status

---

1. Type **status tti** and press RETURN.
2. Check the `Percent Complete` field.  
If the value is **100**, then go on to the next section.
3. If the value is less than 100, repeat Steps 1 and 2 until the `Percent Complete` field is 100.

### Enable scheduled maintenance and alarm origination

---

1. Type **change system-parameters maintenance** and press Enter.
2. Enable the scheduled maintenance.
3. If you changed the `Start Time` or `Stop Time` field, change it back to the original time.
4. Re-enable alarm origination.

## Register the switch for maintenance

---

The Automatic Registration Tool (ART) is a web-based tool that permits field technicians and TSO Database Administration (DBA) to register U.S. direct channel products.

The product that you are registering must have switch connectivity through:

- the INADS line
- an IP address



### NOTE:

ART is not accessible from the public internet (outside the Avaya intranet firewall).

1. At your laptop/PC, direct your browser to this URL:

**<http://spiexp1.eng.avaya.com:8000/cgi-bin/ART/ARTstart.cgi>**

You can also save this URL in your *Favorites* or *Bookmarks* list.

The ART User Menu displays.

2. Click on the *Register a Product* button.

The Enter Network Password dialog box appears.

3. Type your ART **User Name** and **Password** in the indicated fields.



### NOTE:

ART user IDs and passwords are unique to ART, and are not the same as other user IDs and passwords. If you are a first-time user and do not have an ART user ID and password:

- a. Go back to the ART User Menu and click on the *Administer My User ID/Password* button.
- b. Follow the instructions on the User ID and Password page to create your ART user ID and password.

Unless you exit and restart your browser, you do not need to re-enter your user ID and password to perform other ART operations.

The ART Start of Product Registration page appears, and the ART session ID appears in the middle of the screen.

4. Type the Installation Location or Sold-To data in the **FL/Sold-To Number** field.



**NOTE:**

Sold-To number replaces the FL numbers as customer-site identifiers in the Maestro database.

- Sold-To numbers are typically 7 digits long, sometimes beginning with an upper-case “S” followed by two zeros, for example: **S001234567**.
  - FL numbers are 10-12 letters or digits.
5. In the **Session Type** field, select:
    - *NEW INSTALL REGISTRATION* for products that are initially installed at a customer site.
    - *UPGRADE REGISTRATION* for all subsequent product registrations.
  6. In the **Product Type** field choose *DEFINITY* for the following products:
  7. Click on the *Start Product Registration* button.

If the data you have entered matches a Maestro database record, the Customer Verification page appears.

8. Verify the information in the **Customer Name** and **Customer Address** fields.



**NOTE:**

If the information is not what you expected, ensure that you entered the customer’s FL/Sold-To number correctly (Step 4 above). If you entered an incorrect number:

- a. Click on the *Abort Upgrade Registration Session* button at the bottom of the screen.



**CAUTION:**

*DO NOT exit your browser to abort the session. This can result in an incomplete upgrade registration.*

- b. Return to the ART User Menu page to begin a new session.

If the FL/Sold-To number matches multiple customers in the database, ART displays the name and address of each customer with a button to select for this registration session.

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Task table

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9. In the **Customer Type** field, select
  - *GOODYEAR, MOTEL 6, STATE FARM*
  - *IN CINCINNATI BELL SERVICE AREA*
  - *OTHER*



**NOTE:**

This verification might be done automatically in the future.

10. Click on the *Continue Upgrade Registration* button.

The DEFINITY Product List page appears.

11. Look in the product table (first column heading is "#") to find the row for the product that you want to register. Click on the number in the far-left column ("#") of the correct row.



**NOTE:**

It might be helpful to identify the product by looking at the *Product Nickname, Product Alarm ID, INADS Number, Serial Number, or IP Address* columns in the table.

If the product is not shown in the table, or if you are not sure whether a listed product is the one you want to register, contact the DBA group for assistance (1-800-248-1234, selecting prompt, 2, prompt 6, then prompt 2).

Four new fields appear.

12. In the **Data Lock** field, choose:
  - *YES* for products with ASG enabled
  - *NO* for all others
13. In the **Dialing Type** field choose the dialing type that the product will use to report alarms:
  - *DON'T CHANGE* to leave the product's dialing type unchanged
  - *TONE* for DTMF dialing
  - *PULSE* for rotary or pulse dialing
14. In the **Alarm Origination** field choose:
  - *DON'T CHANGE* to leave the product's current alarm origination status unchanged (the common choice for upgrades).
  - *YES* to enable alarm origination.
  - *NO* for no alarm origination.

15. In the **Alarm Destination** field, choose
  - *DON'T CHANGE* to leave the product's currently-administered alarm origination number unchanged (the common choice for upgrades).
  - *SET NUMBER TO* and type the complete alarm destination telephone number, including any dialing prefix (for example, "9" or "\*9"). The default value in this field is the TSO-Denver number (18005353573).
16. Click on the *Continue Registration* button at the bottom of the page.

ART begins automatically registering the product and displays progress messages to indicate the current status.



**CAUTION:**

*DO NOT exit your browser or click on the Refresh, Back, Stop, or Home buttons while ART displays these progress messages.*

*If you have to abort your registration, click on the **Abort Session** button that appears with one of the progress messages.*

If the preceding steps have been completed successfully, ART displays the DEFINITY Upgrade Registration Report.

17. Review the information displayed in the report.

If any of the data are incorrect, contact the DBA Group (1-800-248-1234, selecting prompt, 2, prompt 6, then prompt 2) immediately for assistance.
18. Save the DEFINITY Upgrade Registration Report in a file for future reference or print the report and keep the copy.

## Resolve alarms

1. Type **display alarms** and press RETURN to examine the alarm log.
2. Resolve any alarms using *DEFINITY Enterprise Communications Server Maintenance for R10csi*.

## Restore busyouts

1. Restore any busyouts that you removed in the [Verify system status](#) section prior to the upgrade.

## Restore announcements

If the system contains a TN750/B Announcement circuit pack:

1. Type **restore announcements** and press RETURN to copy announcements from the upgraded translation flashcard to memory, which takes about 40 minutes.

## Check SPE

1. Type **status system 1** and press RETURN.

Check these fields for the corresponding values:

- In the `SPE ALARMS` section, `MAJOR` and `MINOR` alarms = 0
- `Service State = in service`

## Save translations (post-upgrade)

1. Type **save translations** and press ENTER to copy the upgraded translations and the License File to the new flashcard, which takes about 20 minutes.

## Save announcements (post-upgrade)

1. Type **save announcements** and press ENTER to copy announcements to the new flashcard.

## Return equipment

1. Return replaced equipment to Avaya.
2. Retain the old translation card for up to 10 business days to verify that the customer is satisfied and that there is no need to reverse the upgrade.
3. Return the old translation card to Avaya.

## Backing out of a Release 10csi upgrade

In case you have to take the system back to the previous system software version:

1. Insert the system software media that you duplicated before the upgrade in the appropriate circuit pack slot.
2. At the SAT type **upgrade software** and press RETURN.
3. When the system prompts (beeps) insert the translation media in the slot.
4. Ensure that the system is back to its original software version with the **list configuration software-version** command.

**4** Upgrading R9csi to R10csi  
*Task table*

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## Adding or Removing Hardware

# 5

---

This chapter details the information required to install additional port hardware and other equipment associated with upgrading an existing system.

For more information about installing adjuncts and peripheral devices, refer to *DEFINITY Enterprise Communications Server Installation for Adjuncts and Peripherals*.

### Add Circuit Packs

When installing additional features or equipment, it may be necessary to install additional circuit packs. This is a general procedure to use when adding features or equipment that require adding circuit packs.

1. Log onto the system and answer **y** to the *Suppress Alarm Origination* question during login.
2. Install the circuit pack into the carrier.
3. Type **change circuit-pack**.
4. Verify the circuit pack appears in the listing.
5. If the circuit pack code is not present, type the code manually in the proper slot.
6. Type **test board long** and press Enter to test the board.
7. Log off the system after the addition (and any required administration) is complete.

For information about administering circuit packs and other equipment, refer to *DEFINITY Enterprise Communications Server Administrator's Guide*.

## Downloading Firmware to Port Circuit Packs

---

With some circuit packs, you can download updated application code for a port circuit pack on site or remotely. This eliminates the need to physically remove the circuit pack and send it to the factory for the firmware update. This feature is available on all DEFINITY ECS platforms—r, si, csi.

The port circuit packs supported are

- UDS1 family of circuit packs—TN464GP, TN2464BP, and TN2313AP
- TN2302AP IP Media Processor
- TN771DP Maintenance Test.

### NOTE:

The “P” suffix designation means the circuit pack is programmable; new firmware can be downloaded directly to the circuit pack.

For the download, you need a temporary staging area to keep the firmware images before uploading them to the source board. Although the download is normally done from a PC, it can be done from other servers, such as UNIX.

To download firmware to appropriate circuit packs requires the following items:

On the DEFINITY ECS:

- One source board—TN799C Control Lan (C-LAN) circuit pack—with an Ethernet data module administered.
- Target port circuit packs with P designation
- Services login and password

On an IBM-compatible PC or other server

- Windows 95/98/2000/NT (if a PC)
- Modem (for remote downloads to the source board)
- IP connectivity to the source board
- IP connectivity to the World Wide Web
- File transfer protocol (FTP) software program
- Web browser (Netscape 4.5 or Internet Explorer 5 or higher)

The process for downloading the firmware is to

1. [Download image from support Web site](#)
2. [Set up file system on source board](#) (C-LAN in R10)
3. [Copy image from a PC to source board](#), using the file transfer protocol (FTP)
4. [Copy image from source board to target board](#).

The target boards are automatically busied out before the firmware is downloaded to them and automatically returned to service after the download is completed. While a DS1 board is busied out, any active calls through that board are dropped.

Customers can access and download the firmware image on site using the [Avaya Customer Support](#) Web site.

### Download image from support Web site

1. Go to the [Avaya Customer Support](http://support.avaya.com/) Web site (<http://support.avaya.com/>).
2. From the Online Services drop-down menu on the right, select Download Software.
3. Scroll through the table until you find Firmware Download. Select it.
4. Select the circuit pack you want to upgrade, then the firmware images you need (there may be more than one, depending on the circuit pack).
5. Download the files to a temporary directory on a PC or UNIX server that has FTP and network access to the source board.

### Set up file system on source board

Before you can load files onto the source board, you must first set up a file system on the board to accept the files.

1. Log onto the DEFINITY system using superuser or services ID and password.
2. Type **enable filesystem board UUCSS login ftplogin ftppassword [size actual\_size]** and press Enter. **UUCSS** is the cabinet, carrier, slot of the source board.



**CAUTION:**

*In this software release the filesystem allocates the largest block of memory available up to 1 MB; however, you can specify a smaller filesystem.*



**NOTE:**

If the source board does not have enough available memory, make sure old files are deleted (refer to [“Disable Filesystem” on page 5-11](#)) or wait until there is less traffic on the board.

## Copy image from a PC to source board

---

The source board is the TN799C Control Lan (C-LAN) circuit pack. You use an FTP program on a PC to download the files to the source board.

You'll need the IP address for the source board, which you can get from your data systems administrator or by typing the following series of commands:

1. **list configuration board *UUCSS*** to make sure the port is enabled (look for the number 17).
2. **display port *UUCSS17*** to obtain the data module ID.
3. **display data-module *ID*** to obtain the link number.
4. **status link *link\_number*** to check the link status and obtain the source IP address.

You can use any FTP program. The following steps are generic to most FTP programs. Please follow the instructions for your specific program.

- [Using an FTP program through MS-DOS or UNIX](#)
- [Using a GUI-based FTP program](#)

### Using an FTP program through MS-DOS or UNIX

1. Type **ping *source\_ip\_address*** and press Enter to verify a communication link to the source board.
2. Type **ftp *source\_ip\_address*** and press Enter.
3. Log in using the user ID and password that you created at the time you created the file system.
4. Type **bin** and press Enter, which enables older ftp programs to send binary files.
5. Type **put *filename*** to copy the file to the source board.
6. Type **dir** to verify that the file is on the source board.
7. Repeat steps 5 and 6 for each file.
8. Type **quit** and press Enter to end the ftp session.

### Using a GUI-based FTP program



#### NOTE:

Ping the source board first to verify a communication link to the source board.

1. Open the FTP program.
2. Type in the source board's IP address and the user ID and password in the appropriate fields. The user ID and password are the ones you created at the time you created the filesystem.

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Downloading Firmware to Port Circuit Packs

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3. Select binary for the file type.
4. Press **Connect**.
5. When connected, select the root directory on the source board (remote).
6. Go to the temporary file directory on your PC (local) that has the downloadable binary files.
7. Download all the files to the appropriate directory on the source board.
8. Refresh the remote directory, if necessary, to verify that all the files were transferred.
9. When done, end the ftp session.

### Copy image from source board to target board

You can download the files immediately or schedule them for download at a less busy time to minimize down time. This procedure assumes that the firmware image files are resident on the source board (TN799C C-LAN).



**NOTE:**

Make sure the target boards are working before the download.



**NOTE:**

If you are scheduling circuit packs used as primary and secondary sync sources (such as TN464GPs), the timing automatically moves to a local sync source when the boards are busied out during the download. The timing automatically moves back to the proper sync sources after the boards are returned to service.

Complete the following tasks:

- [Check SPE](#)
- [Locate Target Boards](#)
- [Verify Trunk Status \(optional\)](#)
- [Verify Files](#)
- [Schedule Download](#)
- [Check Specified Resources \(scheduled downloads only\)](#)
- [Monitor Download Progress](#)
- [Disable Filesystem](#)

## Check SPE

1. Log into DEFINITY ECS or DEFINITY ONE.
2. Type the following commands depending on the platform:
  - a. On a DEFINITY ECS R10r, type **status spe** and press Enter to check the health of the SPE.

For high or critical reliability systems, make sure that the:

- Standby Refreshed field shows **yes**
- Standby Shadowing field shows **on**
- Standby Handshake field shows **up**

- b. On a DEFINITY ECS R10si or R10csi, type **status system 1** and press Enter and verify that the SPE is active.

For high or critical reliability systems, make sure that the Service State fields for both SPEs are set to **active** or **standby**.

- c. On a DEFINITY ONE, type **status system all-cabinets** and press Enter.

## Locate Target Boards

If you do not know the target board locations, do the following step:

1. To locate DS1 target boards, type **list configuration ds1** and press Enter. Look for the "P" suffix in the Code column and note the board location. You will need it later in the process.

or

To locate other target boards, type **list configuration all** and press Enter.

```
list configuration all

                                SYSTEM CONFIGURATION

Board                               Assigned Ports
Number Board Type                   Code   Vintage   u=unassigned t=tti p=psa
01A13 IP MEDIA PROCESSOR            TN2302AP HW03 FW016 01 02 03 04 05 06 07 08
01A14 CONTROL-LAN                   TN799B  000002   u  u  u  u  u  u  u  u
                                u  u  u  u  u  u  u  17
01A15 DIGITAL LINE                   TN754B  000002   01 02 03 04 05 06 07 08
01A16 BRI LINE                       TN556B  000006   01 01 02 02 t t 04 04
                                05 05 06 06 07 07 08 08
                                09 09 10 10 11 11 12 12
01A  PROCESSOR                       TN2404  000003
01A  PROCR INTERFACE 1                TN765  000016   u  u  u  u
01A  NETCON/PKTINT                   TN2401  000003   01 02 03 04 05 06 07 08
01A  TONE/CLOCK                       TN2182B 000001   01 02 03 04 05 06 07 08
01D13 DS1 INTERFACE                  TN2464BP HW00 FW101 01 02 03 04 05 u u u
                                u  u  u  u  u  u  u  u
                                u  u  u  u  u  u  u  u
                                u  u  u  u  u  u  u  u
```

### Verify Trunk Status (optional)

This optional procedure for DS1 target boards allows you to see which ports are in service.

1. Type **list configuration board UUCSS** and press Enter to identify the ports associated with a particular DS1 board. Note the total number of ports.
2. Type **display port UUCSSpp**, where **pp** is the port number of one of the ports, and press Enter to find the trunk group number.
3. Type **status trunk n**, where **n** is the trunk group number, and press Enter. Note the status of all the ports in service for that particular DS1 board.
4. If the number of ports in the group does not equal the total number of ports, repeat step 2 for a port number not listed.

For example, if trunk group 6 shows only ports 01 through 15, then display port 17 to identify the trunk group number for the rest of the ports for that particular DS1 board. Note the status of all the ports in service in that trunk group.

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Downloading Firmware to Port Circuit Packs

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Verify Files

1. Type **list directory board UUCSS** and press Enter to list the contents of the source board's directory.
2. Verify that the downloaded files are present.

```
list directory board 1C12                                     Page 1
                                                           LIST DIRECTORY

Board      File/Directory      Creation      Size
Location   Name               Date         Time        Kb
-----
01C12     F:fwdlimg464gv01   2000/01/01  00:00:00   367
01C13     F:fwdlimg2302av01  2000/02/29  23:59:59   493

D = Directory F = File
```

Schedule Download

1. Type **change firmware download** and press Enter.

```
change firmware download                                     Page 1 of 1
                                                           FIRMWARE DOWNLOAD

Source Board Location: _____
Firmware Image File Name: _____
Target Board code: _____ Suffix: __ Firmware Vintage: ____
Schedule Download? y      Remove Image File After Successful Download? y
Start Date/Time: __/__/____  :__      Stop Date/Time: __/__/____  :__

Target      Target      Target      Target      Target
Location    Location    Location    Location    Location
1.  _____  11. _____  21. _____  31. _____  41. _____
2.  _____  12. _____  22. _____  32. _____  42. _____
3.  _____  13. _____  23. _____  33. _____  43. _____
4.  _____  14. _____  24. _____  34. _____  44. _____
5.  _____  15. _____  25. _____  35. _____  45. _____
6.  _____  16. _____  26. _____  36. _____  46. _____
7.  _____  17. _____  27. _____  37. _____  47. _____
8.  _____  18. _____  28. _____  38. _____  48. _____
9.  _____  19. _____  29. _____  39. _____  49. _____
10. _____  20. _____  30. _____  40. _____  50. _____

Enter 5 character board number; cabinet(1-30):carrier(A-E):slot(0-20)
```

5 Adding or Removing Hardware

Downloading Firmware to Port Circuit Packs

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2. Fill in the following fields:

- Source Board Location:
- Firmware Image File Name:, which is stored in the source board filesystem
- Target Board code:, which must be one type only (for example, TN464GP)
- Suffix:, which must be a programmable board with the P suffix
- Schedule Download?

 NOTE:

The default is **y**. The download to the specified target board begins when the scheduled start time is reached. Once download begins, you cannot make any changes to the Firmware Download screen.

If you set the field to **n**, the Start Date/Time: and Stop Date/time: fields do not display. The download begins as soon as you press Enter.

- Start Date/Time:
- Stop Date/time: An optional field that allows you to stop the download before the time of day of the greatest usage.

 NOTE:

If the scheduled stop time is reached before all boards have been downloaded, software completes the downloading of the board in progress before aborting the remainder of the download schedule.

- Remove Image File After Successful Download?

 NOTE:

The default is **y**. At the completion of a successful download, the software automatically removes the download file from the source board filesystem and, if no more files remain in the filesystem, disables the filesystem, freeing up the memory on the source board. We recommend keeping the default setting.

 NOTE:

If you set it to **n**, at the completion of the download, you must manually remove the download file from the source board filesystem. See [“Disable Filesystem” on page 5-11](#).

## 5 Adding or Removing Hardware

### Downloading Firmware to Port Circuit Packs

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- Target Location

Make an entry for each programmable target board location, up to 50.

 **NOTE:**

You can only download one image file to one type of target board at a given time (for example, to all the TN464GPs). The download process *does not* support broadcasting more than one image file to multiple types of target boards in parallel (for example, TN464GPs and TN2313BPs).

3. Press Enter to submit the schedule.

 **NOTE:**

If you set the `Schedule Download?` field to **n**, the download starts as soon as you press Enter.

## Check Specified Resources (scheduled downloads only)

1. Type **test firmware download** and press Enter.
2. Check for FAIL conditions.
3. If failures occur, investigate the errors by referencing FW-DWNLD description in the appropriate maintenance book.
4. Resolve all errors.

When the test passes, all specified resources are available for the scheduled download.

## Monitor Download Progress

1. Type **status firmware download** and press Enter to view the progress of the all downloads on the schedule. The possible flags are **(P)**ending, **(C)**ompleted, **(F)**ailed, or **(A)**orted.

or

Type **status firmware download last** and press Enter to view the progress of the previous completed download on the schedule. Also, use this command at the end of the download schedule.

5 Adding or Removing Hardware

Downloading Firmware to Port Circuit Packs

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```

status firmware download                                     Page 1 of 1
                  STATUS FIRMWARE DOWNLOAD
Source Board Location: 01C02
Firmware Image File Name: usdly22r1
Target Board Code: TN464 Suffix: GP Firmware Vintage: 1
Schedule Download? Y
Start Date/Time: 01/12/2001 13:30 Stop Date/Time: 01/14/2001 16:30

Target      Target      Target      Target      Target
Location St Location St Location St Location St Location St
1. 01C04  C  11. _____ 21. _____ 31. _____ 41. _____
2. 01C06  C  12. _____ 22. _____ 32. _____ 42. _____
3. 01C08  P  13. _____ 23. _____ 33. _____ 43. _____
4. _____  -  14. _____ 24. _____ 34. _____ 44. _____
5. _____  -  15. _____ 25. _____ 35. _____ 45. _____
6. _____  -  16. _____ 26. _____ 36. _____ 46. _____
7. _____  -  17. _____ 27. _____ 37. _____ 47. _____
8. _____  -  18. _____ 28. _____ 38. _____ 48. _____
9. _____  -  19. _____ 29. _____ 39. _____ 49. _____
10. _____ -  20. _____ 30. _____ 40. _____ 50. _____
20
21
Status: Pending(P) Completed(C) Failed(F) Aborted (A)
    
```

### Abort a Firmware Download

If you need to abort a scheduled firmware download:

1. Type **disable firmware download** and press Enter.

The software continues to download the board in progress and then aborts the remainder of the download schedule.

### Disable Filesystem

To free up resources on the source board, you must delete the files and disable the filesystem.

1. Type **remove file board UUCSS filename** and press Enter to remove image files from the source board.
2. Type **disable filesystem board UUCSS** and press Enter to disable the filesystem on the source board.



**NOTE:**

Only successful if no files remain on the source board.

## Installing TN464GP/TN2464BP with Echo Cancellation

---

The TN464GP and TN2464BP circuit packs with echo cancellation are intended for DEFINITY customers who are likely to encounter echo over circuits connected to the Direct Distance Dialing (DDD) network. These circuit packs are intended for channels supporting voice; therefore, they support the following trunks: CAS, CO, DID, DIOD, DMI, FX, Tie, WATS. They do not support any data trunk groups.

### NOTE:

The P suffix designation means the circuit pack is programmable; new firmware can be downloaded directly to the circuit pack. For more information refer to [“Downloading Firmware to Port Circuit Packs” on page 5-2](#).

The TN464GP and TN2464BP circuit packs are backwards compatible, although the echo cancellation feature can only be used with Release 10 or later software and after the feature is enabled.

The echo cancellation feature cancels echoes with delays up to 96 ms. Echo cancellation is disabled automatically when the circuit pack detects a 2100-Hz *phase-reversed* tone put out by high-speed modems (56K baud) but not when it detects a 2100-Hz *straight* tone generated by low-speed modems (9.6K baud).

For information on installing port circuit packs, refer to [“Add Circuit Packs” on page 5-1](#). For information on setting the option switches, refer to [“TN464F/GP and TN2464BP Option Settings” on page 2-11](#). For information on administering the circuit packs, refer to the *DEFINITY ECS Administrator's Guide*.

Echo cancellation must first be purchased, then a License File created and installed.

Use the following procedure to modify the settings:

### NOTE:

You do not need to busyout the circuit packs to modify the settings. But the modified settings do not take effect until either the port is busied out or the scheduled maintenance runs.

1. Type **display system-parameters customer-options** and press Enter. On screen 2 verify that the DS1 Echo Cancellation? field is set to **y**. If not, you must get a License File with this feature enabled and install it on this switch.
2. Type **[add | change] trunk-group [next | number]** and press Enter.

5 Adding or Removing Hardware

Installing TN464GP/TN2464BP with Echo Cancellation

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```
add trunk-group next                               Page 2 of 11  SPE A
                                                    TRUNK FEATURES
          ACA Assignment? n                        Measured: both
          Internal Alert? n                        Maintenance Tests? y
          Data Restriction? n
          Glare Handling: none
          Used for DCS? n
          Suppress # Outpulsing? n
          Seize When Maintenance Busy: neither-end

          Incoming Tone (DTMF) ANI: no            Per Call CPN Blocking Code:
          Connected to CO? n                      Per Call CPN Unblocking Code:
                                                    Ds1 Echo Cancellation? y
```

3. On Trunk Features, screen 2, set the DS1 Echo Cancellation? field to **y**.

4. Type **[add | change] ds1 UUCSS** and press Enter.

```
add ds1 2b08                                       Page 1 of 1  SPE B
                                                    DS1 CIRCUIT PACK
          Location: 02B08                          Name: Echo Cancel t23
          Bit Rate: 2.048                          Line Coding: hdb3
          Signaling Mode: CAS
          Interconnect: pbx                        Country Protocol: 1
          Interface Companding: mulaw              CRC? n
          Idle Code: 11111111
          Slip Detection? y                        Near-end CSU Type: other
          Echo Cancellation? y
          EC Direction: inward
          EC Configuration: 1
```

5 Adding or Removing Hardware  
Installing TN464GP/TN2464BP with Echo Cancellation

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5. On the DS1 Circuit Pack screen, set the Echo Cancellation? field to **y**.

When set to **y**, 2 new fields display: EC Direction: and EC Configuration:.

- If you know the echo is coming into DEFINITY, keep the default setting for the EC Direction: field of **inward**.
- If you know that the distant party is hearing echo that originates in DEFINITY or its line side stations or equipment, set the EC Direction: field to **outward**.

Keep the default setting for the EC Configuration: field of **1**. This setting rapidly minimizes echo when first detected, regardless of the loudness of the talker's voice.

6. Test the voice quality on a telephone connected through the TN464GP or TN2464BP circuit packs and known to have echo to see if the echo was eliminated.
7. If the echo still exists, set the EC Configuration: field to **2**, **3**, or **4**, then test the voice quality. These settings provide help for the following scenarios:
  - Setting 2 minimizes speech clipping, but it takes a fraction of a second longer for the echo to fade.
  - Setting 3 eliminates speech clipping, but a strong echo may take 2 or 3 seconds to fade.
  - Setting 4 minimizes extremely strong echo, very hot signals, or excessive clipping or breakup of speech from a distant party. It reduces speech clipping but may allow slight residual echo or more background noise.
8. If after trying all these settings, the echo still exists, contact technical support. Refer to ["Where to get additional help"](#) on page -xviii.

## Add CO, FX, WATS, and PCOL

---

### Requirements

---

Each Central Office (CO), Foreign Exchange (FX), Personal Central Office Line (PCOL), or Wide Area Telecommunications Service (WATS) trunk connects to 1 port of either an 8-port TN747B or to 1 of several CO trunk circuit packs.

### Installation

---

1. Install a TN747B or a CO Trunk circuit pack in the assigned carrier slot (if an additional circuit pack is required).
2. Administer the forms listed under CO, FX, WATS, or PCOL Trunk Group in *DEFINITY Enterprise Communications Server Administrator's Guide*.
3. Determine the port assignment of the trunk from the Trunk Group form.

<b>EXAMPLE:</b>	3	A	07	01
	Cabinet (Port Network)	Carrier	Slot Number	Port Number

## Add DID Trunks

---

### Requirements

---

Two circuit packs presently support Direct Inward Dial (DID) trunks: the TN753 DID trunk circuit pack and the TN797 Combination Circuit pack. Each can support up to 8 DID trunks.

### Installation

---

1. Determine the port assignment of the trunk from the Trunk Group form.

<b>EXAMPLE:</b>	3	A	07	01
	Cabinet (Port Network)	Carrier	Slot Number	Port Number

2. Install a DID Trunk circuit pack in assigned carrier slot (if an additional circuit pack is required).
3. Administer forms listed under "DID Trunk Group" in *DEFINITY Enterprise Communications Server Administrator's Guide*.

## Add Tie Trunks

---

### Requirements

---

Each tie trunk connects to 1 port of a 4-port tie trunk circuit pack or to an assortment of international tie trunk circuit packs.

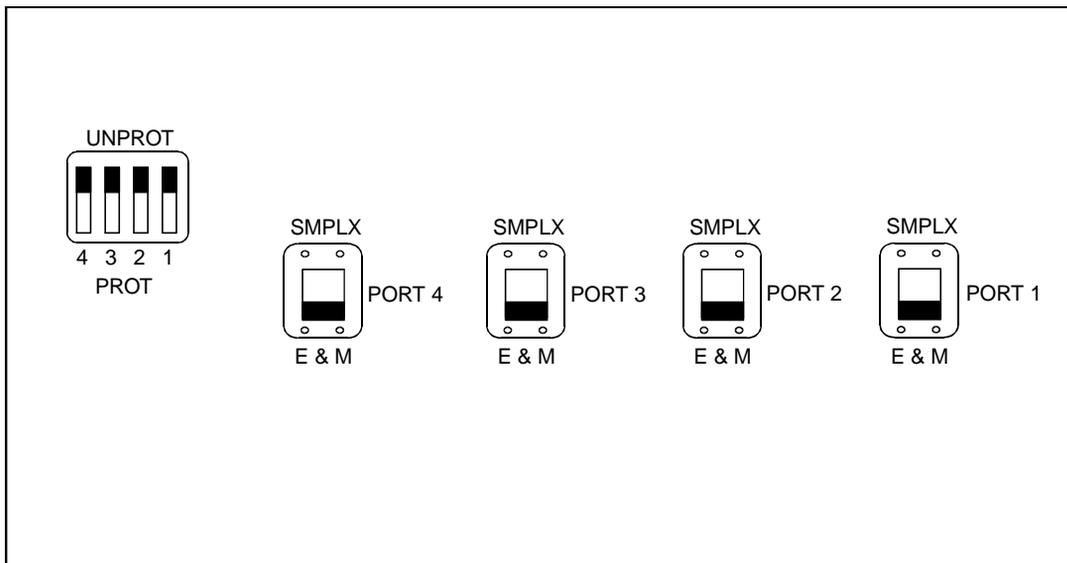
### Installation

---

1. Determine the port assignment of the trunk from the trunk group screen.

<b>EXAMPLE:</b>	3	A	07	01
	Cabinet (Port Network)	Carrier	Slot Number	Port Number

2. Install the tie trunk or an international tie trunk circuit pack in assigned carrier slot (if an additional circuit pack is required).
3. For customer-owned (not leased) tie-trunk facilities (such as campus environments), tie trunk circuit packs provide signaling capabilities beyond those specified by the industry-wide E&M standard. Use [Figure 5-1 on page 5-17](#) and [Table 5-1 on page 5-17](#) to choose the preferred signaling format, set switches on the circuit pack, and administer the port.
4. Administer forms listed under "Tie Trunk Group" in the *DEFINITY Enterprise Communications Server Administrator's Guide*.



r758183 RBP 050896

Figure 5-1. Tie Trunk Circuit Packs (Component Side)

Table 5-1. Tie Trunk Option-Switch Settings and Administration

Installation Situation		Preferred Signaling Format		E&M/SMPLX Switch	Prot/Unprot Switch	Administered Port
Circumstance	To	System	Far-End			
Collocated	DEFINITY	E&M Type 1 Compatible	E&M Type 1 Standard	E&M	Unprotected	Type 1 Compatible
Inter-Building	DEFINITY	Protected Type 1 Compatible	Protected Type 1 Standard Plus Protection Unit	E&M	Protected	Type 1  Compatible
Collocated	Net Integrated	E&M Type 1 Standard	Any PBX	E&M	Unprotected	Type 1

## Add DS1 Tie and OPS

---

The TN2313 DS1 Tie Trunk and TN767B (or later) DS1 Interface circuit packs provide connections to a 1.544 Mbps DS1 facility (T1) as 24 independent 64 Kbps trunks.

The TN2313 DS1 Tie Trunk, TN767B (or later) DS1 Interface, and TN464C (or later) DS1 Interface circuit packs provide connections to a 2.048 Mbps DS1 facility (E1) as 32 independent 64-kbps trunks.

## Service Interruption

---

1. Since the addition of DS1 tie-trunk service may require a service interruption, notify the customer in advance as to when the addition will occur.
2. For information about administering DS1 Tie Trunks, refer to *DEFINITY Enterprise Communications Server Administrator's Guide*.

## Add Speech Synthesis

---

The Speech Synthesizer circuit pack is required when the Voice Message Retrieval, Automatic Wakeup, or Do Not Disturb features are activated. The circuit pack does not require administration.

1. Determine the port assignment of the Speech Synthesizer circuit pack being added.
2. Install the Speech Synthesizer circuit pack in the designated carrier slot.

## Add Code Calling Access

---

The tones for the Code Calling feature are generated by the Tone-Clock circuit packs in the port networks.

1. Install an Auxiliary Trunk circuit pack or a Speech Synthesizer circuit pack and connect for Loudspeaker Paging. The Code Calling Access feature shares the same ports as Loudspeaker Paging. An Auxiliary Trunk circuit pack provides 4 ports for Loudspeaker Paging and Code Calling Access.
2. Administer the form listed under "Code Calling Access" in *DEFINITY Enterprise Communications Server Administrator's Guide*.

## Add Pooled Modem

---

Modem pooling supports two types of conversion resources: integrated and combined.

An integrated conversion requires a Pooled Modem circuit pack for each 2 conversion resources provided.

A combined conversion requires a port of a TN745B or TN2136 Digital Line circuit pack and a port of either an 8-port TN742, TN769, a 16-port TN746B, or a 24-port TN793/B, TN2793/B Analog Line circuit pack for each conversion resource provided.

The pooled modem requires a WP90110 L7 power supply. Although integrated conversion can use either the L5 or L7, the combined only works with an L7.



### CAUTION:

*The L5 and L7 power supplies look identical. Check the label to be sure you have the L7 before installing.*

Determine the port assignment of the circuit packs to be added (if required).

3. Install the appropriate circuit packs in assigned carrier slot (if required).
4. For Paradyne 3800 series modems:
  - a. Type **AT&F&D2&S4\D3S2=128x7V2S7=60S85=1** and press Enter.
  - b. Type **ATY0S10=100S78=2M0E0\N1&W** and press Enter.
5. For other types of modems, refer to the vendor's documentation.

## Settings for Modem Connected to Data Module

---

1. Type **add data-module next** and press Enter.
2. Type **pdm** in the `Type` field.
3. Type **x** in the `Port` field.
4. Type **dte** in the `Connected to` field and press Enter.
5. Type **add station next** and press Enter.
6. Type **2500** in the `Type` field.
7. Type **x** in the `Port` field.
8. Type **n** in the `Tests` field and press Enter.
9. Type **add modem-pool next** and press Enter.

5 Adding or Removing Hardware

Add Integrated Announcements/TN2501AP

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10. Type **combined** in the `Group Type` field.
11. Type **5** in the `Hold Time (min)` field.
12. Type **two-way** in the `Direction` field.
13. Type **9600** in the `Speed` field.
14. Type **Full** in the `Duplex` field.
15. Type **async** in the `Synchronization` field.
16. Type the port pair assignments in the `Analog` and `Digital` fields and press Enter.

## Settings for Modem Connected to the Data Terminal Equipment (DTE)

---

1. Type **add station next** and press Enter.
2. Type **2500** in the `Type` field.
3. Type the port assignment in the `Port` field and press Enter.

## Add Integrated Announcements/TN2501AP

---

### Replacing a TN750/B/C circuit pack

---

If you are replacing a TN750C announcement circuit pack with the new TN2501AP:

- get a list and description of the announcements stored on the TN750C circuit pack.
- re-record the announcements on a computer or at a professional recording studio as .wav files (CCITT  $\mu$ -Law or A-Law, 8KHz, 8-bit mono), so that they are ready to transfer to the new announcement circuit pack after it is installed and administered. See [Announcement File Specifications](#).



**CAUTION:**

*Before you remove a TN750A or B circuit pack from its carrier, ensure that you have backed up the announcements that are stored on it. Once you remove the circuit pack from the carrier, power is lost along with the announcements.*

5 Adding or Removing Hardware  
Add Integrated Announcements/TN2501AP

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Replacing old announcement circuit packs with the new TN2501AP circuit pack requires that you

- remove previous announcement administration
- record new announcements for the TN2501AP
- re-record any announcements currently resident *on the TN750 circuit packs that you are replacing*. You cannot transfer or restore TN750 announcements from flash card, tape, or optical disk to the TN2501AP.

## Announcement File Specifications

The TN2501AP circuit pack, Voice Announcement over LAN (VAL), requires that announcement files are in the following .wav formats:

- CCITT A-Law or CCITT  $\mu$ -Law companding format (do not use PCM)
- 8KHz sample rate
- 8-bit resolution (bits per sample)
- Mono (channels = 1)

All previously-recorded announcements must be converted to these file formats to work on the TN2501AP circuit pack. Announcements recorded through the direct telephone access are automatically recorded in the correct file formats.

## Caveats

Remember the following points when using the TN2501AP integrated announcement circuit pack for the first time or when replacing the TN750C circuit pack:

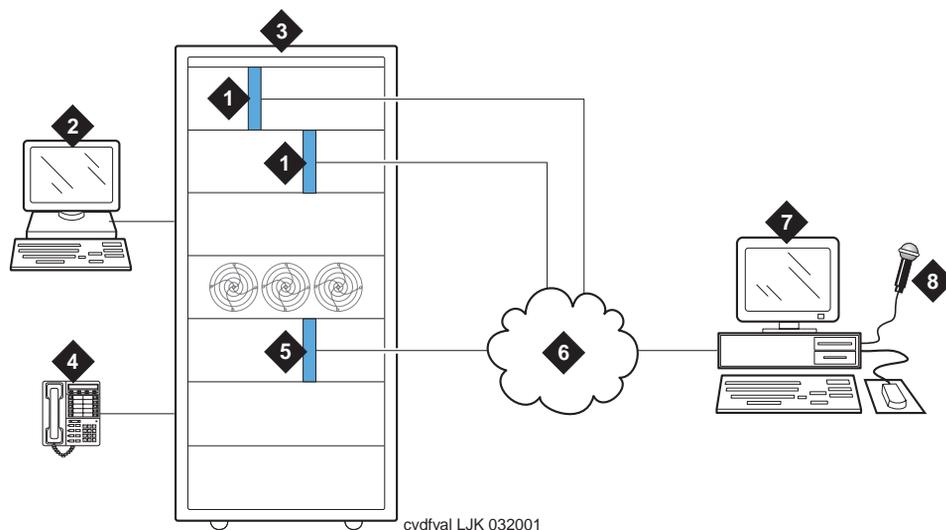
- Despite the feature name, announcements are not played over the LAN but can be transferred to and from the TN2501AP circuit pack over the LAN.
- You cannot save or restore announcements to a TN2501AP circuit pack to/from
  - a TN750C circuit pack.
  - flash cards.
  - tape.
  - magneto optical disks.

## Before you start

Ensure that you have the required hardware (see "[Hardware specifications](#)").

## Configurations

Figure 5-2 shows the configuration options for the TN2501AP (VAL) circuit pack within a system.



### Figure Notes

1. TN2501AP VAL announcement circuit pack
2. System access terminal (SAT)
3. Switch
4. Phone for recording announcements
5. TN799C (C-LAN) is required when using IP SAT or VAL Manager.
6. Your LAN (See [LAN cable](#))
7. Computer or remote recording studio for
  - Recording and storing announcements
  - FTP client application
  - VAL Manager application (PC only)
8. Microphone

Figure 5-2. VAL configuration options

## Hardware specifications

The following table contains a list of the required VAL hardware.

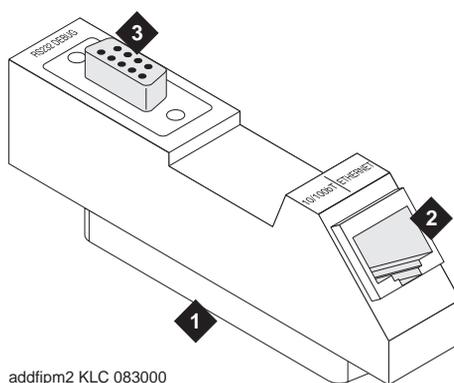
Part	Number	Comcode
TN2501AP	1	108772583
<a href="#">Backplane Adapter</a> (Label reads IP Media Processor)	1	848525887
<a href="#">LAN cable</a> varies by network (see also Notes for <a href="#">Figure 5-3</a> )	N/A	N/A

To establish LAN connections the TN2501AP circuit pack requires a

- [Backplane Adapter](#) that attaches to the Amphenol connector on the back of the cabinet, corresponding to the TN2501AP integrated announcement circuit pack slot.
- [LAN cable](#) that attaches to the Backplane Adapter.

## Backplane Adapter

[Figure 5-3](#) shows the Backplane Adapter (label reads IP Media Processor).



### Figure Notes

1. Amphenol connector attaches to the back of the switch cabinet, corresponding to the TN2501AP circuit pack slot.
2. RJ-45 LAN cable connection
  - 10 Mbps uses Category 3 cable.
  - 100 Mbps uses Category 5 cable.
3. This connector is not used for VAL.

Figure 5-3. Backplane Adapter (Comcode 848525887)

## LAN cable

The TN2501AP circuit pack does not include cables to connect the circuit pack to your LAN. The following table lists the cable category and connection port.

Ethernet connection speed	Cable	Connection description
10 Mbps	Category 3	Connects through the RJ45 jack (note #2 in <a href="#">Figure 5-3</a> ),
100 Mbps	Category 5	Connects through the RJ45 jack (note #2 in <a href="#">Figure 5-3</a> ),

## Switch administration before hardware installation

Before inserting the circuit pack into a carrier, an Avaya representative must administer the VAL customer options. Before installing the hardware, check your system for the following administration:

1. At the SAT, type **display system-parameters customer-options** and press RETURN.

The System Parameters Customer Options screen appears.

2. Verify that the `G3 Version` field is set to **V10**.
3. Verify that `Maximum VAL Boards` field is set to 1 or greater, up to the maximum number allowed in the system.

### NOTE:

Any value greater than the default (1) means that you have the Enhanced offer.

4. Scroll to page 4.
5. Verify that the `VAL Full 1-Hour Capacity?` field is set for the offer that was purchased:
  - **n** for Standard offer (10 minutes storage time) and only 1 circuit pack.
  - **y** for Enhanced offer (1 hour storage time) and multiple circuit packs.

If any of the preceding administration is different, you must get a License File with these customer options enabled and install it on the switch before the TN2501AP circuit pack works.

## Hardware installation

---



### WARNING:

*To prevent electrostatic discharge (ESD), be sure to wear a grounding strap while handling the circuit pack.*

1. Remove connector (if any) from the back of the switch cabinet corresponding to the TN2501AP circuit pack slot.
2. Insert the circuit pack into any port slot and close the latch securely.

At first, both the red and green LEDs are on steady, then the green LED flashes. If there are announcements on the circuit pack, the amber LED flashes while the announcements are copied from FLASH to RAM. After approximately 3-5 minutes, all of the top 3 LEDs go out, although this time is longer if there are announcements already recorded on the circuit pack.



### NOTE:

If the TN2501AP or TN750 circuit packs are at the system limit and you insert a VAL circuit pack, the red LED on that circuit pack stays on, indicating that the system does not accept it.

3. Connect the Backplane Adapter ([Figure 5-3](#)) to the Amphenol connector on the back of the switch cabinet, corresponding to the TN2501AP circuit pack slot.
4. Connect the LAN cable to the RJ-45 connector on the Backplane Adapter.

## Administer the IP connections

---

### list configuration board

Use this command to ensure that the switch recognizes the TN2501AP circuit pack after it is latched in the carrier slot.

1. At the SAT, type **list configuration board *board-location*** and press RETURN.

The System Configuration report appears.

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Add Integrated Announcements/TN2501AP

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```
list configuration board lc08                                     SPE A
                                                                SYSTEM CONFIGURATION
Board Number   Board Type           Code   Vintage   Assigned Ports
              u=unassigned t=tti p=psa
01C08         VAL-ANNOUNCEMENT      TN2501AP HW00 FW001 01 02 03 04 05 06 07 08
                                                       09 10 11 12 13 14 15 16
                                                       17 18 19 20 21 22 23 24
                                                       25 26 27 28 29 30 31 32
                                                       U
Command successfully completed
```

Screen 5-1. System Configuration screen (list configuration board)

2. Verify the following field values:

- Board Type shows **VAL-ANNOUNCEMENT**
- Code is **TN2501AP**

change node-names ip

Use this command to administer the circuit pack's node name.

1. At the SAT, type **change node-names ip** and press RETURN.

The IP Node Names screen appears.

```
change node-names ip                                           Page 1 of 1 SPE A
                                                                IP NODE NAMES
Name                IP Address           Name                IP Address
Tiki                172.22 .22 .79      . . .
cdr_1              192.168.22 .63      . . .
default            0 .0 .0 .0          . . .
iolan              172.22 .22 .68      . . .
lulu_cl1           172.22 .22 .71      . . .
lulu_cl2           172.22 .22 .77      . . .
riki               172.22 .22 .20      . . .
rsat4              172.31 .5 .49       . . .
rsat5              172.23 .23 .40      . . .
stl0clan#1         192.168.22 .21      . . .
stl2clan           172.22 .22 .67      . . .
stl2prowler#1     172.22 .22 .75      . . .
VAL#1              172.22 .22 .120     . . .
. . .
. . .
. . .
( 12 of 12 administered node-names are displayed)
Use 'list node-names' command to see all the administered node-names
Use 'change node-names ip xxx' to change a node-name 'xxx' or add a node-name
```

Screen 5-2. IP Node Names screen (change node-names ip)

5 Adding or Removing Hardware

Add Integrated Announcements/TN2501AP

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2. Type a unique name in the Name field.

**⇒ NOTE:**

This name is recognized only within the switch, and does not need to match the node name on the local network.

3. Enter the IP address in the IP Address field.

You can get this information from the network manager.

4. Press ENTER to save the changes.

### change ip-interfaces

Use this command to administer an IP interface, which associates the circuit pack with an IP address.

1. At the SAT, type **change ip-interfaces** and press RETURN.

The IP Interfaces screen appears.

```
change ip-interfaces                                     Page 1 of 6   SPE A

                                     IP INTERFACES

Enable
Eth Pt Type Slot Code Sfx Node Name Subnet Mask Gateway Address Rgn
y C-LAN 01C16 TN799 C st12clan 255.255.0 .0 172.22 .22 .254 1
y MEDPRO 01E04 TN2302 st12prowler#1 255.255.0 .0 172.22 .22 .254 1
y VAL 01C08 TN2501 VAL#1 255.255.0 .0 172.22 .22 .254
n 255.255.255.0 . . .
```

Screen 5-3. IP Interfaces screen (change ip-interfaces)

2. Set the Enable Eth Pt field to **y**.
3. Set the Type field to **VAL**.
4. Type the circuit pack location in the Slot field (UUCSS). In the example above the slot is 01C08, meaning Cabinet 1, carrier C, slot 8.
5. If a TN2501AP circuit pack is not at this location when you submit the screen, the system prompts you to enter a VAL circuit pack location.

**5** Adding or Removing Hardware  
Add Integrated Announcements/TN2501AP

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- The `Node Name` field is the same as the one previously administered. (See [change node-names ip](#))

 **NOTE:**

If you press `Help`, a list of administered node names appears (including the name you administered with the `change node-names ip` command), and you can select from the list.

- Set the `Subnet Mask` field according to your network requirements.
- The `Gateway Address` is usually the same as the TN2501AP circuit pack's IP address, usually with the fourth octet changed. Be sure to set this address according to your network requirements.
- Leave the `Net Rgn` (Network Region) field at its default value. This field is not used for VAL.
- Press `ENTER` to save the changes.

**add data-module**

Use this command to administer the data module that is associated with the TN2501AP ethernet port.

- At the SAT, type **add data-module *extension/next*** and press `RETURN`.

The Data Module screen appears.

```
add data-module 30006                                     Page 1 of 1   SPE A
                                                           DATA MODULE
Data Extension: 30006                                     Name: VAL#2 Data Module
Type: ethernet
Port: 1b0333
Link: 5
Network uses 1's for Broadcast Addresses? y
```

**Screen 5-4. Data Module screen (add data-module *extension*)**

- Set the `Type` field to **ethernet**.
- Set the `Port` field to correspond to the circuit pack location.

In the example above, 1b0333 means Cabinet 1, Carrier B, Slot 3, Port 33.

 **NOTE:**

The port number (final two digits) is always **33** for the TN2501AP circuit pack.

5 Adding or Removing Hardware  
Add ISDN—PRI

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4. Set the `Link` field to an unassigned or next-available link number.
5. Set the `Network uses 1's for Broadcast Address?` field according to the your network requirements.
6. Type a unique name in the `Name` field.
7. Press `ENTER` to save your changes.
8. If your system uses IP routing, continue with the [add ip-route](#) section.
9. Otherwise, go to the [Test the IP connections](#) section.

## add ip-route

Use this command to administer IP routes to the TN2501AP circuit pack. This administration is optional.

## Test the IP connections

---

Use the **ping** and **status link** commands to test the new IP connections that you have administered.

## Add ISDN—PRI

---

### North American

---

1. Install a TN767E (or later) DS1 or a TN464F DS1/E1 circuit pack for a signaling link and up to 23 ISDN — PRI Trunk Group members.
2. Install a Tone-Clock circuit pack to provide synchronization for the DS1 circuit pack.

If using a TN464F, then packet bus support has not been added, requiring more than 8 PRI signaling groups. See [“Add Packet Bus Support” on page 5-31](#) for adding circuit packs for packet bus support.

### International

---

1. Install a TN464C (or later) DS1/E1 circuit pack for the assignment of the 2 signaling channels and up to 30 ISDN — PRI Trunk Group members. Each E1 span provides 32 ports.
2. Install a Tone-Clock circuit pack to provide synchronization for the DS1/E1 circuit pack.

If using a TN464F, then packet bus support has not been added, requiring more than 8 PRI signaling groups. See [“Add Packet Bus Support” on page 5-31](#) for adding circuit packs for packet bus support.

## Add Packet Bus Support

---

1. If packet bus support is not already installed, see [“Add Packet Bus Support” on page 5-31](#) and perform the steps.

## Add Circuit Packs

---

1. Determine port assignment of circuit packs to be added.
2. Install the DS1 Interface circuit pack in the assigned carrier slot.
3. Install a Tone Detector circuit pack if required.

## Install Cables

---

1. Install cables from the TN464F to the MDF as required.

## Enter Added Translations

---

1. Administer the forms listed under “Integrated Services Digital Network — Primary Rate Interface” in *DEFINITY Enterprise Communications Server Administrator’s Guide*.

## Resolve Alarms

---

1. Examine the alarm log. Resolve any alarms that may exist using *DEFINITY Enterprise Communications Server Maintenance for R10csi*.

## Save Translations

---

1. Type **save translation** and press Enter. This instructs the system to take all translation information in memory and write it to the translation cards.
2. Update backup cards, if necessary.

## Add Packet Bus Support

---

### Disable Alarm Origination

---

1. Type **change system-parameters maintenance** and press Enter.
2. Set the Alarm Origination Activated field to **n**.

**CAUTION:**

*If you do not disable Alarm Origination, the system may generate alarms, resulting in unnecessary trouble tickets.*

3. For some releases of software, disable Cleared Alarm Notification and Restart Notification before submitting the form.

### Save Translations

---

1. Type **save translation** and press Enter. This instructs the system to take all translation information in memory and write it to the translation card.

### Install Circuit Packs

---

1. Install the appropriate circuit packs. See [Table 5-2](#).

Table 5-2. Circuit Pack Locations for Packet Bus in PPN

Circuit Pack	Carrier	Quantity	Slot
TN799C	Any	11	Any Available Port Slot

### Administer the Bus Bridge

---

1. Type **change system-parameters maintenance** and press Enter.
2. On Page 2, Type **y** in the PKTINT 2 field.
3. Choose the port bandwidths or use the default and submit the form.
4. Verify the bus bridge LED is lit on the TN799C C-LAN circuit pack. This indicates that the packet bus is enabled.

## Test the Packet Bus and C-LAN Circuit Pack

1. Type **test packet port-network 1 long** and press Enter. For more detail about these tests, refer to the test pkt command section in the *DEFINITY Enterprise Communications Server Maintenance for R10csi*.

## Resolve Alarms

1. Examine the alarm log. Resolve any alarms using *DEFINITY Enterprise Communications Server Maintenance for R10csi*.

## Enable Scheduled Maintenance and Alarm Origination

1. Type **change system-parameters maintenance** and press Enter.
2. Enable the scheduled maintenance.
3. If you changed the `Start Time` or `Stop Time` field, change it back to the original time.
4. Re-enable alarm origination.

## Check Customer Options

1. Type **display system-parameters customer-options** and press Enter.  
Ensure that the `G3 version` field is **V10**.
2. If the customer was using Supplementary Services Protocol b or d on an ISDN-PRI trunk group before the upgrade, go to screen 7, QSIG Optional Features, and ensure that the `Basic Call Setup` field is **y**.

## Add CallVisor ASAI

### Enter Added Translations

1. On the System-Parameters Customer-Options screen, check that the Calling Party Number/Billing Number (CPN/BN) option is disabled and that the CallVisor ASAI Interface option is enabled.
2. Enable the Packet Bus Activated option on the System-Parameters Maintenance screen.

## Save Translations

---

1. Type **save translation** and press Enter. This instructs the system to take all translation information in memory and write it to the translation cards.
2. If administered recorded announcements are displayed, Type **list configuration software-version** and press Enter. Go to Page 2 to see when announcements were last saved.
3. To save the announcements, Type **save announcements** and press Enter.

## Add Packet Bus Support

---

1. If packet bus support is not already installed, see [“Add Packet Bus Support” on page 5-31](#) and perform the steps.

## Add Circuit Packs

---

1. Determine port assignment of circuit packs to be added.
2. Install the appropriate circuit packs in assigned carrier slot (as required).

<b>EXAMPLE:</b>	3	A	07	01
	Cabinet (Port Network)	Carrier	Slot Number	Port Number

The TN744/C/D Call Classifier circuit pack is required for those customers who want switch call classification.

A vacant port is required on a TN556/B/C ISDN—BRI circuit pack.

## Install Cables

---

1. Install cables from TN464GP to the MDF as required.

## Enter Added Translations

---

1. Administer the required translation data using the forms listed under “Adjunct/Switch Applications Interface (ASA1)” in *DEFINITY Enterprise Communications Server Administrator’s Guide*.

## Resolve Alarms

---

1. Examine the alarm log. Resolve any alarms that may exist using *DEFINITY Enterprise Communications Server Maintenance for R10csi*.

## Save Translations

---

1. Type **save translation** and press **Enter**. This instructs the system to take all translation information in memory and write it to the translation cards.
2. Update backup translation cards, if required.

## Add TTC Japanese 2-Mbit Trunks

---

The TN2242 Japan 2-Mbit trunk interconnects DEFINITY to other vendor equipment in Japan as well as to other DEFINITY switches through the Time Division Multiplexor (TDM).

## Installing the trunk

---

1. Determine the port assignment of the trunk from the Trunk Group form.

<b>EXAMPLE:</b>	3	A	07	01
	Cabinet (Port Network)	Carrier	Slot Number	Port Number

2. Install a TN2242 circuit pack in assigned carrier slot.
3. Connect the H600-513 cable from the DEFINITY cabinet to the Time Division Multiplexor device.
4. To administer forms, see the following sections in the *DEFINITY Enterprise Communications Server Administrator's Guide*.
  - For ISDN applications, see ISDN Service.
  - For non-ISDN applications, see Managing Trunks.

## Add DCS Interface

---

Systems in a Distributed Communications System (DCS) network are interconnected by both tie trunks (for voice communications) and data links (for control and transparent feature information). These data links, also called DCS signaling links, support the feature transparency.

DCS requires a special signaling connection to carry the information needed to make the DCS features work. This signaling connection, or link, between two switches in a DCS network is implemented either:

- over an ISDN-PRI D-channel.
- over a TCP/IP (either PPP or 10Base-T Ethernet) connection.



### NOTE:

The "P" board suffix designation means the circuit pack is programmable. Refer to "[Downloading Firmware to Port Circuit Packs](#)" on page 5-2 for more information.

Meanwhile, the data link interface (between the processor and the physical signaling link) is provided by (or through) a TN799C Control-LAN circuit pack. In some configurations, the TN799C passes the signaling information over a separate 10BaseT TCP/IP network (usually via a hub). For use with 10BaseT, connect the appropriate pins of the I/O field to the hub, or use a 259A connector and DW8 cable to connect directly to the data-network equipment. For pinouts and diagrams, refer to the installation manual. In other configurations, the TN799C circuit pack carries signaling over point-to-point protocol (PPP) for subsequent inclusion (via the switching fabric) in the same DS1 bit stream as the DSC voice transmissions.

For further information about DCS, refer to the following documents:

- *AT&T System 75/85 Network and Data Services Reference Manual*
- *System 75 Application Notes Network Services*
- *DEFINITY ECS Administration for Network Connectivity*

## Add Circuit Packs

---

A TN464GP, TN767C, or TN760 DS1 circuit pack is required for PPP connections. A TN799C C-LAN circuit pack is also required.

1. Determine the port assignments of the circuit packs to be added.

If a C-LAN circuit pack is already in the system, you do not need a second C-LAN circuit pack for DCS. If your system already has a C-LAN, skip the following "[Administer the Bus Bridge](#)" section. You do not need to power down the cabinet to install any of these circuit packs.

## Administer the Bus Bridge

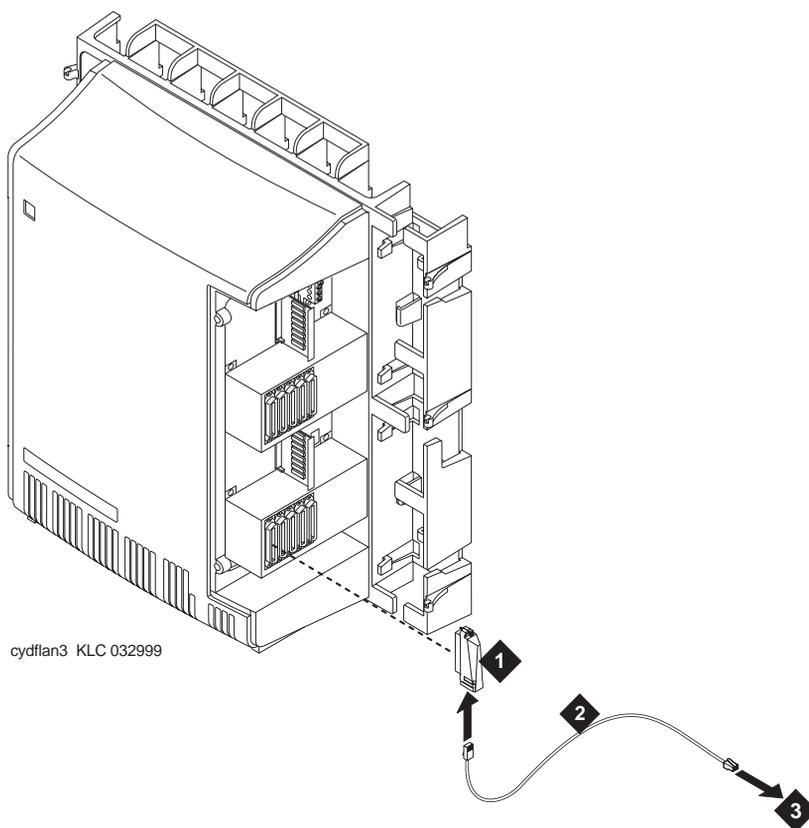
1. Type **change system-parameters maintenance** and press Enter.
2. On Page 2, Type **y** in the `PKTINT 2` field.
3. Choose the port bandwidths or use the default and submit the form.
4. Verify the bus bridge LED is lit on the C-LAN circuit pack. This indicates that the packet bus is enabled.

## Test the Packet Bus and Control-LAN Circuit Pack

1. Type **test packet port-network 1 long** and press Enter. For more detail about these tests, refer to the “test pkt command” section in the maintenance book.

## Install Cables

1. Install cable from the cabinet to a hub or 110 (purple) wall field as required. Connect the 259A connector to the port slot containing the C-LAN circuit pack. See [Figure 5-4 on page 5-37](#). For a pinout of TN799C, see [Table 5-3 on page 5-37](#).



**Figure Notes**

- 1. 259A Connector
- 2. DW8 Cable
- 3. Hub or 110 (purple) wall field

Figure 5-4. Cable Connection for C-LAN

Table 5-3. TN799C Pinout

Backplane Pin	25-Pair Wire Color	Lead Name	Peripheral Connector Pin
103	White/Orange	TD+	27
003	Orange/White	TD-	2
104	White/Green	RD+	28
004	Green/White	RD-	3

## Enter Added Translations

---

1. Type **display system-parameters customer-options** and press Enter.  
Ensure that the DCS field is **y**.
2. Administer the other required translation data using the forms listed under Distributed Communications System (DCS) in *DEFINITY Communications System Administration for Networking Connectivity*.

## Save Translations

---

1. Type **save translation** and press Enter to instruct the system to copy the translation information to the flashcard.

## Add ISDN—BRI

---

### Add the Packet Bus Support

---

1. If packet bus support is not already installed, see [“Add Packet Bus Support” on page 5-31](#) and perform the steps.

### Add Circuit Packs

---

1. Determine port assignment of circuit packs to be added.
2. Install the appropriate circuit packs in assigned cabinet slot (as required).

<b>EXAMPLE:</b>	3	A	07	01
	Cabinet (Port Network)	Carrier	Slot Number	Port Number

### Install Cables

---

1. Install cables from cabinet to the MDF as required.



**NOTE:**

BRI requires a 12-port backplane cable terminator (breakout connector). Connect this terminator to the 25-pair cable. This is different from the 8-port connector used for DCP.

## Enter Added Translations

---

1. Administer the required translation data using the forms listed under 7500D voice terminals and 8500 voice terminals in *DEFINITY Enterprise Communications Server Administrator's Guide*.

## Resolve Alarms

---

1. Examine the alarm log. Resolve any alarms using *DEFINITY Enterprise Communications Server Maintenance for R10csi*.

## Save Translations

---

1. Type **save translation** and press Enter to instruct the system copy translation information to the translation flashcards
2. Update backup cards, if required.

## Add Radio Controller

---

For information on installing and administering the TN789 Radio Controller, refer to *DEFINITY Wireless Business System Installation and Test*.

## Add IP Solutions

---

Avaya offers several IP solutions for customers, two of which are Avaya R300 Remote Office Communicator and the IP Media Processor. For information on the Avaya R300, refer to the documentation on the CD or with the Avaya R300 equipment.

DEFINITY ECS IP Media Processor allows you to send voice and fax from the DEFINITY ECS through an Internet protocol (IP) network to other DEFINITY ECSs having this feature or to other H.323 V2 compliant endpoints. It is implemented using either the TN802B IP Interface, which is a Windows NT server residing on the IP Interface Assembly (Release 8.1 or later software) or TN2302AP IP Media Processor (Release 8.3 or later software).

### NOTE:

The P board suffix designation means the circuit pack is firmware-downloadable. Refer to [“Downloading Firmware to Port Circuit Packs” on page 5-2](#) for more information.

Both the TN802B and the TN2302AP work on all 3 DEFINITY ECS platforms (r, si, csi) and DEFINITY ONE.

For information on installing this IP Solution, refer to

- [Add IP Media Processor](#)
- [Add IP Interface Assembly](#)

For information on TN802 IP Trunking, refer to the *DEFINITY Enterprise Communications Server Release 7 Installation and Test for Multicarrier Cabinets*.

## Add IP Media Processor

---

Unlike the TN802B IP Interface Assembly, the TN2302AP operates in one mode: Media Processor (MedPro), which is H.323 V2 compatible.

The following sections describe the process for

- [Preparing for Installation and Upgrade](#)
- [Installing the TN2302AP IP Media Processor](#)
- [Upgrading TN802 IP Trunking to TN2302AP IP Media Processor](#)
- [Upgrading a TN802B IP Interface Assembly to TN2302AP IP Media Processor](#)

For administration, refer to the *DEFINITY Enterprise Communications Server Administration for Network Connectivity*.

## Preparing for Installation and Upgrade

In addition to the TN2302AP IP Media Processor, you must also install and administer a C-LAN circuit pack (TN799B/C). For C-LAN administration, refer to *DEFINITY Enterprise Communications Server Administration for Network Connectivity*.

### NOTE:

Although the TN2302AP IP Media Processor works with the TN799B C-LAN circuit pack, you need a TN799C to download new firmware to the TN2302AP circuit pack.

The TN2302AP IP Media Processor can work in the same DEFINITY with the TN802 IP Trunking and the TN802B IP Interface Assembly. When figuring the maximum number of circuit packs, you must include all in your total count.

### NOTE:

The TN802 IP Trunking cannot talk directly via Ethernet to the TN2302AP IP Media Processor.

Each TN2302AP can support between 32 and 64 voice channels, depending on the codecs used.

## Check your onsite equipment

Have the following equipment on site before your shipment arrives:

- An unoccupied port slot in the DEFINITY ECS for each TN2302AP IP Media Processor



### NOTE:

The TN2302AP consumes 16 W of power per slot compared with an average of 15 W per slot. Do not fill every available slot in a given carrier with them.

- An additional unoccupied port slot for the TN799B/C, if needed. If you have an existing C-LAN TN799 circuit pack, replace it with the TN799B or later if it is to be used for IP solutions registration. Replace it with a TN799C if you want to be able to download new firmware to the TN2302AP.
- A 10 BaseT or 10/100 BaseT Ethernet connection into your local area network (LAN) for the TN2302AP.
- A 10 BaseT Ethernet connection into your LAN for the TN799B/C.
- Two or more valid, unused IP addresses on your network (one for each TN2302AP or TN802/B and one for each C-LAN) that can be assigned to the IP Media Processor server. You also need the subnet mask and default gateway.



### NOTE:

The customer provides the IP address, subnet mask, and gateway address.

## Check your shipment

When your DEFINITY ECS IP Solutions order arrives at your site, check the contents (see [Table 5-4 on page 5-42](#)).

1. Inspect the shipping carton for damage before opening it. If the box is damaged, *do not open it*. Inform the shipping company, and ask for instructions on filing a claim.
2. If the box is undamaged, check the contents against the packing slip. Check the condition of each component, and note any damage or shortages on the packing slip. The carton should contain the items in [Table 5-4 on page 5-42](#) for each TN2302AP IP Media Processor ordered.
3. Read and follow any directions inserted into the package by the factory.

**Table 5-4. Required Hardware**

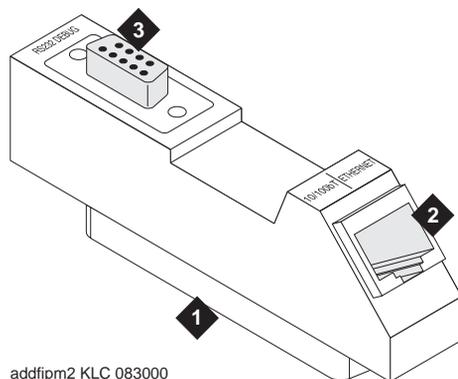
Comcode/Code	Description	Quantity
108312612	TN2302AP IP Media Processor	1
848525887	TN2302AP Amphenol Adapter <sup>1</sup>	1
108525528	TN799B/C <sup>2</sup> C-LAN circuit pack.  ⇒ NOTE: One TN799B/C supports more than one TN2302AP.	1
102631413	ADPTR-259A connector	1

<sup>1</sup>The adapter has an Amphenol connector on one side and an RJ45 connector on the other for connecting to the LAN. See [Figure 5-5](#).

<sup>2</sup>You must install a TN799C to be able to download new firmware to the TN2302AP.

⇒ NOTE:

The customer must provide one CAT5 or better cable for each TN2302AP.



### Figure Notes

- |   |                                    |
|---|------------------------------------|
| 1. Amphenol connector to backplane connector corresponding to TN2302AP slot | 2. To Ethernet                     |
|   | 3. 9-pin connector for maintenance |

Figure 5-5. TN2302AP Amphenol Adapter

## Installing the TN2302AP IP Media Processor

To install a TN2302AP IP Media Processor, you must install

- One or more TN2302AP circuit pack
- One or more TN799B/C circuit pack (A TN799B/C can support more than one TN2302AP)
- An IP Media Processor adapter.

### Connect the cables for TN799B/C

1. Determine into which port slots you are putting the TN799B/C C-LAN circuit packs.

From the rear of the cabinet:

2. Connect a 259A connector to the backplane connector corresponding to each TN799B/C slot.
3. Connect one end of each DW8 cable to each 259A connector.

## Connect the cables for TN2302AP

1. Determine into which port slots you are putting the TN2302AP IP Media Processor circuit packs.

From the rear of the cabinet:

2. Connect the amphenol connector on the adapter to the backplane connector corresponding to each TN2302AP slot.

## Connect the Ethernet

1. Connect the network cable(s) to the ETHERNET connector on the TN2302AP Amphenol adapter(s).



### NOTE:

You need a CAT5 or better cable for 100-Mbyte operation.

## Install the Circuit Packs



### CAUTION:

*When adding or replacing any hardware, be sure to ground yourself against electrostatic discharge (ESD) by wearing a grounded wrist strap.*



### NOTE:

The TN799B/C and TN2302AP circuit packs are hot-swappable, so you do not need to power down the carrier or cabinet to install them.

If replacing the existing TN799 circuit pack, remove it first and replace it with the new TN799B/C.



### NOTE:

To properly seat the circuit pack, push firmly on the front of the faceplate until the latch reaches the bottom rail of the carrier. Then close the latch until it is fully engaged.

1. Insert the TN799B/C circuit pack into the port slot identified earlier.
2. Insert the TN2302AP IP Media Processor into the port slot you reserved for it and seat it properly (See [Figure 5-6](#)).

When you plug in the TN2302AP IP Media Processor, the circuit pack starts to boot. The RED LED stays on until an IP address is assigned to the circuit pack.

3. Type **list configuration all** and press **Enter** to verify that the system recognizes the TN2302AP circuit packs.



Figure 5-6. TN2302AP IP Interface faceplate

### Initial Administration Steps for C-LAN and IP Media Processor



**NOTE:**

Refer to the *DEFINITY Enterprise Communications Server Administration for Network Connectivity* for specific information.

1. Log in as **craft**.
2. Type **change node-names** and press Enter.
3. On page 2, type in the node names and IP addresses for the TN799B/C and the TN2302AP.



**NOTE:**

The customer or design team provides the actual name and address. Suggest a generic name and not one tied to the circuit pack.

```
change node-names                                     Page 2 of 6
                                         NODE NAMES
Name                IP Address                Name                IP Address
clan-a1             192.168.1 .31                . . .
clan-b1            192.168.2 .31                . . .
default             0 .0 .0 .0                    . . .
mrmedpro1         192.168.1 .81                . . .
. . .
. . .
. . .
```

4. Type **display circuit-pack** and press Enter. Verify that the TN2302AP shows up in the Code column.

5. Type **change ip-interfaces** and press Enter.

```
change ip-interfaces                                 Page 1 of 2
                                         IP INTERFACES
Inter-region IP connectivity allowed? n
Enable
Eth Pt Type      Slot Code Sfx Node Name      Subnet Mask      Gateway Address  Rgn
y C-LAN  01A09 TN799 B clan-a1        255.255.255.0    . . .            1
y MEDPRO 01A13 TN802 B med-a1        255.255.255.0    192.168.10 .21  1
y C-LAN  01B03 ppp10        255.255.255.0    . . .            1
y MEDPRO 01B09 TN2302 AP mrmedpro1      255.255.255.0    . . .            1
n                255.255.255.0    . . .
```



**NOTE:**

The customer provides the IP address, subnet mask, and gateway address.

6. Type in the following information for the TN2302AP IP Media Processor and TN799B/C C-LAN:

 NOTE:

Enable the Ethernet port last, after you have filled in the information in the other fields.

- Set Slot field to **UUCSS**, where **UUCSS** is the cabinet, carrier, and slot.
- The Code and SFX fields are automatically populated with TN799B/C and TN2302AP.
- In the Node Name field type the same node name entered on the Node Name screen.
- In the Subnet Mask field use the default setting unless you are given a different subnet mask.
- In the Gateway Address field use the address you are given or leave blank.
- Set the Net Region field to **1** unless you are given a different number.
- Set the Enable Eth Pt field to **y**

7. Press Enter to save the information and effect the new settings.

Refer to the *DEFINITY Enterprise Communications Server Administration for Network Connectivity* for more information on these administration steps and for the steps to administer IP Softphones and H.323 trunks.

 NOTE:

The administration of the TN2302AP is the same as that for the TN802B.

### Test the External Connection to the LAN

To test the external IP connections, ping the C-LAN or IP Media Processor server and ping a known computer connected to your network. If everything is configured correctly, the Result column on the Ping Results screen reads **pass**. If it reads **abort**, verify the IP-address information and check the connectivity, including the cabling.

1. Type **ping ip-address nnn.nnn.nnn.nnn board UUCSS** and press Enter. The variable **nnn.nnn.nnn.nnn** is the IP address of the TN2302AP IP Media Processor and **UUCSS** is the cabinet, carrier, and slot of the TN2302AP IP Media Processor.

```
ping ip-address 192.168.10.21
```

## PING RESULTS

End-pt	IP	Port	Port Type	Result	Time(ms)	Error Code
192.168.10.21		01A13	MEDPRO	PASS	10	1124

2. Type **ping ip-address *nnn.nnn.nnn.nnn* board *UUCSS*** and press Enter. The variable ***nnn.nnn.nnn.nnn*** is the IP address of the customer's gateway and ***UUCSS*** is the cabinet, carrier, and slot of the TN2302AP IP Media Processor.
3. Type **ping ip-address *nnn.nnn.nnn.nnn* board *UUCSS*** and press Enter. The variable ***nnn.nnn.nnn.nnn*** is the IP address of another computer beyond the gateway and ***UUCSS*** is the cabinet, carrier, and slot of the TN2302AP IP Media Processor.

The TN2302AP IP Media Processor is now installed in the DEFINITY carrier and connected to the IP network.

## Upgrading TN802 IP Trunking to TN2302AP IP Media Processor

To upgrade IP Trunking to IP Media Processor, you must replace

- The TN802 circuit pack with a TN2302AP circuit pack
- The TN799 circuit pack with a TN799B/C circuit pack
- The H600 512, G1 external cable assembly with an IP Media Processor adapter.

### Pre-upgrade steps

1. Type **list configuration all** and press Enter to locate all the TN802 circuit pack ports.
2. Type **display port *UUCSSppp*** and press Enter to find the trunk group number associated with the TN802 circuit pack port.
3. Type **change trunk-group *number*** and press Enter. Go to screen 4. Delete all the TN802 ports.
4. Repeat steps 1 through 3 for each port.
5. Type **remove ds1 *UUCSS*** and press Enter.

## Remove the Circuit Packs



### CAUTION:

*When adding or replacing any hardware, be sure to ground yourself against electrostatic discharge (ESD) by wearing a grounded wrist strap.*



### NOTE:

The TN799B/C, TN802, and TN2302AP circuit packs are hot-swappable, so you do not need to power down the carrier to remove or install them.

1. Press the recessed Reset button on the TN802 circuit pack until **MSHUT\*** starts flashing on the LCD. When **MSHUT\*** is in a steady state, it is safe to remove the circuit pack.
2. Remove the TN799 and TN802 circuit packs.

## Replace the Cables

1. Disconnect the network cable from the Ethernet connection.
2. If using a monitor, keyboard, and mouse:
  - a. Turn off the monitor and unplug it from the AC outlet.
  - b. Disconnect the monitor, keyboard, and mouse from the H600-512 external cable assembly.
3. Turn off the modem and unplug it from the AC outlet.
4. Disconnect the modem's RS232 port from the H600-512 external cable assembly.

From the rear of the cabinet:

5. Disconnect the amphenol connector on the existing external cable assembly from the backplane connector corresponding to the TN802 circuit pack.
6. Connect the amphenol connector of the TN2302AP Amphenol adapter to the backplane connector corresponding to the slot selected for the TN2302AP circuit pack.



### NOTE:

The TN802 occupied 3 slots, and the cable was connected to the rightmost backplane slot. For convenience use the same rightmost slot vacated by the TN802 circuit pack for the TN2302AP circuit pack.

7. Connect the network cable to the Ethernet connector on the TN2302AP Amphenol adapter.

### Install the circuit packs

1. If replacing the TN799 circuit pack, install the TN799B/C circuit pack in the slot vacated by the TN799 circuit pack.
2. For convenience install the TN2302AP circuit pack in the rightmost slot vacated by the TN802 and where the adapter is connected to the corresponding backplane connector. The other 2 slots are now available for other circuit packs.

When you plug in the TN2302AP IP Media Processor, the circuit pack starts to boot. The RED LED stays on until an IP address is assigned to the circuit pack.

3. Type **list configuration all** and press `Enter` to verify that the system recognizes the TN2302AP circuit packs.

### Administration Steps

1. Administer the TN799B/C C-LAN. Refer to the *DEFINITY Enterprise Communications Server Administration for Network Connectivity*.
2. Administer the IP Media Processor, which is usually done remotely. Call your service representative to start the process.
3. Complete the administration and testing. Refer to [“Initial Administration Steps for C-LAN and IP Media Processor” on page 5-45](#) and [“Test the External Connection to the LAN” on page 5-47](#).

### Upgrading a TN802B IP Interface Assembly to TN2302AP IP Media Processor

To upgrade an IP Interface Assembly to IP Media Processor, you must replace

- The TN802B circuit pack with a TN2302AP circuit pack
- The TN799 circuit pack with a TN799B/C circuit pack, if necessary
- The H600-512, G1 external cable assembly with an IP Media Processor adapter.

## Pre-upgrade steps

1. Type **change ip-interfaces** and press Enter.

```
change ip-interfaces                                     Page 1 of 2

                                IP INTERFACES
Inter-region IP connectivity allowed? n
Enable
Eth Pt Type Slot Code Sfx Node Name Subnet Mask Gateway Address Rgn
y C-LAN 01A09 TN799 B clan-a1 255.255.255.0 . . . 1
n MEDPRO med-a1 255.255.255.0 192.168.10 .21 1
n 255.255.255.0 . . .
```

2. Set the Enable Eth Pt field to **n**
3. Press Enter to effect the change.
4. Type **change ip-interfaces** and press Enter.
5. Delete the information in the Type, Slot, and Node Name fields for each TN802B you are replacing.
6. Press Enter to save the information and effect the new settings.

## Remove the Circuit Packs



### CAUTION:

*When adding or replacing any hardware, be sure to ground yourself against electrostatic discharge (ESD) by wearing a grounded wrist strap.*



### NOTE:

The TN799B/C, TN802B, and TN2302AP circuit packs are hot-swappable, so you do not need to power down the carrier to remove or install them.



### NOTE:

If replacing the existing TN799 circuit pack, remove it first and replace it with the TN799C. If you have a TN799B, you do not need to replace it for the TN2302AP to work. You do need a TN799C if you want to be able to download new firmware to the TN2302AP.

1. Press the recessed Reset button on the TN802B circuit pack until **MSHUT\*** starts flashing on the LCD. When **MSHUT\*** is in a steady state, it is safe to remove the circuit pack.
2. Remove the TN799B and TN802B circuit packs.

### Replace the Cables

1. Disconnect the network cable from the Ethernet connection.
2. Turn off the modem and unplug it from the AC outlet. It is not needed for the TN2302AP.
3. Disconnect the modem's RS232 port from the H600-512 external cable assembly.

From the rear of the cabinet:

4. Disconnect the amphenol connector on the external cable assembly from the backplane connector corresponding to the TN802B circuit pack.
5. Connect the amphenol connector on the TN2302AP Amphenol adapter to the backplane connector corresponding to slot selected for the TN2302AP circuit pack.



#### NOTE:

The TN802 circuit pack occupied 3 slots, and the cable was connected to the rightmost slot. For convenience use the same rightmost slot vacated by the TN802B circuit pack for the TN2302AP circuit pack. The other 2 slots are now available for other circuit packs.

6. Connect the network cable to the Ethernet connector on the TN2302AP Amphenol adapter.

### Install the circuit packs

1. If replacing the TN799 circuit pack, install the TN799B/C circuit pack in the slot vacated by the TN799 circuit pack.
2. For convenience install the TN2302AP circuit pack in the rightmost slot vacated by the TN802B and where the adapter is connected to the corresponding backplane connector. The other 2 slots are now available for other circuit packs.

When you plug in the TN2302AP IP Media Processor, the circuit pack starts to boot. The RED LED stays on until an IP address is assigned to the circuit pack.

3. Type **list configuration all** and press Enter to verify that the system recognizes the TN2302AP circuit packs.

## Administration Steps

1. Administer the TN799B/C C-LAN, if necessary. Refer to the *DEFINITY Enterprise Communications Server Administration for Network Connectivity*.
2. Administer the IP Media Processor, which is usually done remotely. Call your service representative to start the process.
3. Complete the administration and testing. Refer to [“Initial Administration Steps for C-LAN and IP Media Processor” on page 5-45](#) and [“Test the External Connection to the LAN” on page 5-47](#).

## Add IP Interface Assembly

The IP Interface is an assembly composed of a TN802B circuit board, a processor card, and DSP resource card. For ordering purposes, the assembly is identified as a J58890MA-1 L30, but for simplicity, we refer to it as the TN802B IP Interface.

The TN802B IP Interface operates in two modes: IP Trunk, available with Release 7 or later, and Media Processor (MedPro), available with Release 8. The IP Trunk mode is Internet Telephone Server—Enterprise (ITS-E) compatible, and the MedPro mode is H.323 V2 compatible. The TN802B IP Interface is backwards compatible and defaults to IP Trunk mode. You must administer it to use it in MedPro mode.

For more information on the IP Interface capabilities and limitations, refer to the *DEFINITY Enterprise Communications Server Release 8 Overview*.

The following sections describe the process for

- [Installing in Media Processor Mode](#)
- [Installing in IP Trunk Mode](#)
- [Upgrading a TN802 V3 \(or later\) to a TN802B \(MedPro mode\)](#)



### **WARNING:**

*When connected remotely via pcANYWHERE, only use the pcANYWHERE Restart Host Computer button on the toolbar to restart Windows NT.*

## Installing in Media Processor Mode

To operate in MedPro mode, you must install the TN802B IP Interface and, if the system does not have one, you must also install and administer a TN799B C-LAN circuit pack. For C-LAN administration, refer to *DEFINITY Enterprise Communications Server Administration for Network Connectivity*.

If you have existing TN802 IP Interface circuit packs, you can upgrade them either by replacing the circuit pack with a TN802B or by downloading the TN802B firmware onto the circuit packs (see [“Upgrade to TN802B \(R8\)” on page 5-81](#)).

## Prepare for Installation

Have the following equipment on site before your shipment arrives:

- AC power outlets for the modem and monitor.
- Three unoccupied and adjoining port slots in the DEFINITY ECS for the TN802B IP Interface, if needed.  
  
The TN802B occupies only one slot, but it needs the two slots to its left for clearance.
- An additional unoccupied port slot for the TN799B, if needed. If you have an existing TN799 circuit pack, replace it with the TN799B.
- A 10 BaseT or 10/100 BaseT Ethernet connection into your local area network for the TN802B.
- A 10 BaseT Ethernet connection into your local area network for the TN799B.
- Two or more valid, unused IP addresses on your network (one for MedPro and one for C-LAN) that can be assigned to the IP Interface server. You also need the subnet mask and default gateway.
- An analog telephone line reserved (DID is okay) for the IP Interface diagnostic modem
- A valid telephone number reserved for the IP Interface diagnostic modem

In addition if non-U.S. customer:

- Modem comparable to a U.S. Robotics Sportster Model USR 33.6 EXT.
- Cable from modem to TN802B external cable assembly.

We recommend that you protect your cabinet with an uninterruptable power system (UPS).

## Check your Shipment

When your DEFINITY Media Processor order arrives at your site, check the contents (see [Table 5-5](#)).

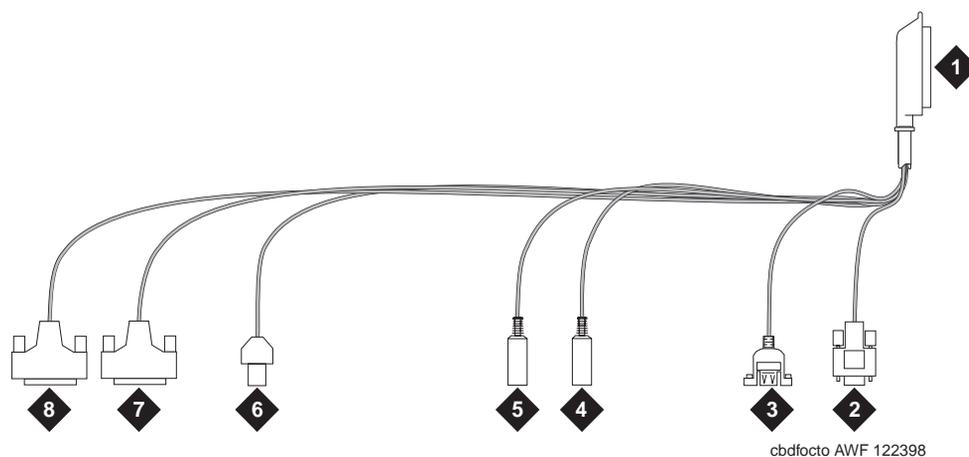
1. Inspect the shipping carton for damage before opening it. If the box is damaged, *do not open it*. Inform the shipping company, and ask for instructions on filing a claim.
2. If the box is undamaged, check the contents against the packing slip. Check the condition of each component, and note any damage or shortages on the packing slip. The carton should contain the following for each IP Interface ordered:

Table 5-5. Required Hardware

Comcode/Code	Description	Quantity
108525528	TN799B C-LAN circuit pack. One TN799B supports more than one TN802B.	1
J58890MA-1 L30	TN802B IP Interface Assembly	1 or more
601939804	H600-512,G1 external cable assembly	1 or more
	259A connector	1
	CAT5 or better cable	1
407633999	U.S. Robotics Sportster external modem, Model USR 33.6 EXT (U.S. customers only). Non-U.S. customers must provide a modem comparable to this model.	1
601087091	20-ft DB-25 serial cable from modem to TN802B external cable assembly (U.S. customers only). Non-U.S. customers must provide a serial cable.	1

3. Read and follow any directions inserted into the package by the factory.

The TN802B external cable assembly is a bundle of cables with an amphenol connector at the end of the bundle and various PC-type connectors (VGA, Universal Serial Bus [USB], mouse, keyboard, Ethernet, modem, and COM2) at the ends of the individual cables. See [Figure 5-7](#). Look for the label where the bundle enters the amphenol connector.



### Figure Notes

- |   |                                   |
|---|-----------------------------------|
| 1. Amphenol connector to connector corresponding to TN802B slot | 5. To mouse                       |
| 2. To VGA monitor   | 6. To ethernet                    |
| 3. To USB (not used)  | 7. 25-pin male connector to modem |
| 4. To keyboard  | 8. 25-pin male connector to COM2  |

Figure 5-7. TN802B IP Interface External Cable Assembly

### Connect the Cables

- Determine into which port slots you are putting the TN799B C-LAN and TN802B IP Interface circuit packs.



**NOTE:**

Make sure that at least 3 adjacent slots are free for the TN802B.

From the rear of the cabinet:

- If adding a new TN799B, connect the 259A connector to the backplane connector corresponding to the TN799B slot.
- If adding a new TN799B, connect one end of the DW8 cable to the 259A connector. Connect the other end to the customer's network.
- Connect the amphenol connector on the external cable assembly to the backplane connector corresponding to the TN802B slot (the highest numbered connector of the 3 slots required)

## Connect the Modem

### ⇒ NOTE:

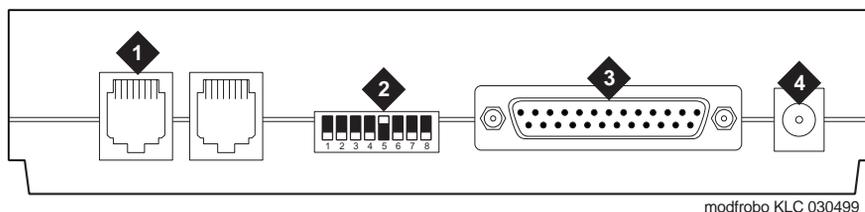
These instructions are for connecting the U.S. Robotics modem supplied to U.S. customers only. If using a different modem, follow the manufacturer's instructions on connecting the modem.

1. Connect the RS232 port of the modem to the MODEM connector of the TN802B external cable assembly.

### ⇒ NOTE:

Check the labels near the connectors; the MODEM and COM2 connectors look the same.

2. Connect an analog telephone line to the left most analog-line port on the modem as shown in [Figure 5-8](#).
3. Make sure that the modem's DIP switches are set as shown in [Figure 5-8](#) and [Table 5-6 on page 5-58](#).
4. Plug the modem into an AC power outlet.
5. Turn on the modem using the switch on the front of the modem.



### Figure Notes

- |                              |                                  |
|------------------------------|----------------------------------|
| 1. Connect analog line here. | 3. Connect MODEM connector here. |
| 2. DIP switch 5 must be up.  | 4. Connect power connector here. |

Figure 5-8. External Modem Connections for U.S. Robotics Modem

Table 5-6. U.S. Robotics Modem Dip Switch Settings

Dip Switch	Setting	Description
1	UP DOWN	Data Terminal Ready normal Data Terminal Ready override
2	UP DOWN	Verbal result codes Numeric result codes
3	UP DOWN	Suppress result codes Display result codes
4	UP DOWN	Echo offline commands No echo, offline commands
5	<b>UP</b> DOWN	<b>Auto answer on first ring or higher if specified in NVRAM</b> Auto answer off
6	UP DOWN	Carrier detect normal Carrier detect override
7	UP DOWN	Load NVRAM defaults Load factory defaults
8	UP DOWN	Dumb mode Smart mode

### Connect the Ethernet

1. Connect the network cable to the ETHERNET connector on the TN802B external cable assembly.

**NOTE:**

You need a CAT5 or better cable for 100-Mbyte operation.

### Install the Circuit Packs

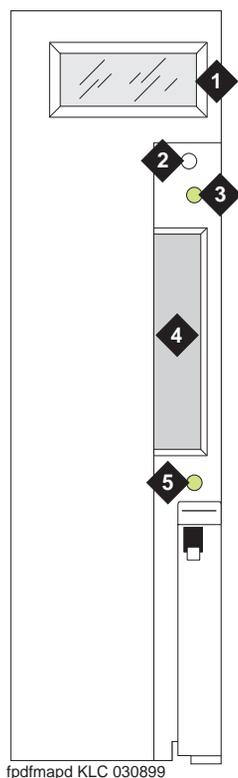
**CAUTION:**

*When adding or replacing any hardware, be sure to ground yourself against electrostatic discharge (ESD) by wearing a grounded wrist strap.*

**NOTE:**

The TN799B and TN802B circuit packs are hot-swappable, so you do not need to power down the carrier to install them.

If you need to remove the TN802B IP Interface from the carrier at a later time, shut down Windows NT first by pressing the recessed reset button on the faceplate (see [Figure 5-9 on page 5-59](#)) of the TN802B IP Interface until the LCD shows a flashing **MSHUT \***. When the flashing stops and the asterisk disappears (about 2 min), it is safe to remove the circuit pack.



### Figure Notes

- |                            |                                  |
|----------------------------|----------------------------------|
| 1. LCD display             | 4. PCMCIA card slot              |
| 2. Reset button (recessed) | 5. Yellow PCMCIA disk-in-use LED |
| 3. Red board status LED    |                                  |

Figure 5-9. TN802B IP Interface faceplate

### ⇒ NOTE:

If replacing the existing TN799 circuit pack, remove it first and replace it with the new one.

1. Insert the TN799B circuit pack into the port slot identified earlier.

### ⇒ NOTE:

To properly seat the circuit pack, push firmly on the front of the faceplate until the latch reaches the bottom rail of the carrier. Then close the latch until it is fully engaged.

2. Insert the TN802B IP Interface into the right most of the three slots you reserved for it (see [Figure 5-10](#)) and seat it properly.

When you plug in the TN802B IP Interface Assembly, the circuit pack starts to boot and the LCD reads **PC Boot**. The circuit pack reboots automatically, and after about 3 to 4 minutes the LCD changes to **IPTRK\***, the default mode, or **MEDPRO\***.

If the TN802B is pre-administered at the factory, it reboots several times to initialize to MedPro mode.

If the TN802B is not pre-administered, go to [“Administration Steps”](#) on [page 5-61](#)

**NOTE:**

For an initial installation, the TN802B IP Interface needs to be administered first (see [“Administer the IP Interface”](#) on [page 5-61](#)).

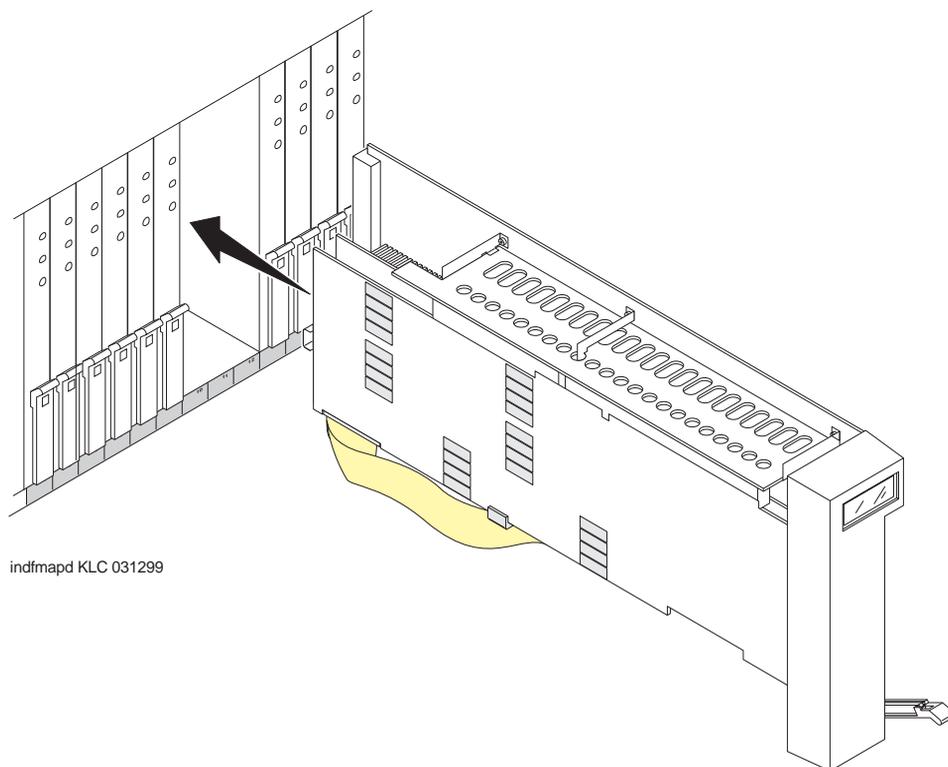


Figure 5-10. J58890MA-1 L30 IP Interface Assembly

## Administer the TN799B C-LAN

Refer to the *DEFINITY Enterprise Communications Server Administration for Network Connectivity*.

## Administer the IP Interface

Administration is usually done remotely; call your service representative to start the process.

## Administration Steps



### NOTE:

Refer to the *DEFINITY Enterprise Communications Server Administration for Network Connectivity for Release 8* for specific information.

1. Log in as **craft**.
2. Type **change node-names** and press Enter.
3. On screen 2, type in the node name and IP address for the TN802B.

change node-names		NODE NAMES		Page	2 of	6
Name	IP Address	Name	IP Address			
clan-a1	192.168.1 .31	.	.	.		
clan-b1	192.168.2 .31	.	.	.		
default	0 .0 .0 .0	.	.	.		
med-a1	192.168.1 .81	.	.	.		
	.	.	.	.		
	.	.	.	.		
	.	.	.	.		

4. Type **change circuit-pack** and press Enter.

5. Check the Code column to see if the slots above the TN802B say DSMAPD or MEDPRO.

```
change circuit-packs                                     Page 1 of 5
                CIRCUIT PACKS

      Cabinet: 1                                     Carrier: A
                                                Carrier Type: processor

Slot Code  Sf Mode  Name                               Slot Code  Sf Mode  Name
01: TN754           DIGITAL LINE                               11: MEDPRO      RESERVED-IP
02: TN758           POOLED MODEM                               12: MEDPRO      RESERVED-IP
03: TN2144          ANALOG LINE                                           13: TN802 B     MAPD BOARD
04: TN746 B         ANALOG LINE                                           14:
05:                                                         15:
06: TN771 C         MAINTENANCE/TEST                               16:
07: TN464 F         DS1 INTERFACE
08: TN2140          E&M TIE TRUNK
09: TN767 E         DS1 INTERFACE
10: TN799 B         CONTROL-LAN

'#' indicates circuit pack conflict.
```

6. If not, type MEDPRO in the slot just above TN802B slot and press Enter. Changing the one entry automatically changes the entry above it. If it is in IP Trunk mode, you get the following error message:

MedPro type requires TN802 with application. Type MEDPRO on circuit-packs form.

7. Type **change ip-interfaces** and press Enter.
8. Type in the information for the TN802B IP Interface,
9. Set the Enabled field to **y**, and press Enter.



**NOTE:**

The customer provides the IP address, subnet mask, and gateway address.

At this time the TN802B LCD reads **PC BOOT \***, and about 3 to 4 minutes later reads **MEDPRO \*** with the asterisk flashing

```
change ip-interfaces                                     Page 1 of 2

Network regions are interconnected? n
En-
abled Type      Slot Code Sfx Node Name          Subnet Mask      Bcast/Gway      Net
Addr Rgn
n   C-LAN 01A09 TN799  clan-a1          255.255.255.0    192.168.1.100 1
y   MEDPRO 01A13 TN802  B med-a1          255.255.255.0    192.168.1.21  1
n
n   255.255.255.0    . . .
```

### Test the External Connection to the LAN

To test the external IP connections, ping the IP Interface server, and ping a known computer connected to your network. If everything is configured correctly, the **Result** column on the Ping Results screen reads **pass**. If it reads **abort**, verify the IP-address information and check the connectivity, including the cabling.

1. Type **ping ip-address *nnn.nnn.nnn.nnn* board *UUCSS*** and press Enter. The variable ***nnn.nnn.nnn.nnn*** is the IP address of the TN802B IP Interface and ***UUCSS*** is the cabinet, carrier, and slot of the TN802B IP Interface.

```
ping ip-address 192.168.10.21

PING RESULTS

End-pt IP      Port      Port Type  Result  Time(ms)  Error Code
192.168.10.21  01A13    MEDPRO    PASS    10        1124
```

2. Type **ping ip-address *nnn.nnn.nnn.nnn* board *UUCSS*** and press Enter. The variable ***nnn.nnn.nnn.nnn*** is the IP address of the customer's gateway and ***UUCSS*** is the cabinet, carrier, and slot of the TN802B IP Interface.
3. Type **ping ip-address *nnn.nnn.nnn.nnn* board *UUCSS*** and press Enter. The variable ***nnn.nnn.nnn.nnn*** is the IP address of another computer beyond the gateway and ***UUCSS*** is the cabinet, carrier, and slot of the TN802B IP Interface.

The TN802B IP Interface is now installed in the DEFINITY carrier and connected to the IP network.

## Installing in IP Trunk Mode



### NOTE:

IP Trunk mode should only be used to maintain compatibility with existing Release 7 IP Trunk or ITS-E installations. We strongly recommend that MedPro mode be used whenever possible.

### Prepare for Installation

Have the following equipment on site before your shipment arrives:

- A mouse, keyboard, and VGA monitor for use during the installation of the server. You also need AC power outlets for the modem and monitor.
- Three adjoining, unoccupied port slots in the DEFINITY ECS  
The TN802B IP Interface slides into only 1 slot, but its faceplate occupies 3 slots.
- A 10 BaseT or 10/100 BaseT Ethernet connection into the customer's local area network (LAN)
- A valid, unused IP address on the customer's LAN that can be assigned to the IP Interface server. You also need the subnet mask, default gateway, domain name, and so forth from the customer's network administrator.
- An analog telephone line reserved for the IP Interface diagnostic modem
- A valid telephone number reserved for the IP Interface diagnostic modem

If non-U.S. customer:

- Modem comparable to a U.S. Robotics, Inc. Sportster Model USR 33.6 EXT.
- A cable from the modem to the TN802B external cable assembly.

We recommend that you protect the cabinet where the IP Interface is installed with an uninterruptable power system (UPS).

### Check your Shipment

When your DEFINITY Media Processor order arrives at the customer's site, check the contents (see [Table 5-7 on page 5-65](#)).

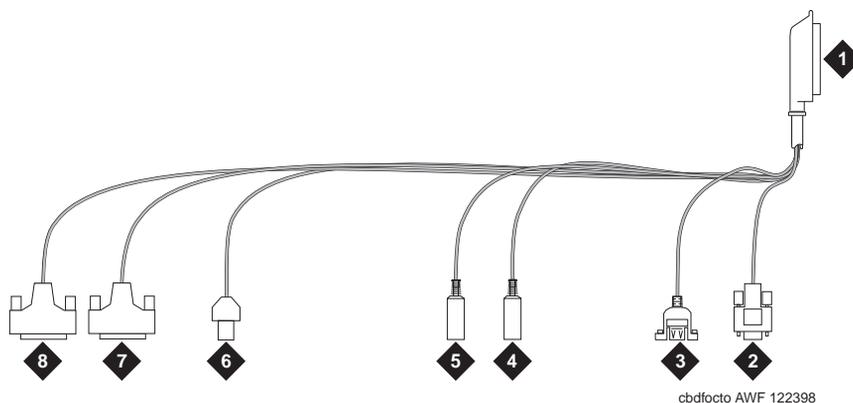
1. Inspect the shipping carton for damage before opening it. If the box is damaged, *do not open it*. Inform the shipping company, and ask for instructions on filing a claim.
2. If the box is undamaged, check the contents against the packing slip. Check the condition of each component, and note any damage or shortages on the packing slip. The carton should contain the following for each IP Interface ordered:

**Table 5-7. Required Hardware**

Comcode/Code	Description	Quantity
J58890MA-1 L30	TN802B IP Interface Assembly	1
601939804	H600-512,G1 external cable assembly	1
407633999	U.S. Robotics Sportster external modem, model number USR 33.6 EXT (U.S. customers only) <sup>1</sup>	1
601087091	20-ft DB-25 serial cable from modem to TN802B external cable assembly (U.S. customers only) <sup>2</sup>	1

1. For non-U.S. customers, you need a modem comparable to the U.S. Robotics Sportster and a serial cable.

The TN802B external cable assembly is a bundle of cables with an amphenol connector at the end of the bundle and various PC-type connectors (VGA, Universal Serial Bus [USB], mouse, keyboard, Ethernet, modem, and COM2) at the ends of the individual cables. See [Figure 5-11](#). Look for the label where the bundle enters the amphenol connector.



**Figure Notes**

- |   |                                   |
|---|-----------------------------------|
| 1. Amphenol connector to connector corresponding to TN802B slot | 5. To mouse                       |
| 2. To VGA monitor   | 6. To ethernet                    |
| 3. To USB (not used)  | 7. 25-pin male connector to modem |
| 4. To keyboard  | 8. 25-pin male connector to COM2  |

**Figure 5-11. TN802B IP Interface External Cable Assembly**

3. Read and follow any directions inserted into the package by the factory.

## Connect the Cables

1. Determine into which port slot you are putting the TN802B IP Interface.

**⇒ NOTE:**

Make sure that at least 3 adjoining slots are free.

2. From the rear of the cabinet, connect the amphenol connector on the external cable assembly to the backplane connector corresponding to that slot (the highest numbered connector of the 3 slots required).

## Connect the Modem

**⇒ NOTE:**

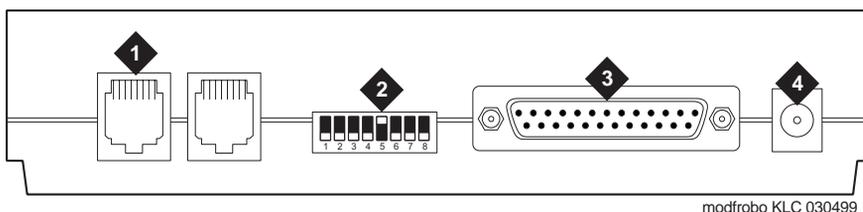
These instructions are for connecting the U.S. Robotics modem supplied to U.S. customers only. If using a different modem, follow the manufacturer's instructions on connecting the modem.

1. Connect the RS232 port of the modem to the MODEM connector of the TN802B external cable assembly.

**⇒ NOTE:**

Check the labels near the connectors; the MODEM and COM2 connectors look the same.

2. Connect an analog telephone line to the leftmost analog-line port on the modem as shown in [Figure 5-12](#).
3. Make sure that the modem's DIP switches are set as shown in [Figure 5-12](#) and [Table 5-8 on page 5-67](#).
4. Plug the modem into an AC power outlet.
5. Turn on the modem using the switch on the front of the modem.



### Figure Notes

- |                              |                                  |
|------------------------------|----------------------------------|
| 1. Connect analog line here. | 3. Connect MODEM connector here. |
| 2. DIP switch 5 must be up.  | 4. Connect power connector here. |

Figure 5-12. External Modem Connections for U.S. Robotics Sportster

Table 5-8. U.S. Robotics Modem Dip Switch Settings

Dip Switch	Setting	Description
1	UP DOWN	Data Terminal Ready normal Data Terminal Ready override
2	UP DOWN	Verbal result codes Numeric result codes
3	UP DOWN	Suppress result codes Display result codes
4	UP DOWN	Echo offline commands No echo, offline commands
5	<b>UP</b> DOWN	<b>Auto answer on first ring or higher if specified in NVRAM</b> Auto answer off
6	UP DOWN	Carrier detect normal Carrier detect override
7	UP DOWN	Load NVRAM defaults Load factory defaults
8	UP DOWN	Dumb mode Smart mode

## Connect the Monitor, Keyboard, and Mouse

### NOTE:

Only make these connections if administered locally. Not necessary if administered remotely.

You must connect these before inserting the TN802B IP Interface.

1. Attach a VGA monitor to the VGA connector of the TN802B IP Interface external cable assembly.
2. Attach the keyboard to the KEYBOARD connector of the external cable assembly.
3. Attach the mouse to the MOUSE connector of the external cable assembly.
4. Plug the monitor into an AC power receptacle and turn it on.

## Connect the Ethernet

1. Connect the network cable to the ETHERNET connector on the TN802B external cable assembly.



**NOTE:**

You need a CAT5 or better cable for 100-Mbyte operation.

## Install the Circuit Pack



**CAUTION:**

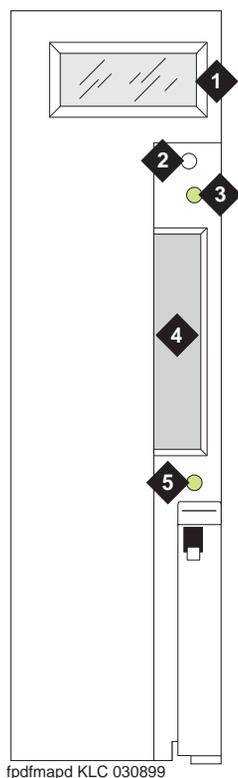
*When adding or replacing any hardware, be sure to ground yourself against electrostatic discharge (ESD) by wearing a grounded wrist strap.*



**NOTE:**

The TN802B IP Interface is hot-swappable, so you do not need to power down the carrier to install it.

If you need to remove the TN802B IP Interface from the carrier at a later time, shut down Windows NT first by pressing the recessed reset button on the faceplate (see [Figure 5-13 on page 5-69](#)) of the TN802B IP Interface until the LCD shows a flashing **MSHUT** \*. When the flashing stops and the asterisk disappears (about 2 min), it is safe to remove the circuit pack.



### Figure Notes

- |                            |                                  |
|----------------------------|----------------------------------|
| 1. LCD display             | 4. PCMCIA card slot              |
| 2. Reset button (recessed) | 5. Yellow PCMCIA disk-in-use LED |
| 3. Red board status LED    |                                  |

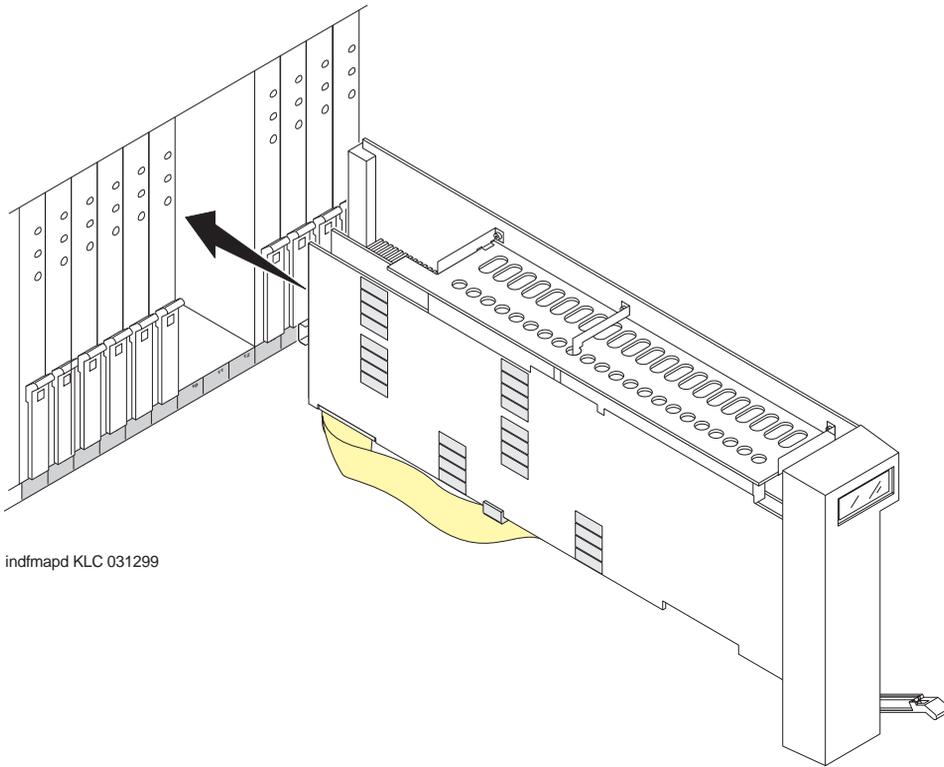
Figure 5-13. TN802B IP Interface faceplate

### NOTE:

To properly seat the circuit pack, push firmly on the front of the faceplate until the latch reaches the bottom rail of the carrier. Then close the latch until it is fully engaged.

1. Insert the TN802B IP Interface into the rightmost of the three slots you reserved for it (see [Figure 5-14 on page 5-70](#)).

When you plug in the TN802B IP Interface, the circuit pack starts to boot and the LCD reads **PC Boot** then after about 3 to 4 minutes it changes to **IP TRK \***, the default mode.



indfmapd KLC 031299

Figure 5-14. J58890MA-1 L30 IP Interface Assembly

### Test the Modem

1. Check for dial tone.
2. Contact Avaya Customer Support and ask a representative to dial into your IP Interface server.

### Administer the IP Interface

Administration is done either locally or remotely. If administered locally, proceed with the following administration steps on the attached keyboard, mouse, and monitor. If administered remotely, call your service representative to start the process.

## Administration Steps

1. Log in as **craft**.
2. Type **change circuit-pack** and press Enter.
3. Check the Code column to see if the slots above the TN802B say DSMAPD or MEDPRO.

```
change circuit-packs                                     Page 1 of 5
                CIRCUIT PACKS
                Cabinet: 1                               Carrier: A
                Carrier Type: processor
Slot Code  Sf Mode  Name                               Slot Code  Sf Mode  Name
01: TN754          DIGITAL LINE                               11:  DSMAPD    RESERVED-IP
02: TN758          POOLED MODEM                                12:  DSMAPD    RESERVED-IP
03: TN2144         ANALOG LINE                                    13:  TN802 B    MAPD BOARD
04: TN746 B        ANALOG LINE                                    14:
05                                                         15:
06: TN771 C        MAINTENANCE/TEST                             16:
07: TN464 F        DS1 INTERFACE
08: TN2140         E&M TIE TRUNK
09: TN767 E        DS1 INTERFACE
10: TN799 B        CONTROL-LAN
'#' indicates circuit pack conflict.
```

4. If MEDPRO, go to the entry just above the TN802B that says MEDPRO.
5. Type DSMAPD, and press Enter. Changing the one entry automatically changes the entry above it. If it is in IP Trunk mode, you get the following error message:

```
MedPro type requires TN802 with application. Type
MEDPRO on circuit-packs form.
```

**Log onto the TN802B Interface Server .** If administered remotely through pcANYWHERE:

1. Dial in to the server through pcANYWHERE using the dialup number supplied.
2. Click on the pcANYWHERE Remote Host Computer button on the toolbar to send CTRL ALT DEL to the host.
3. Type **administrator** in the User Name field.
4. Type **iptrunk** in the Password field and click **OK**.
5. After logging on for the first time, change the administrator password and, if desired, the user name, to ensure security. See your Windows NT server documentation for details.

If administered locally on a monitor, keyboard, and mouse:

1. Press CTRL, ALT, and DEL simultaneously.
2. Type **administrator** in the `User Name` field.
3. Type **iptrunk** in the `Password` field and click **OK**.
4. After logging on for the first time, change the administrator password and, if desired, the user name, to ensure security. See your Windows NT server documentation for details.

**A-Law versus Mu-Law.** For systems using A-Law companding, an additional procedure is necessary.

On the SAT:

1. Busyout the trunk group associated with the IP trunk by typing **busyout board UUCSS** and pressing Enter.

In the Windows interface to TN802B:

1. Click on **Control Panel > Services**.
2. Highlight **IP Trunk Service**, then click on **Stop**.
3. In the lower left-hand corner, right-click **Start > Explore**.
4. Go to the c: drive and click on its, then bin.
5. Double-click on the its.ini file to open it in Notepad.
6. Under the [MediaLib] section, go to COMPANDING=MLAW. Change **MLAW** to **ALAW**.
7. Click on **File > Save** to save the file.
8. Click on **File > Exit** to exit Notepad.
9. Click on **Control Panel > Services**.
10. Highlight **IP Trunk Service**, then click on **Start**.



**NOTE:**

Do not select Startup.

After service has started, go to the SAT:

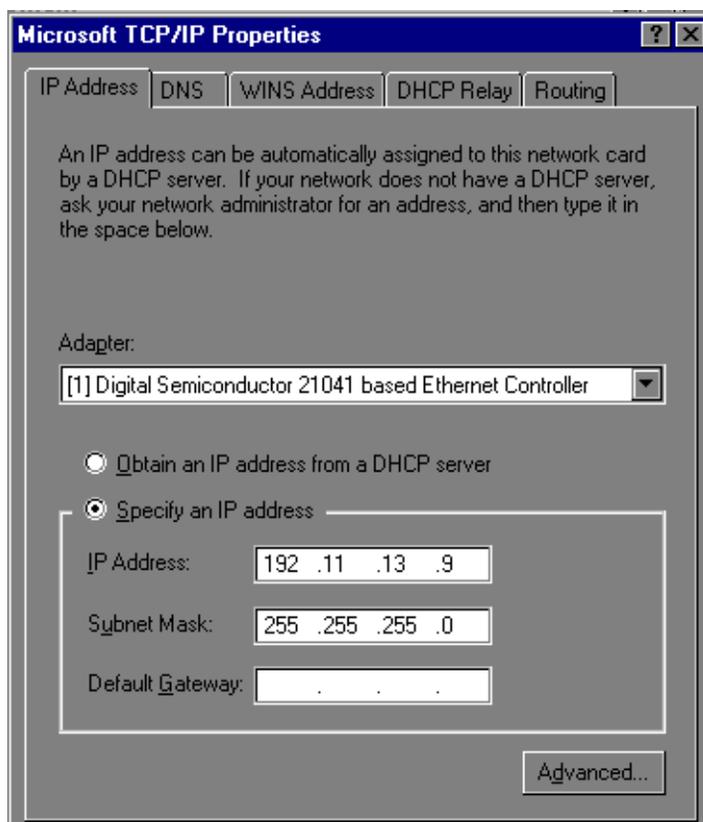
1. Release the trunk group associated with the IP trunk by typing **release board UUCSS** and pressing Enter.

**Assign Server and Domain Names.** The Windows NT server identifies servers using a server name plus a domain name that locates the named server in a particular part of the network. The TN802B IP Interface is shipped with generic server and domain names. Assign replacement names that are meaningful within your network.

1. Click on **My Computer > Control Panel > Network**.
2. Select the **Identification** tab, then click **Change**.
3. Type the new server name in the `Computer Name` field.
4. Type the new domain name in the `Domain` field and click **OK > OK > Close**.
5. When prompted to reboot the computer, select one of the following options:
  - **No** if you have not assigned IP addresses then go to **"Assign an IP Address"**
  - **Yes** if you have assigned IP addresses.

**Assign an IP Address.** 1. Click on **My Computer > Control Panel > Network**.

2. Click the **Protocols** tab.
3. Select **TCP/IP Protocol** from the list.
4. Click the **Properties** option in the Network window.



5. Verify that the Adapter drop down menu lists 2 DEC Ethernet adapters.



**CAUTION:**

*Do not change any settings on the adapter labeled [1] for any reason.*

6. Select the DEC Ethernet adapter labeled [2].

The screenshot shows the 'Microsoft TCP/IP Properties' dialog box with the 'IP Address' tab active. The 'Adapter' dropdown menu is set to '[2] Digital Semiconductor 21143 based 10/100 mpbs Ethernet'. Under the 'Specify an IP address' section, the IP Address field is '1 .1 .1 .1', the Subnet Mask field is '255 .255 .255 .0', and the Default Gateway field is '1 .1 .1 .1'. The 'Advanced...' button is visible at the bottom right of the dialog box.

7. Type a valid IP address for the IP Interface server in the IP Address: field.
8. Type the appropriate subnet mask in the Subnet Mask: field.

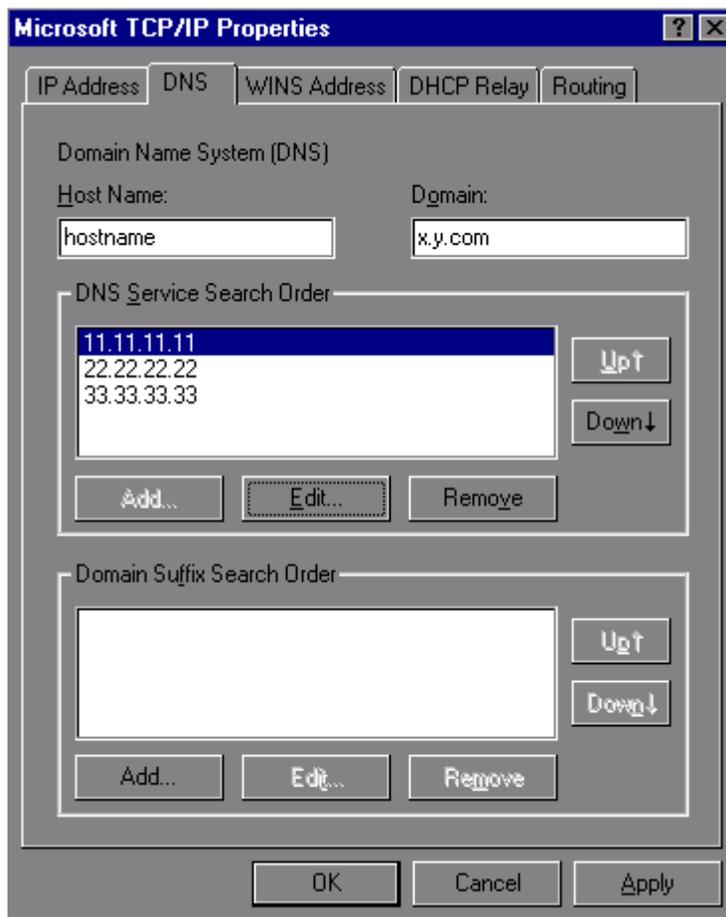


**NOTE:**

Not all networks require steps 9 through 18. Check with the local network administrator to determine which are required.

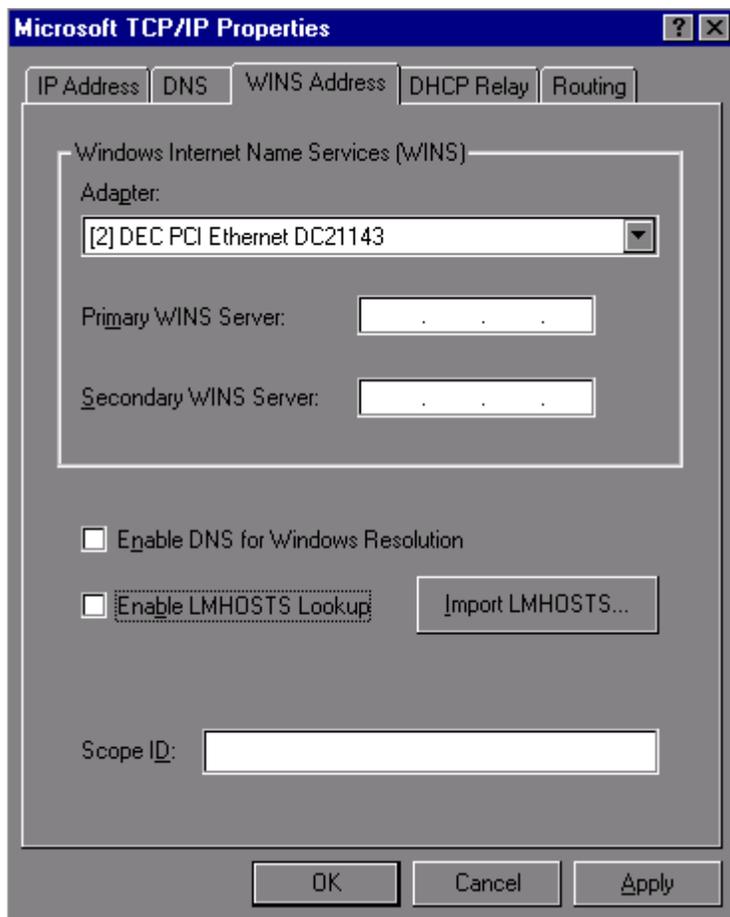
9. If you use gateways, type the IP address of the default gateway for the IP Interface server in the Default Gateway: field.

10. Click on the DNS tab and verify that the domain DNS server is correct.



11. Type domain name in the Domain field.
12. If using DNS, click Add under the DNS Service Search Order field and type its IP address.

- Click on the WINS Address tab.



- Make sure the [2] DEC shows in the Adapter field.
- If WINS server is available, type its IP address in the Primary WINS Server field.
- If DNS is available, select Enable DNS for Windows Resolution.
- If the network uses an imported LMHOSTS file, select Enable LMHOSTS Lookup and Import LMHOSTS and click **OK**.
- If the following dialog box opens, click **Yes**:  
At least one of the adapter cards has an empty primary WINS address. Do you want to continue?
- Click the **Bindings** tab to effect the changes.  
NetBIOS Interface, Server, and Workstation should now be enabled. If any are disabled (a red circle with a line through it), review the previous network-configuration steps for omissions or errors.
- Click **Close**.

If administered remotely through pcANYWHERE:

21. Click on the pcANYWHERE Restart Host Computer button on the toolbar to restart the computer.

If administered locally on a monitor, keyboard, and mouse:

21. Click **Yes** in the dialog box to restart the computer.



**WARNING:**

*When connected remotely via pcANYWHERE, only use the pcANYWHERE Restart Host Computer button on the toolbar to restart Windows NT.*

### Check Network Services

When the server restarts, make sure that the required network services have started correctly. If you see an error dialog box, then the network services did not start correctly. Also, check the NT Event Log.

1. Click on **My Computer > Control Panel > Network > Services**. Make sure that the following services are listed:
  - Computer Browser
  - Microsoft Internet Information Server 2.0
  - NetBIOS Interface
  - RPC Configuration
  - Server
  - Workstation
2. Click the **Protocols** tab, and examine the Network Protocols. TCP/IP protocol should be the only one listed.
3. Click **OK**.

**Test the External Connection to the LAN.** To test the external IP connections, ping the IP Interface server and ping a known computer connected to your network.

1. Click **Start > Programs > Command Prompt**.
2. Type **ping nnn.nnn.nnn.nnn** (which is your IP address).
  - If everything is configured correctly, the system responds with the following message:

```
Reply from nnn.nnn.nnn.nnn: bytes=32 time<##ms  
TTL=###
```
  - If no response, verify the IP-address information and check the connectivity, including the cabling.

3. At the command prompt, type **ping nnn.nnn.nnn.nnn** (which is the IP address of your gateway).
  - If everything is configured correctly, the system responds with the following message:

```
Reply from nnn.nnn.nnn.nnn: bytes=32 time<##ms  
TTL=###
```
  - If no response, verify the IP address information and check the connectivity, including the cabling.
  - If all else fails, click on **Start > Settings > Control Panel > Network**. Select the **Adapters** tab and highlight the [2] DEC adapter.
  - Click **Properties > Change**.
  - From the Duplex Mode dropdown menu, select a setting that matches the switch/hub that the TN802B connects to. For example, 10BaseT Full Duplex or 10BaseT No Link Test
4. At the command prompt, type **ping nnn.nnn.nnn.nnn** (which is the IP address of another external computer beyond the gateway).
  - If you have connectivity, the system responds with the following message:

```
Reply from nnn.nnn.nnn.nnn: bytes=32 time<##ms  
TTL=###
```
  - If no response, verify the IP address information and check the connectivity, including the cabling. Consult your IP network administrator.
5. Type **exit** and press Enter.

**Test the IP Interface Onboard LAN Connections.** To test the onboard LAN connections, ping the IP Interface server and the processor on the TN802B IP Interface.

1. Click **Start > Programs > Command Prompt**.
2. Type **ping 192.11.13.9** (which is the IP address of the internal IP Interface server).
  - If everything is configured correctly, the system responds with the following message:

```
Reply from 192.11.13.9: bytes=32 time<##ms TTL=###
```
  - If no response, verify the IP address information and check the connectivity, including the cabling.

3. At the command prompt, type **ping 192.11.13.8** (which is the IP address of the internal processor).
  - If you have connectivity, the system responds with the following message:  

```
Reply from 192.11.13.8: bytes=32 time<##ms TTL=###
```
  - If no response, verify the IP settings for Adapter [1].
4. Type **exit** and press Enter.

The TN802B IP Interface is now installed in the DEFINITY carrier and connected to the IP network. You can now use the Configuration Manager software (pre installed on the TN802B hard disk) and DEFINITY ECS switch administration to administer connections to other IP Trunk and ITS-E equipment.

### Upgrading a TN802 V3 (or later) to a TN802B (MedPro mode)

If you have a TN802 V3 (or later) IP Interface, you must either replace it with a TN802B circuit pack or upgrade the existing TN802 circuit pack to operate in MedPro mode. Also, to operate in the MedPro mode, the DEFINITY ECS switch must be Release 8 or later.



#### NOTE:

The TN802 IP Interface must be V3 or later to upgrade to TN802B.

To upgrade the TN802 to a TN802B, you need the following hardware:

- Monitor, keyboard, and mouse to access the IP Interface's Windows NT environment or pcANYWHERE software.
- 10-Mbyte SanDisk PCMCIA flashcard loaded with the MedPro NT Application Install Wizard
- TN802B label

The upgrade adds or modifies the following directories or files on your computer's hard drive:

- c:\dolan\\*
- c:\mapd\dnld\medpro.img
- c:\mapd\dnld\tmp.img

## Connect the Monitor, Keyboard, and Mouse

1. Attach a VGA monitor to the VGA connector of the TN802 IP Interface external cable assembly.
2. Attach the keyboard to the KEYBOARD connector of the external cable assembly.
3. Attach the mouse to the MOUSE connector of the external cable assembly.
4. Plug the monitor into an AC power receptacle and turn it on.
5. If upgrading locally, reboot Windows NT by pressing the recessed reset button on the faceplate (see [Figure 5-13 on page 5-69](#)) of the TN802B IP Interface until the LCD shows a flashing **MSHUT \***. When the flashing stops and the asterisk disappears (about 2 min), it is safe to remove the circuit pack.
6. After the TN802B is shut down, reseal the circuit pack to restart the system.
7. Log in using **ctrl alt del**

## Upgrading IP trunks (R7) to H.323 trunks

If there are existing IP trunk connections that you want to upgrade to H.323 trunk connections, do the following steps. Otherwise, go to [“Upgrade to TN802B \(R8\)” on page 5-81](#)

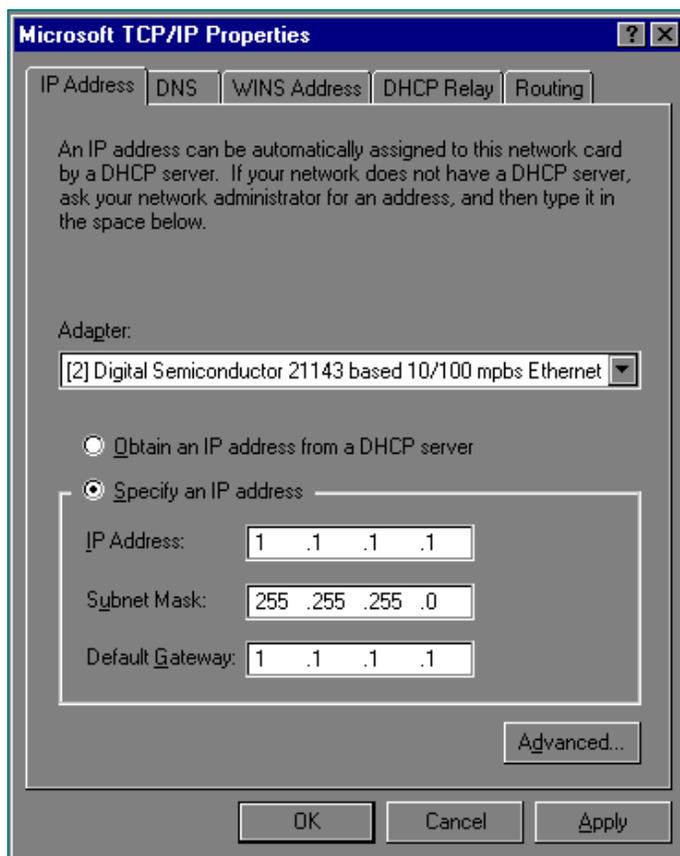
To upgrade an existing IP trunk (R7) to an H.323 trunk (R8) requires first getting IP information from the existing TN802 before upgrading the TN802 to TN802B.

1. Click on **My Computer > Control Panel > Network**.
2. Click the **Protocols** tab.
3. Select **TCP/IP Protocol** from the list.
4. Click the **Properties** option in the Network window. Write down the IP address, subnet address, and gateway address shown for adaptor [2] (see example below).



### NOTE:

Do not use the addresses for adapter [1].



5. When done, click **OK, OK**.

## Upgrade to TN802B (R8)

### ⇒ NOTE:

The upgrade takes about 20 minutes.

1. Insert the flash disk into the right most slot on the TN802 IP trunk. On the monitor, a dialog box assigns a drive letter with the removable media designation; the default is D:.
2. Right click on **Start > Explore** to open the Windows NT Exploring pane and select the drive letter indicated in step 1.
3. Double-click on **Medpro** and select the Setup icon.
4. Follow the Install Shield procedure to transfer all the necessary files to the TN802 IP Interface.

### ⇒ NOTE:

In the Finish dialog box, select `I will restart later`. Do not select `Restart computer`.

This would be a good time to read the Readme.txt file.

5. Click on **Start > Settings > Control Panel > Services**.
6. Select **IP Trunk** and click on **Startup**.



**NOTE:**

Do not click on Start.

7. Under Startup Type, select **Disabled** and click **OK** to disable IP Trunk mode.



**NOTE:**

If IP trunk and MedPro services are both set to automatic, the TN802B defaults to IP Trunk and MedPro features cannot be used.

8. Select **MedPro** and click on **Startup**.



**NOTE:**

Do not click on Start.

9. Under Startup Type, select **Automatic** and click **OK** to enable MedPro mode.
10. Click **Start > Shut Down** and select `Restart` the computer?

or on the TN802:

Press the recessed reset button on the faceplate (see [Figure 5-13 on page 5-69](#)) until the LCD shows a flashing **MSHUT \***. When the flashing stops and the asterisk disappears (about 2 min), reseal the circuit pack to restart the system.

or on the SAT:

- a. Type **busyout board UUCSS** and press Enter.
- b. Type **reset board UUCSS** and press Enter.
- c. Type **release board UUCSS** and press Enter.

Once the system is completely initialized, the LCD reads **MEDPRO \***.



**WARNING:**

*When connected remotely via pcANYWHERE, only use the pcANYWHERE Restart Host Computer button on the toolbar to restart Windows NT.*

11. Affix the new TN802B label to the circuit pack.
12. Disconnect the monitor, keyboard, and mouse.

### Circuit Pack Verification

1. Type **change circuit-pack** and press Enter.
2. Check the Code column to see if it says DSMAPD or MedPro.

```
change circuit-packs                                     Page 1 of 5
                                     CIRCUIT PACKS
                                     Cabinet: 1
                                     Carrier: A
                                     Carrier Type: processor

Slot Code  Sf Mode  Name                               Slot Code  Sf Mode  Name
01: TN754           DIGITAL LINE                               11: MEDPRO      RESERVED-IP
02: TN758           POOLED MODEM                                12: MEDPRO      RESERVED-IP
03: TN2144          ANALOG LINE                                  13: TN802  B      MAPD BOARD
04: TN746  B        ANALOG LINE                                  14:
05:                                                         15:
06: TN771  C        MAINTENANCE/TEST                               16:
07: TN464  F        DS1 INTERFACE
08: TN2140          E&M TIE TRUNK
09: TN767  E        DS1 INTERFACE
10: TN799  B        CONTROL-LAN

'#' indicates circuit pack conflict.
```

3. To correct it, go to the entry just above the TN802B that says DSMAPD.
4. Type MEDPRO, and press Enter. Changing the one entry automatically changes the entry above it. If it is in IP Trunk mode, you get the following error message:
 

```
MedPro type requires TN802 with application. Type
MEDPRO on circuit-packs form.
```
5. To complete the administration, refer to the *DEFINITY ECS Release 8 Network Connectivity* book.

## **Installing an Integrated Channel Service Unit (ICSU) Module**

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The integrated channel service unit (ICSU) is a combination of a 120A CSU module integrated with a DS1 circuit pack. A 700A DS1 loopback jack must be installed with this device.

### **Checking for required components**

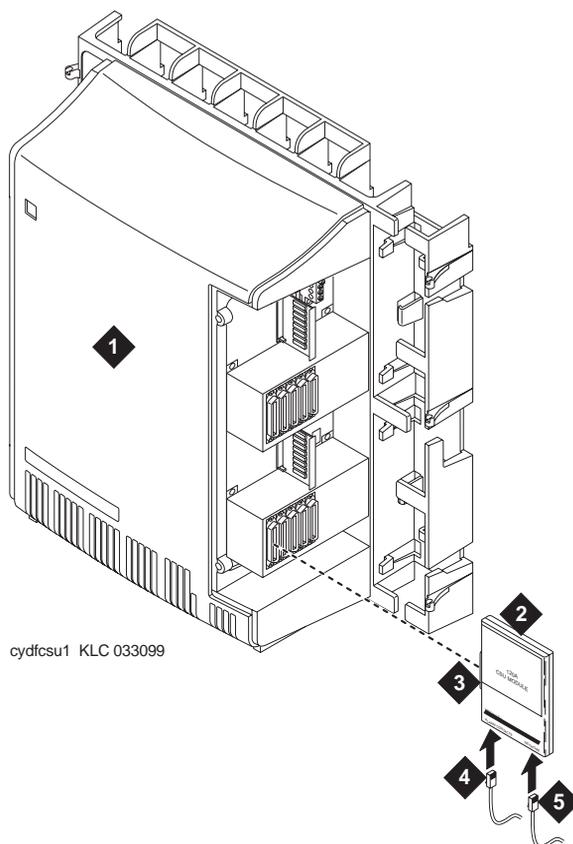
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The integrated channel service unit (ICSU) package contains:

- 120A CSU module
- 700A DS1 loopback jack
- Cable H600-383  
4-pair modular cord  
Group 2, 50-ft (15.2-m) cable (standard)
- Cord DW8A-DE  
4-pair modular cord to alarm contacts
- DS1 circuit pack

The basic ICSU requires a TN464E or TN767D or later suffix. The enhanced ICSU requires a TN464F or TN767E or later suffix. The enhanced ICSU can also be used with the TN2464 or TN2313.

## Installing the 120A CSU



### Figure Notes

1. Rear of carrier containing DS1 circuit pack
2. 120A CSU
3. To 25-pair connector on rear of carrier
4. DW8A-DE 4-pair cord to alarm contacts (optional)
5. 4-pair cord to network interface (H600-383)

Figure 5-15. 120A Channel Service Unit Module



**CAUTION:**

*Do not plug the 120A into any circuit pack other than a TN464F or TN767E (or later release/vintage) or TN2464 or Tn2313. Do not connect the 120A to any interface other than a 700A DS1 loopback jack.*

*Be sure the DS1 circuit pack is set for 24-channel operation (1.544 Mbps). The 120A does not operate with the 32-channel interface. A switch on the circuit pack or administration sets this option.*



**CAUTION:**

*Always wear an antistatic wrist strap when installing a 120A module. Do not touch the external alarm cable when it is connected to the 120A. Static discharge can damage connector terminals and relays.*

1. Unplug the DS1 circuit pack from its slot.
2. Install a 4C retainer in the 50-pin plug associated with the DS1 circuit pack slot.
3. Plug the 120A's 25-pair connector directly into the plug associated with the DS1 circuit pack slot.
4. Secure the 4C retainer around the 120A.
5. Attach the supplied H700-383 cable to the 120A and to the 700A loopback jack.

This cable is directional. To determine the end that connects to the 120A, perform a continuity test between pins 3 and 7. The end with this continuity is the 120A end. The shield is grounded only at the 120A end.

Use the cable provided. If cabling other than that provided with the 120A is used, observe the following guidelines:

- Use 24-gauge wire that provides individually shielded, twisted pairs for transmit and receive signals. Use the cable between the network interface and the 120A. Ground the shields of this cable only at the 120A end to avoid ground loops.
- Cabling between the network interface and 120A can have no bridge taps.
- If using standard house riser cable for connections between the network interface and the 120A, maintain a 100-pair separation between the receive and transmit twisted pairs.
- If using standard house riser cable for connections between the network interface and the 120A, allow no more than 2 cross connects to 110-type cross connect blocks.
- Never use quad cable (untwisted two pair telephone cable) in a DS1 line.
- Avoid mixing wires of different gauges in a DS1 line.

5 Adding or Removing Hardware

Installing an Integrated Channel Service Unit (ICSU) Module

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6. If using external alarm equipment, attach the supplied DW8 cable to the 120A and the external equipment. The maximum length of this cable depends on the alarm equipment.
7. If a TN464F or later is used, make sure the circuit pack is set for 24-channel operation. Set the switch on the circuit pack as shown in [Figure 2-3 on page 2-12](#).
8. From the DS1 circuit-pack form of the system administration console, set the line compensation field to 0-133 ft (40.6 m).
9. Reset the 120A by reseating the DS1 circuit pack.

When you reinsert the DS1 circuit pack after installing a 120A CSU the 120A resets. The DS1 circuit pack initializes and tests the 120A. When initialization and testing is complete, the green LED goes off. If the RED indicator is OFF after the test, the ICSU is working.

10. If the circuits do not pass the self test, troubleshoot the 120A as instructed in *Integrated CSU Module Installation and Operation*, 555-230-193.

[Table 5-9](#) provides the H600-383 cable pinouts. [Table 5-10 on page 5-88](#) provides the cable lengths for each cable group number.

**Table 5-9. H600-383 Cable Pin Assignments**

Pin	Color	Channel Service Unit Designation	Network Designation	Function
1	BK	Line in 0	R1	RCV
2	Y	Line in 1	T1	
3	Shield			
4	R	Line out 0	R	XMT
5	G	Line out 1	T	
6	Shield			
7				Not assigned
8				Not assigned

5 Adding or Removing Hardware

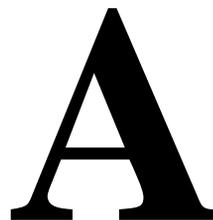
*Installing an Integrated Channel Service Unit (ICSU) Module*

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**Table 5-10. H600-383 Cable Lengths by Group Number**

Group	Length	Group	Length
1	25 feet (7.7 m)	5	125 ft (38.1 m)
2	50 feet (15.2 m)	6	200 ft (71 m)
3	75 feet (22.9 m)	7	400 ft (122 m)
4	100 feet (30.5 m)	8	750 ft (198.1 m)

# Troubleshooting an Upgrade



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This appendix provides information to correct some problems when upgrading a system. The information in this appendix is a compilation of the most commonly reported troubles received by Tier 4 Support at Avaya. For general information on troubleshooting associated with maintenance procedures, see one of the following references:

- "Alarms, Errors and Troubleshooting" in the *DEFINITY Enterprise Communications Server Release 10, Maintenance for R10si/r*.
- Chapter 1, "Maintenance for csi Systems," of *DEFINITY Enterprise Communications Server Release 10, Maintenance for R10csi*.

This appendix may be updated with new information at each product/document release. If you have troubleshooting or error recovery information that you think would be valuable to other technicians, please FAX your comments to us at 1-303-538-1741 (United States).

This appendix is organized into two main sections, as described below:

- [Troubleshooting Guidelines](#) – provides general procedures to try before escalating a problem
- [Troubleshooting Release 10 Upgrades](#) – provides specific troubleshooting procedures for common upgrade problems

## Troubleshooting Guidelines

Before escalating a problem, try the troubleshooting procedures listed in this appendix. Also try the general troubleshooting procedures below.

1. Check the software compatibility on the Software Release Letter. Be sure the software that you are upgrading *from* is compatible with the software that you are upgrading *to*.
2. Check the Release 10 software flashcard for defects.
3. Always use the Software Release Letter that accompanies the software. If the letter is not available, use the appropriate chapter in this book.

## Troubleshooting Release 10 Upgrades

The subsections to follow present specific procedures for common upgrade problems, listed below:

- [No Translation After Upgrade](#)
- [Translation Corruption Detected](#)
  - [Unsuccessful Translation Backup](#)
  - [Software Incompatibility](#)
- [Re-install the ISDN-PRI Links \(Only for Failed Upgrades\)](#)

### No Translation After Upgrade

This problem usually means that the translation flashcard was not present when the system expected it to be present. This can occur if the translation card is not fully inserted, or in some cases when the technician is distracted from monitoring the progress of the **upgrade software** command and fails to insert the translation card when prompted. To recover, perform the following:

1. Verify that the translation card is inserted (on duplicated SPE systems, it should be inserted in the active SPE).
2. Login as *craft*.
3. Verify format and content of flashcard by typing **status card-mem**, and observe that the output indicates that a translation file is present.
4. Type **reset system 3** and press Enter.
5. If the above fails, escalate the problem.

## Translation Corruption Detected

This usually means that the translations were not successfully backed up to the translation card or that the current software version may not be compatible with the new software version.

### NOTE:

The Terminal Translation Initialization (TTI) should be disabled before you save translations prior to an upgrade.

1. Repeat the upgrade with the TTI disabled.

## Unsuccessful Translation Backup

1. If the processor circuit pack was replaced as part of the upgrade, remove the processor and replace it with the original processor circuit pack.
2. Insert the original translation card (or backup translation card) into the TN798B. This is a **csi** circuit pack only.
3. Enter **reset system 4** to reboot the system and to reinstall the original translations.
4. To correct the translation corruption problem, contact your Avaya representative.

## Software Incompatibility

If these procedures do not clear the corruption problem, then the software versions may be incompatible. You may need to upgrade to an interim software version before upgrading to the final software version.

1. Consult the remediation that came with the upgrade software.
2. Contact your Avaya representative for this information.

## Re-install the ISDN-PRI Links (Only for Failed Upgrades)

If your upgrade failed and you need to re-install the ISDN-PRI links, use this procedure.

1. Type **add data-module [PI ext]** and press Enter.
2. Type the information in the fields based on the information that you entered earlier.
3. Type **change communication-interface links** and press Enter.
4. Type the information in the fields based on the information that you entered earlier with one exception. Leave the `Enable` field setting as it is.
5. Type **change communication-interface processor-channels** and press Enter.
6. Type the information in the fields based on the information that you entered earlier.
7. Type **change communication-interface links** and press Enter.
8. Type the information in the `Enable` field based on the information that you entered earlier.
9. Type **save translation** and press Enter.

## Access Security Gateway

# B

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This appendix provides information on how to administer Access Security Gateway (ASG). ASG employs a challenge/response protocol to confirm the validity of a user and reduce the opportunity for unauthorized access. ASG authentication will be imposed for Avaya services logins as indicated below:

- **init** - all types of access require ASG authentication
- **inads** - all types of access require ASG authentication
- **craft** - if accessing remotely, ASG authentication is required.



**NOTE:**

Craft login sessions from a direct connect management terminal continue to rely on password authentication.

## Using the ASG Mobile

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1. Double click on the ASG Mobile V1.1 on your desktop and an ASG Mobile V1.1 Login window appears.
2. In the `Tech ID` field, type your login ID, which is the name of the attached file (without the ".asg"). Your login ID is the same as your Avaya login (or an abbreviated part of it).
3. Type the password twice. Note that the password is case-sensitive.



**NOTE:**

Your new password will be sent to you in a separate email.

4. Click the OK button and an ASG Mobile V1.1 Authentication window appears.
5. Use your communications package (for example, DSA, ProComm, or TerraNova) to dial the switch you need to contact.
6. Log into your communications package window as either **init**, **inads**, or **craft**. Instead of a password prompt, a seven-digit (challenge) number appears in the window of your communications package.
7. Move to the ASG Mobile V1.1 Authentication window.
8. Type the 10-digit Product ID in the `Equipment ID` field. The default ID is 10 zeros (0000000000).
9. Type **init**, **inads**, or **craft** in the `Equipment Login` field. The **craft** login ID is the default.
10. Type the challenge number (from your communications package window) into the `Challenge` field. Do not use the "-" character.
11. Type the trouble ticket number in the `Ticket Number` field. If there is no ticket number, you can use this field as a one-word comment field or leave it blank.
12. Click the Start button. The `Activity Status` field displays "Started" and the `Response` field displays a new seven-digit number.
13. Move to your communications package window.
14. Type the new seven-digit (response) number in the `Response` field. Do not use the "-" character.

DEFINITY ECS verifies the response. If correct, DEFINITY logs you on. If the response is incorrect, return to step 1. If this is the third rejection, see the *DEFINITY Enterprise Communications Server Release 10 Maintenance for R10csi*.

# Glossary and Abbreviations

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## Numerics

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### 800 service

A service in the United States that allows incoming calls from certain areas to an assigned number for a flat-rate charge based on usage.

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## A

### AA

Archangel. See [angel](#).

### AAC

ATM access concentrator

### AAR

See [Automatic Alternate Routing \(AAR\)](#).

### abandoned call

An incoming call in which the caller hangs up before the call is answered.

### Abbreviated Dialing (AD)

A feature that allows callers to place calls by dialing just one or two digits.

### AC

1. Alternating current.
2. See [Administered Connection \(AC\)](#).

### ACA

See [Automatic Circuit Assurance \(ACA\)](#).

### ACB

See [Automatic Callback \(ACB\)](#).

### access code

A 1-, 2-, or 3-digit dial code used to activate or cancel a feature, or access an outgoing trunk.

### access endpoint

Either a nonsignaling channel on a DS1 interface or a nonsignaling port on an analog tie-trunk circuit pack that is assigned a unique extension.

### access tie trunk

A trunk that connects a main communications system with a tandem communications system in an electronic tandem network (ETN). An access tie trunk can also be used to connect a system or tandem to a serving office or service node. Also called access trunk.

### access trunk

See [access tie trunk](#).

### ACCUNET

A trademarked name for a family of digital services offered by AT&T in the United States.

## ACD

See [Automatic Call Distribution \(ACD\)](#). ACD also refers to a work state in which an agent is on an ACD call.

## ACD agent

See [agent](#).

## ACD work mode

See [work mode](#).

## active-notification association

A link that is initiated by an adjunct, allowing it to receive event reports for a specific switch entity, such as an outgoing call.

## active-notification call

A call for which event reports are sent over an active-notification association (communication channel) to the adjunct. Sometimes referred to as a monitored call.

## active notification domain

VDN or ACD split extension for which event notification has been requested.

## ACU

See [Automatic calling unit \(ACU\)](#).

## ACW

See [after-call work \(ACW\) mode](#).

## AD

See [Abbreviated Dialing \(AD\)](#).

## ADAP

AUDIX Data Acquisition Package

## ADC

See [analog-to-digital converter \(ADC\)](#).

## adjunct

A processor that does one or more tasks for another processor and that is optional in the configuration of the other processor. See also [application](#).

## adjunct-control association

A relationship initiated by an application via *Third Party Make Call*, the *Third Party Take Control*, or *Domain (Station) Control* capabilities to set up calls and control calls already in progress.

## adjunct-controlled call

Call that can be controlled using an adjunct-control association. Call must have been originated via *Third Party Make Call* or *Domain (Station) Control* capabilities or must have been taken control of via *Third Party Take Control* or *Domain (Station) Control* capabilities.

## adjunct-controlled split

An ACD split that is administered to be under adjunct control. Agents logged into such splits must do all telephony work, ACD login/ logout, and changes of work mode through the adjunct (except for auto-available adjunct-controlled splits, whose agents may not log in/out or change work mode).

## adjunct-monitored call

An adjunct-controlled call, active-notification call, or call that provides event reporting over a domain-control association.

**Adjunct-Switch Application Interface (ASAI)**

A recommendation for interfacing adjuncts and communications systems, based on the CCITT Q.932 specification for layer 3.

**ADM**

Asynchronous data module

**administer**

To access and change parameters associated with the services or features of a system.

**Administered Connection (AC)**

A feature that allows the switch to automatically establish and maintain end-to-end connections between access endpoints (trunks) and/or data endpoints (data modules).

**administration group**

See [capability group](#).

**administration terminal**

A terminal that is used to administer and maintain a system. See also [terminal](#).

**Administration Without Hardware (AWOH)**

A feature that allows administration of ports without associated terminals or other hardware.

**ADU**

See [asynchronous data unit \(ADU\)](#).

**AE**

See [access endpoint](#).

**after-call work (ACW) mode**

A mode in which agents are unavailable to receive ACD calls. Agents enter the ACW mode to perform ACD-related activities such as filling out a form after an ACD call.

**AG**

ASAI Gateway

**agent**

A person who receives calls directed to a split. A member of an ACD hunt group or ACD split. Also called an ACD agent.

**agent report**

A report that provides historical traffic information for internally measured agents.

**AIM**

Asynchronous interface module

**AIOD**

Automatic Identification of Outward Dialing

**ALBO**

Automatic Line Build Out

**All trunks busy (ATB)**

The state in which no trunks are available for call handling.

**ALM-ACK**

Alarm acknowledge

**American Standard Code for Information Interchange**

See [ASCII \(American Standard Code for Information Interchange\)](#).

**AMW**

Automatic Message Waiting

**AN**

Analog

**analog**

The representation of information by continuously variable physical quantities such as amplitude, frequency, and phase. See also [digital](#).

**analog data**

Data that is transmitted over a digital facility in analog (PCM) form. The data must pass through a modem either at both ends or at a modem pool at the distant end.

**analog telephone**

A telephone that receives acoustic voice signals and sends analog electrical signals along the telephone line. Analog telephones are usually served by a single wire pair (tip and ring). The model-2500 telephone set is a typical example of an analog telephone.

**analog-to-digital converter (ADC)**

A device that converts an analog signal to digital form. See also [digital-to-analog converter \(DAC\)](#).

**angel**

A microprocessor located on each port card in a processor port network (PPN). The angel uses the control-channel message set (CCMS) to manage communications between the port card and the archangel on the controlling switch-processing element (SPE). The angel also monitors the status of other microprocessors on a port card and maintains error counters and thresholds.

**ANI**

See [Automatic Number Identification \(ANI\)](#).

**ANSI**

American National Standards Institute. A United States professional/technical association supporting a variety of standards.

**answerback code**

A number used to respond to a page from a code-calling or loudspeaker-paging system, or to retrieve a parked call.

**AOL**

Attendant-offered load

**AP**

Applications processor

**APLT**

Advanced Private-Line Termination

**appearance**

A software process that is associated with an extension and whose purpose is to supervise a call. An extension can have multiple appearances. Also called call appearance, line appearance, and occurrence. See also [call appearance](#).

**application**

An adjunct that requests and receives ASAI services or capabilities. One or more applications can reside on a single adjunct. However, the switch cannot distinguish among several applications residing on the same adjunct and treats the adjunct, and all resident applications, as a single application. The terms application and adjunct are used interchangeably throughout this document.

**applications processor**

A micro-computer based, program controlled computer providing application services for the DEFINITY switch. The processor is used with several user-controlled applications such as traffic analysis and electronic documentation.

**application service element**

See [capability group](#).

**architecture**

The organizational structure of a system, including hardware and software.

**ARS**

See [Automatic Route Selection \(ARS\)](#).

**ASA**

Average speed of answer — a call center measurement of the average time a caller will wait for an agent.

**ASAI**

See [Adjunct-Switch Application Interface \(ASAI\)](#)

**ASCII (American Standard Code for Information Interchange)**

The standard code for representing characters in digital form. Each character is represented by an 8-bit code (including parity bit).

**association**

A communication channel between adjunct and switch for messaging purposes. An active association is one that applies to an existing call on the switch or to an extension on the call.

**asynchronous data transmission**

A method of transmitting data in which each character is preceded by a start bit and followed by a stop bit, thus permitting data characters to be transmitted at irregular intervals. This type transmission is advantageous when transmission is not regular (characters typed at a keyboard). Also called asynchronous transmission. See also [synchronous data transmission](#).

**asynchronous data unit (ADU)**

A device that allows direct connection between RS-232C equipment and a digital switch.

**asynchronous transfer mode (ATM)**

A packet-like switching technology in which data is transmitted in fixed-size (53-byte) cells. ATM provides high-speed access for data communication in LAN, campus, and WAN environments.

**ATB**

See [All trunks busy \(ATB\)](#).

**ATD**

See [Attention dial \(ATD\)](#).

**ATM**

See [asynchronous transfer mode \(ATM\)](#).

**attendant**

A person at a console who provides personalized service for incoming callers and voice-services users by performing switching and signaling operations. See also [attendant console](#).

**attendant console**

The workstation used by an attendant. The attendant console allows the attendant to originate a call, answer an incoming call, transfer a call to another extension or trunk, put a call on hold, and remove a call from hold. Attendants using the console can also manage and monitor some system operations. Also called console. See also [attendant](#).

**Attention dial (ATD)**

A command in the Hayes modem command set for asynchronous modems.

**Audio Information Exchange (AUDIX)**

A fully integrated voice-mail system. Can be used with a variety of communications systems to provide call-history data, such as subscriber identification and reason for redirection.

**AUDIX**

See [Audio Information Exchange \(AUDIX\)](#).

**auto-in trunk group**

Trunk group for which the CO processes all of the digits for an incoming call. When a CO seizes a trunk from an auto-in trunk group, the switch automatically connects the trunk to the destination — typically an ACD split where, if no agents are available, the call goes into a queue in which callers are answered in the order in which they arrive.

**Auto-In Work mode**

One of four agent work modes: the mode in which an agent is ready to process another call as soon as the current call is completed.

**Automatic Alternate Routing (AAR)**

A feature that routes calls to other than the first-choice route when facilities are unavailable.\*\*\*

**Automatic Callback (ACB)**

A feature that enables internal callers, upon reaching a busy extension, to have the system automatically connect and ring both parties when the called party becomes available.

**Automatic Call Distribution (ACD)**

A feature that answers calls, and then, depending on administered instructions, delivers messages appropriate for the caller and routes the call to an agent when one becomes available.

**Automatic Call Distribution (ACD) split**

A method of routing calls of a similar type among agents in a call center. Also, a group of extensions that are staffed by agents trained to handle a certain type of incoming call.

**Automatic calling unit (ACU)**

A device that places a telephone call.

**Automatic Circuit Assurance (ACA)**

A feature that tracks calls of unusual duration to facilitate troubleshooting. A high number of very short calls or a low number of very long calls may signify a faulty trunk.

**Automatic Number Identification (ANI)**

Representation of the calling number, for display or for further use to access information about the caller. Available with Signaling System 7.

**automatic restoration**

A service that restores disrupted connections between access endpoints (nonsignaling trunks) and data endpoints (devices that connect the switch to data terminal and/or communications equipment). Restoration is done within seconds of a service disruption so that critical data applications can remain operational.

**Automatic Route Selection (ARS)**

A feature that allows the system to automatically choose the least-cost way to send a toll call.

**automatic trunk**

A trunk that does not require addressing information because the destination is predetermined. A request for service on the trunk, called a seizure, is sufficient to route the call. The normal destination of an automatic trunk is the communications-system attendant group. Also called automatic incoming trunk and automatic tie trunk.

**AUX**

Auxiliary

**auxiliary equipment**

Equipment used for optional system features, such as Loudspeaker Paging and Music-on-Hold.

**auxiliary trunk**

A trunk used to connect auxiliary equipment, such as radio-paging equipment, to a communications system.

**Aux-Work mode**

A work mode in which agents are unavailable to receive ACD calls. Agents enter Aux-Work mode when involved in non-ACD activities such as taking a break, going to lunch, or placing an outgoing call.

**AVD**

Alternate voice/data

**AWOH**

See [Administration Without Hardware \(AWOH\)](#).

**AWG**

American Wire Gauge

**AWT**

Average work time

---

**B**

**B8ZS**

Bipolar Eight Zero Substitution.

**bandwidth**

The difference, expressed in hertz, between the defined highest and lowest frequencies in a range.

**barrier code**

A security code used with the Remote Access feature to prevent unauthorized access to the system.

**Basic Rate Interface (BRI)**

A standard ISDN frame format that specifies the protocol used between two or more communications systems. As used in North America, BRI provides 23 64-kbps B-channels (voice or data) and one 64-kbps D-channel (signaling). The D-channel is the 24th channel of the interface and contains multiplexed signaling information for the other 23 channels.

**baud**

A unit of transmission rate equal to the number of signal events per second. See also [bit rate](#) and [bits per second \(bps\)](#).

**BCC**

See [bearer capability class \(BCC\)](#).

**BCMS**

Basic Call Management System

**BCT**

See [business communications terminal \(BCT\)](#).

**bearer capability class (BCC)**

Code that identifies the type of a call (for example, voice and different types of data). Determination of BCC is based on the caller's characteristics for non-ISDN endpoints and on the Bearer Capability and Low-Layer Compatibility Information Elements of an ISDN endpoint. Current BCCs are 0 (voice-grade data and voice), 1 (DMI mode 1, 56 kbps data transmission), 2 (DMI mode 2, synchronous/asynchronous data transmission up to 19.2 kbps) 3 (DMI mode 3, 64 kbps circuit/packet data transmission), 4 (DMI mode 0, 64 kbps synchronous data), 5 (temporary signaling connection, and 6 (wideband call, 128–1984 kbps synchronous data).

**BER**

Bit error rate

**BHCC**

Busy-hour call completions

**bit (binary digit)**

One unit of information in binary notation, having two possible values: 0 or 1.

**bits per second (bps)**

The number of binary units of information that are transmitted or received per second. See also [baud](#) and [bit rate](#).

**bit rate**

The speed at which bits are transmitted, usually expressed in bits per second. Also called data rate. See also [baud](#) and [bits per second \(bps\)](#).

**BLF**

Busy Lamp Field

**BN**

Billing number

**BOS**

Bit-oriented signaling

**BPN**

Billed-party number

**bps**

See [bits per second \(bps\)](#).

**bridge (bridging)**

The appearance of a voice terminal's extension at one or more other voice terminals.

**BRI**

See [Basic Rate Interface \(BRI\)](#)

**Tbridged appearance**

A call appearance on a voice terminal that matches a call appearance on another voice terminal for the duration of a call.

**BTU**

British Thermal Unit

**buffer**

1. In hardware, a circuit or component that isolates one electrical circuit from another. Typically, a buffer holds data from one circuit or process until another circuit or process is ready to accept the data.

2. In software, an area of memory that is used for temporary storage.

**bus**

A multiconductor electrical path used to transfer information over a common connection from any of several sources to any of several destinations.

**business communications terminal (BCT)**

A digital data terminal used for business applications. A BCT can function via a data module as a special-purpose terminal for services provided by a processor or as a terminal for data entry and retrieval.

**BX.25**

A version of the CCITT X.25 protocol for data communications. BX.25 adds a fourth level to the standard X.25 interface. This uppermost level combines levels 4, 5, and 6 of the ISO reference model.

**bypass tie trunks**

A 1-way, outgoing tie trunk from a tandem switch to a main switch in an ETN. Bypass tie trunks, provided in limited quantities, are used as a last-choice route when all trunks to another tandem switch are busy. Bypass tie trunks are used only if all applicable intertandem trunks are busy.

**byte**

A sequence of (usually eight) bits processed together.

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## C

**cabinet**

Housing for racks, shelves, or carriers that hold electronic equipment.

**cable**

Physical connection between two pieces of equipment (for example, data terminal and modem) or between a piece of equipment and a termination field.

**cable connector**

A jack (female) or plug (male) on the end of a cable. A cable connector connects wires on a cable to specific leads on telephone or data equipment.

**CACR**

Cancellation of Authorization Code Request

## CAG

Coverage answer group

## call appearance

1. For the attendant console, six buttons, labeled a–f, used to originate, receive, and hold calls. Two lights next to the button show the status of the call appearance.
2. For the voice terminal, a button labeled with an extension and used to place outgoing calls, receive incoming calls, or hold calls. Two lights next to the button show the status of the call appearance.

## call-control capabilities

Capabilities (*Third Party Selective Hold, Third Party Reconnect, Third Party Merge*) that can be used in either of the Third Party Call Control ASE (cluster) subsets (Call Control and Domain Control).

## Call Detail Recording (CDR)

A feature that uses software and hardware to record call data (same as CDRU).

## Call Detail Recording utility (CDRU)

Software that collects, stores, optionally filters, and outputs call-detail records.

## Call Management System (CMS)

An application, running on an adjunct processor, that collects information from an ACD unit. CMS enables customers to monitor and manage telemarketing centers by generating reports on the status of agents, splits, trunks, trunk groups, vectors, and VDNs, and enables customers to partially administer the ACD feature for a communications system.

## call-reference value (CRV)

An identifier present in ISDN messages that associates a related sequence of messages. In ASAI, CRVs distinguish between associations.

## call vector

A set of up to 15 vector commands to be performed for an incoming or internal call.

## callback call

A call that automatically returns to a voice-terminal user who activated the Automatic Callback or Ringback Queuing feature.

## call-waiting ringback tone

A low-pitched tone identical to ringback tone except that the tone decreases in the last 0.2 seconds (in the United States). Call-waiting ringback tone notifies the attendant that the Attendant Call Waiting feature is activate and that the called party is aware of the waiting call. Tones in international countries may sound different.

## call work code

A number, up to 16 digits, entered by ACD agents to record the occurrence of customer-defined events (such as account codes, social security numbers, or phone numbers) on ACD calls.

## CAMA

Centralized Automatic Message Accounting

## carrier

An enclosed shelf containing vertical slots that hold circuit packs.

## carried load

The amount of traffic served by traffic-sensitive facilities during a given interval.

## CARR-POW

Carrier Port and Power Unit for AC Powered Systems

**CAS**  
Centralized Attendant Service or Call Accounting System

**CCS or hundred call seconds**  
A unit of call traffic. Call traffic for a facility is scanned every 100 seconds. If the facility is busy, it is assumed to have been busy for the entire scan interval. There are 3600 seconds per hour. The Roman numeral for 100 is the capital letter C. The abbreviation for call seconds is CS. Therefore, 100 call seconds is abbreviated CCS. If a facility is busy for an entire hour, then it is said to have been busy for 36 CCS. See also [Erlang](#).

**capability**  
A request or indication of an operation. For example, *Third Party Make Call* is a request for setting up a call; *event report* is an indication that an event has occurred.

**capability group**  
Set of capabilities, determined by switch administration, that can be requested by an application. Capability groups denote association types. For example, *Call Control* is a type of association that allows certain functions (the ones in the capability group) to be performed over this type of association. Also referred to as administration groups or application service elements (ASEs).

**CA-TSC**  
Call-Associated Temporary Signaling Connection

**cause value**  
A value is returned in response to requests or in event reports when a denial or unexpected condition occurs. ASAI cause values fall into two coding standards: Coding Standard 0 includes any cause values that are part of AT&T and CCITT ISDN specifications; Coding standard 3 includes any other ASAI cause values. This document uses a notation for cause value where the coding standard for the cause is given first, then a slash, then the cause value. Example: CS0/100 is coding standard 0, cause value 100.

**CBC**  
Call-by-call or coupled bonding conductor

**CC**  
Country code

**CCIS**  
Common-Channel Interoffice Signaling

**CCITT**  
CCITT (Comitte Consultatif International Telephonique et Telegraphique), now called *International Telecommunications Union* (ITU). See [International Telecommunications Union \(ITU\)](#).

**CCMS**  
Control-Channel Message Set

**CCS**  
See [CCS or hundred call seconds](#).

**CCSA**  
Common-Control Switching Arrangement

**CDM**  
Channel-division multiplexing

**CDOS**  
Customer-dialed and operator serviced

**CDR**

See [Call Detail Recording \(CDR\)](#).

**CDRP**

Call Detail Record Poller

**CDRR**

Call Detail Recording and Reporting

**CDRU**

See [Call Detail Recording utility \(CDRU\)](#).

**CEM**

Channel-expansion multiplexing

**center-stage switch (CSS)**

The central interface between the processor port network and expansion port networks in a CSS-connected system.

**central office (CO)**

The location housing telephone switching equipment that provides local telephone service and access to toll facilities for long-distance calling.

**central office (CO) codes**

The first three digits of a 7-digit public-network telephone number in the United States.

**central office (CO) trunk**

A telecommunications channel that provides access from the system to the public network through the local CO.

**CEPT1**

European Conference of Postal and Telecommunications Rate 1

**channel**

1. A circuit-switched call.
2. A communications path for transmitting voice and data.
3. In wideband, all of the time slots (contiguous or noncontiguous) necessary to support a call. Example: an H0-channel uses six 64-kbps time slots.
4. A DS0 on a T1 or E1 facility not specifically associated with a logical circuit-switched call; analogous to a single trunk.

**channel negotiation**

The process by which the channel offered in the Channel Identification Information Element (CIIE) in the SETUP message is negotiated to be another channel acceptable to the switch that receives the SETUP message and ultimately to the switch that sent the SETUP. Negotiation is attempted only if the CIIE is encoded as *Preferred*. Channel negotiation is not attempted for wideband calls.

**CI**

Clock input

**circuit**

1. An arrangement of electrical elements through which electric current flows.
2. A channel or transmission path between two or more points.

**circuit pack**

A card on which electrical circuits are printed, and IC chips and electrical components are installed. A circuit pack is installed in a switch carrier.

**CISPR**

International Special Committee on Radio Interference

**Class of Restriction (COR)**

A feature that allows up to 64 classes of call-origination and call-termination restrictions for voice terminals, voice-terminal groups, data modules, and trunk groups. See also [Class of Service \(COS\)](#).

**Class of Service (COS)**

A feature that uses a number to specify if voice-terminal users can activate the Automatic Callback, Call Forwarding All Calls, Data Privacy, or Priority Calling features. See also [Class of Restriction \(COR\)](#).

**cm**

Centimeter

**CM**

Connection Manager

**CMC**

Compact Modular Cabinet

**CMDR**

Centralized Message Detail Recording

**CMS**

Call Management System

**CO**

See [central office \(CO\)](#).

**common-control switching arrangement (CCSA)**

A private telecommunications network using dedicated trunks and a shared switching center for interconnecting company locations.

**communications system**

The software-controlled processor complex that interprets dialing pulses, tones, and keyboard characters and makes the proper connections both within the system and external to the system. The communications system itself consists of a digital computer, software, storage device, and carriers with special hardware to perform the connections. A communications system provides voice and data communications services, including access to public and private networks, for telephones and data terminals on a customer's premises. See also [switch](#).

**confirmation tone**

A tone confirming that feature activation, deactivation, or cancellation has been accepted.

**connectivity**

The connection of disparate devices within a single system.

**console**

See [attendant console](#).

**contiguous**

Adjacent DS0s within one T1 or E1 facility or adjacent TDM or fiber time slots. The first and last TDM bus, DS0, or fiber time slots are not considered contiguous (no wraparound). For an E1 facility with a D-channel, DS0s 15 and 17 are considered contiguous.

**control cabinet**

See [control carrier](#).

**control carrier**

A carrier in a multi-carrier cabinet that contains the SPE circuit packs and, unlike an R5r control carrier, port circuit packs. Also called control cabinet in a single-carrier cabinet. See also [switch-processing element \(SPE\)](#).

**controlled station**

A station that is monitored and controlled via a domain-control association.

**COR**

See [Class of Restriction \(COR\)](#).

**COS**

See [Class of Service \(COS\)](#).

**coverage answer group**

A group of up to eight voice terminals that ring simultaneously when a call is redirected to it by Call Coverage. Any one of the group can answer the call.

**coverage call**

A call that is automatically redirected from the called party's extension to an alternate answering position when certain coverage criteria are met.

**coverage path**

The order in which calls are redirected to alternate answering positions.

**coverage point**

An extension or attendant group, VDN, or ACD split designated as an alternate answering position in a coverage path.

**covering user**

A person at a coverage point who answers a redirected call.

**CP**

Circuit pack

**CPE**

Customer-premises equipment

**CPN**

Called-party number

**CPN/BN**

Calling-party number/billing number

**CPTR**

Call-progress-tone receiver

**CRC**

Cyclical Redundancy Checking

**critical-reliability system**

A system that has the following duplicated items: control carriers, tone clocks, EI circuit packs, and cabling between port networks and center-stage switch in a CSS-connected system. See also [duplicated common control](#), and [duplication](#).

**CSA**

Canadian Safety Association or Customer Software Administrator

**CSCC**

Compact single-carrier cabinet

**CSCN**

Center-stage control network

**CSD**

Customer-service document

**CSM**

Centralized System Management

**CSS**

See [center-stage switch \(CSS\)](#).

**CSSO**

Customer Services Support Organization

**CSU**

Channel service unit

**CTS**

Clear to Send

**CWC**

See [call work code](#).

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## D

**DAC**

1. Dial access code or Direct Agent Calling
2. See [digital-to-analog converter \(DAC\)](#).

**data channel**

A communications path between two points used to transmit digital signals.

**data-communications equipment (DCE)**

The equipment (usually a modem, data module, or packet assembler/disassembler) on the network side of a communications link that makes the binary serial data from the source or transmitter compatible with the communications channel.

**data link**

The configuration of physical facilities enabling end terminals to communicate directly with each other.

**data module**

An interconnection device between a BRI or DCP interface of the switch and data terminal equipment or data communications equipment.

**data path**

The end-to-end connection used for a data communications link. A data path is the combination of all elements of an interprocessor communication in a DCS.

**data port**

A point of access to a computer that uses trunks or lines for transmitting or receiving data.

**data rate**

See [bit rate](#).

**data service unit (DSU)**

A device that transmits digital data on transmission facilities.

**data terminal**

An input/output (I/O) device that has either switched or direct access to a host computer or to a processor interface.

**data terminal equipment (DTE)**

Equipment consisting of the endpoints in a connection over a data circuit. In a connection between a data terminal and host, the terminal, the host, and their associated modems or data modules make up the DTE.

**dB**

Decibel

**dBa**

Decibels in reference to amperes.

**dBnC**

Decibels above reference noise with C filter.

**DC**

Direct current

**DCE**

Data-communications equipment

**D-channel backup**

Type of backup used with Non-Facility Associated Signaling (NFAS). A primary D-channel provides signaling for an NFAS D-channel group (two or more PRI facilities). A second D-channel, on a separate PRI facility of the NFAS D-channel group, is designated as backup for the D-channel. Failure of the primary D-channel causes automatic transfer of call-control signaling to the backup D-channel. The backup becomes the primary D-channel. When the failed channel returns to service, it becomes the backup D-channel.

**DCIU**

Data communications interface unit

**DCO**

Digital central office

**DCP**

Digital Communications Protocol

**DCS**

Distributed Communications System

**DDC**

Direct Department Calling

**DDD**

Direct Distance Dialing

**delay-dial trunk**

A trunk that allows dialing directly into a communications system (digits are received as they are dialed).

**denying a request**

Sending a negative acknowledgement (NAK), done by sending an FIE with a *return error* component (and a cause value). It should not be confused with the denial event report that applies to calls.

**designated voice terminal**

The specific voice terminal to which calls, originally directed to a certain extension, are redirected. Commonly used to mean the forwarded-to terminal when Call Forwarding All Calls is active.

**dial-repeating trunks**

A PBX tie trunk that is capable of handling PBX station-signaling information without attendant assistance.

**dial-repeating tie trunk**

A tie trunk that transmits called-party addressing information between two communications systems.

**DID**

See [Direct Inward Dialing \(DID\)](#)

**digit conversion**

A process used to convert specific dialed numbers into other dialed numbers.

**digital**

The representation of information by discrete steps. See also [analog](#).

**digital communications protocol (DCP)**

A proprietary protocol used to transmit both digitized voice and digitized data over the same communications link. A DCP link is made up of two 64-kbps information (I-) channels and one 8-kbps signaling (S-) channel.

The DCP protocol supports 2 information-bearing channels, and thus two telephones/data modules. The I1 channel is the DCP channel assigned on the first page of the 8411 station form. The I2 channel is the DCP channel assigned on the analog adjunct page of the 8411 station form or on the data module page.

**digital data endpoints**

In DEFINITY ECS, devices such as the 510D terminal or the 515-type business communications terminal (BCT).

**digital multiplexed interface (DMI)**

An interface that provides connectivity between a communications system and a host computer or between two communications systems using DS1 24th-channel signaling. DMI provides 23 64-kbps data channels and 1 common-signaling channel over a twisted-pair connection. DMI is offered through two capabilities: bit-oriented signaling (DMI-BOS) and message-oriented signaling (DMI-MOS).

**digital signal level 0 (DS0)**

A single 64-kbps voice channel. A DS0 is a single 64-kbps channel in a T1 or E1 facility and consists of eight bits in a T1 or E1 frame every 125 microseconds.

**digital signal level 1 (DS1)**

A single 1.544-Mbps (United States) or 2.048-Mbps (outside the United States) digital signal carried on a T1 transmission facility. A DS1 converter complex consists of a pair, one at each end, of DS1 converter circuit packs and the associated T1/E1 facilities.

**digital terminal data module (DTDM)**

An integrated or adjunct data module that shares with a digital telephone the same physical port for connection to a communications system. The function of a DTDM is similar to that of a PDM and MPDM in that it converts RS-232C signals to DCP signals.

**digital-to-analog converter (DAC)**

A device that converts data in digital form to the corresponding analog signals. See also [analog-to-digital converter \(ADC\)](#).

**digital transmission**

A mode of transmission in which information to be transmitted is first converted to digital form and then transmitted as a serial stream of pulses.

**digital trunk**

A circuit that carries digital voice and/or digital data in a telecommunications channel.

**DIOD**

Direct Inward and Outward Dialing

**direct agent**

A feature, accessed only via ASAI, that allows a call to be placed in a split queue but routed only to a specific agent in that split. The call receives normal ACD call treatment (for example, announcements) and is measured as an ACD call while ensuring that a particular agent answers.

**Direct Extension Selection (DXS)**

A feature on an attendant console that allows an attendant direct access to voice terminals by pressing a group-select button and a DXS button.

**Direct Inward Dialing (DID)**

A feature that allows an incoming call from the public network (not FX or WATS) to reach a specific telephone without attendant assistance.

**Direct Inward Dialing (DID) trunk**

An incoming trunk used for dialing directly from the public network into a communications system without help from the attendant.

**Direct Outward Dialing (DOD)**

A feature that allows a station user to gain access to the exchange network without attendant assistance.

**disk drive**

An electromechanical device that stores data on and retrieves data from one or more disks.

**distributed communications system (DCS)**

A network configuration linking two or more communications systems in such a way that selected features appear to operate as if the network were one system.

**DIVA**

Data In/Voice Answer

**DLC**

Data line circuit

**DLDM**

Data-line data module

**DMI**

Digital-multiplexed interface

**DND**

Do not disturb

**DNIS**

Dialed-Number Identification Service

**DOD**

See [Direct Outward Dialing \(DOD\)](#)

**domain**

VDNs, ACD splits, and stations. The VDN domain is used for active-notification associations. The ACD-split domain is for active-notification associations and domain-control associations. The station domain is used for the domain-control associations.

**domain-control association**

A *Third Party Domain Control Request* capability initiates a unique CRV/link number combination, which is referred to as a domain-control association.

**domain-controlled split**

A split for which *Third Party Domain Control* request has been accepted. A domain-controlled split provides an event report for logout.

**domain-controlled station**

A station for which a *Third\_Party\_Domain\_Control* request has been accepted. A domain-controlled station provides event reports for calls that are alerting, connected, or held at the station.

**domain-controlled station on a call**

A station that is active on a call, and which provides event reports over one or two domain-control associations.

**DOSS**

Delivery Operations Support System

**DOT**

Duplication Option Terminal

**DPM**

Dial Plan Manager

**DPR**

Dual-port RAM

**DS1**

Digital Signal Level 1

**DS1C**

Digital Signal Level-1 protocol C

**DS1 CONV**

Digital Signal Level-1 converter

**DSI**

Digital signal interface

**DSU**

Data service unit

**DTDM**

Digital-terminal data module

**DTE**

Data-terminal equipment

**DTGS**

Direct Trunk Group Select

**DTMF**

Dual-tone multifrequency

**DTS**

Disk-tape system

**deduplicated common control**

Two processors ensuring continuous operation of a communications system. While one processor is online, the other functions as a backup. The backup processor goes online periodically or when a problem occurs.

**duplication**

The use of redundant components to improve availability. When a duplicated subsystem fails, its backup redundant system automatically takes over.

**duplication option**

A system option that duplicates the following: control carrier containing the SPE, EI circuit packs in carriers, fiber-optic cabling between port networks, and center-stage switch in a CSS-connected system.

**DWBS**

DEFINITY Wireless Business System

**DXS**

Direct extension selection

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**E**

**E1**

A digital transmission standard that carries traffic at 2.048 Mbps. The E1 facility is divided into 32 channels (DS0s) of 64 kbps information. Channel 0 is reserved for framing and synchronization information. A D-channel occupies channel 16.

**E & M**

Ear and mouth (receive and transmit)

**EA**

Expansion archangel

**EAL**

Expansion archangel link

**ear and mouth (E & M) signaling**

Trunk supervisory signaling, used between two communications systems, whereby signaling information is transferred through 2-state voltage conditions (on the E and M leads) for analog applications and through a single bit for digital applications.

**EAS**

See [Expert Agent Selection \(EAS\)](#)

**EBCDIC**

Extended Binary-Coded Decimal Interexchange Code

**ECC**

Error Correct Code

**ECMA**

European Computer Manufacturers Association

**EPF**

Electronic power feed

**EI**

Expansion interface

**EIA**

Electronic Industries Association

**EIA-232**

A physical interface specified by the EIA. EIA-232 transmits and receives asynchronous data at speeds of up to 19.2 kbps over cable distances of up to 50 feet. EIA-232 replaces RS-232 protocol in some DEFINITY applications.

**electronic tandem network (ETN)**

A tandem tie-trunk network that has automatic call-routing capabilities based on the number dialed and the most preferred route available. Each switch in the network is assigned a unique private network office code (RNX), and each voice terminal is assigned a unique extension.

**Electronics Industries Association (EIA)**

A trade association of the electronics industry that establishes electrical and functional standards.

**emergency transfer**

If a major system failure occurs, automatic transfer is initiated to a group of telephones capable of making outgoing calls. The system operates in this mode until the failure is repaired and the system automatically returns to normal operation. Also called power-failure transfer.

**EMI**

Electromagnetic interference

**end-to-end signaling**

The transmission of touch-tone signals generated by dialing from a voice terminal to remote computer equipment. These digits are sent over the trunk as DTMF digits whether the trunk signaling type is marked as tone or rotary and whether the originating station is tone or rotary. Example: a call to a voice-mail machine or automated-attendant service. A connection is first established over an outgoing trunk. Then additional digits are dialed to transmit information to be processed by the computer equipment.

**enhanced private-switched communications service (EPSCS)**

An analog private telecommunications network based on the No. 5 crossbar and 1A ESS that provides advanced voice and data telecommunications services to companies with many locations.

**EPN**

Expansion-port network

**EPROM**

Erasable programmable read-only memory

**EPSCS**

Enhanced Private Switched Communications Services

**ERL**

Echo return loss

**Erlang**

A unit of traffic intensity, or load, used to express the amount of traffic needed to keep one facility busy for one hour. One Erlang is equal to 36 CCS. See also [CCS or hundred call seconds](#).

**ESF**

Extended superframe format

**ESPA**

European Standard Paging Access

**ETA**

Extended Trunk Access; also Enhanced Terminal Administration

**ETN**

Electronic tandem network

**ETSI**

European Telecommunications Standards Institute

**expansion archangel (EAA)**

A network-control microprocessor located on an expansion interface (EI) port circuit pack in an expansion port network. The EA provides an interface between the EPN and its controlling switch-processing element.

**expansion-archangel link (EAL)**

A link-access function on the D-channel (LAPD) logical link that exists between a switch-processing element and an expansion archangel (EA). The EAL carries control messages from the SPE to the EA and to port circuit packs in an expansion port network.

**expansion control cabinet**

See [expansion control carrier](#).

**expansion control carrier**

A carrier in a multicarrier cabinet that contains extra port circuit packs and a maintenance interface. Also called expansion control cabinet in a single-carrier cabinet.

**expansion interface (EI)**

A port circuit pack in a port network that provides the interface between a PN's TDM bus/ packet bus and a fiber-optic link. The EI carries circuit-switched data, packet-switched data, network control, timing control, and DS1 control. In addition, an EI in an expansion port network communicates with the master maintenance circuit pack to provide the EPN's environmental and alarm status to the switch-processing element.

**expansion port network (EPN)**

A port network (PN) that is connected to the TDM bus and packet bus of a processor port network (PPN). Control is achieved by indirect connection of the EPN to the PPN via a port-network link (PNL). See also [port network \(PN\)](#).

**Expert Agent Selection (EAS)**

A call center feature allowing incoming calls to be routed to specialized groups of agents within a larger pool of agents.

**extension-in**

Extension-In (ExtIn) is the work state agents go into when they answer (receive) a non-ACD call. If the agent is in Manual-In or Auto-In and receives an extension-in call, it is recorded by CMS as an AUX-In call.

**extension-out**

The work state that agents go into when they place (originate) a non-ACD call.

**external measurements**

Those ACD measurements that are made by the External CMS adjunct.

**extension**

A 1- to 5-digit number by which calls are routed through a communications system or, with a Uniform Dial Plan (UDP) or main-satellite dialing plan, through a private network.

**external call**

A connection between a communications system user and a party on the public network or on another communications system in a private network.

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**F**

**FAC**

Feature Access Code

**facility**

A telecommunications transmission pathway and associated equipment.

**facility-associated signaling (FAS)**

Signaling for which a D-channel carries signaling only for those channels on the same physical interface.

**FAS**

Facility-associated signaling

**FAT**

Facility access trunk

**FAX**

Facsimile

**FCC**

Federal Communications Commission

**FEAC**

Forced Entry of Account Codes

**feature**

A specifically defined function or service provided by the system.

**feature button**

A labeled button on a telephone or attendant console used to access a specific feature.

**FEP**

Front-end processor

**fiber optics**

A technology using materials that transmit ultrawideband electromagnetic light-frequency ranges for high-capacity carrier systems.

**FIC**

Facility interface codes

**firmware download**

A method to download updated application code to a port circuit pack on site or remotely without having to return the circuit pack to the factory.

**fixed**

A trunk allocation term. In the fixed allocation scheme, the time slots necessary to support a wideband call are contiguous, and the first time slot is constrained to certain starting points.

**flexible**

A trunk allocation term. In the flexible allocation scheme, the time slots of a wideband call can occupy noncontiguous positions within a single T1 or E1 facility.

**floating**

A trunk allocation term. In the floating allocation scheme, the time slots of a wideband call are contiguous, but the position of the first time slot is not fixed.

**FNPA**

Foreign Numbering-Plan Area

**foreign-exchange (FX)**

A CO other than the one providing local access to the public telephone network.

**foreign-exchange trunk**

A telecommunications channel that directly connects the system to a CO other than its local CO.

**foreign numbering-plan area code (FNPAC)**

An area code other than the local area code, that must be dialed to call outside the local geographical area.

**FRL**

Facilities Restriction Level

**FX**

Foreign exchange

---

**G**

**G3-MA**

Generic 3 Management Applications

**G3-MT**

Generic 3 Management Terminal

**G3r**

Generic 3, RISC (Reduced Instruction Set Computer)

**generalized route selection (GRS)**

An enhancement to Automatic Alternate Routing/Automatic Route Selection (AAR/ARS) that performs routing based on call attributes, such as Bearer Capability Classes (BCCs), in addition to the address and facilities restriction level (FRL), thus facilitating a Uniform Dial Plan (UDP) that is independent of the type of call being placed.

**glare**

The simultaneous seizure of a 2-way trunk by two communications systems, resulting in a standoff.

**GM**

Group manager

## GPTR

General-purpose tone receiver

## grade of service

The number of call attempts that fail to receive service immediately. Grade of service is also expressed as the quantity of all calls that are blocked or delayed.

## ground-start trunk

A trunk on which, for outgoing calls, the system transmits a request for services to a distant switching system by grounding the trunk ring lead. To receive the digits of the called number, that system grounds the trunk tip lead. When the system detects this ground, the digits are sent.

## GRS

Generalized Route Selection

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# H

## H0

An ISDN information transfer rate for 384-kbps data defined by CCITT and ANSI standards.

## H11

An ISDN information transfer rate for 1536-kbps data defined by CCITT and ANSI standards.

## H12

An ISDN information transfer rate for 1920-kbps data defined by CCITT and ANSI standards.

## handshaking logic

A format used to initiate a data connection between two data module devices.

## hertz (Hz)

A unit of frequency equal to one cycle per second.

## high-reliability system

A system having the following: two control carriers, duplicate expansion interface (EI) circuit packs in the PPN (in R5r with CSS), and duplicate switch node clock circuit packs in the switch node (SN) carriers. See also [duplicated common control](#), [duplication](#), [duplication option](#), and [critical-reliability system](#).

## HNPA

See [home numbering-plan area code \(HNPA\)](#).

## holding time

The total length of time in minutes and seconds that a facility is used during a call.

## home numbering-plan area code (HNPA)

The local area code. The area code does not have to be dialed to call numbers within the local geographical area.

## hop

Nondirect communication between two switch communications interfaces (SCI) where the SCI message passes automatically without intermediate processing through one or more intermediate SCIs.

## host computer

A computer, connected to a network, that processes data from data-entry devices.

**hunt group**

A group of extensions that are assigned the Station Hunting feature so that a call to a busy extension reroutes to an idle extension in the group. See also [ACD work mode](#).

**Hz**

See [hertz \(Hz\)](#).

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**I**

**I1**

The first information channel of DCP.

**I2**

The second information channel of DCP.

**I2 Interface**

A proprietary interface used for the DEFINITY Wireless Business System for the radio-controller circuit packs. Each interface provides communication between the radio-controller circuit pack and up to two wireless fixed bases.

**I3 Interface**

A proprietary interface used for the DEFINITY Wireless Business System for the cell antenna units. Each wireless fixed base can communicate to up to four cell antenna units.

**IAS**

Inter-PBX Attendant Service

**ICC**

Intercabinet cable or intercarrier cable

**ICD**

Inbound Call Director

**ICDOS**

International Customer-Dialed Operator Service

**ICHT**

Incoming call-handling table

**ICI**

Incoming call identifier

**ICM**

Inbound Call Management

**IDDD**

International Direct Distance Dialing

**IDF**

Intermediate distribution frame

**IE**

Information element

**immediate-start tie trunk**

A trunk on which, after making a connection with a distant switching system for an outgoing call, the system waits a nominal 65 ms before sending the digits of the called number. This allows time for the distant system to prepare to receive digits. On an incoming call, the system has less than 65 ms to prepare to receive the digits.

**IMT**

Intermachine trunk

**in**

Inch

**INADS**

Initialization and Administration System

**incoming gateway**

A PBX that routes an incoming call on a trunk *not* administered for Supplementary Services Protocol B to a trunk *not* administered for Supplementary Services Protocol B.

**information exchange**

The exchange of data between users of two different systems, such as the switch and a host computer, over a LAN.

**Information Systems Network (ISN)**

A WAN and LAN with an open architecture combining host computers, minicomputers, word processors, storage devices, PCs, high-speed printers, and nonintelligent terminals into a single packet-switching system.

**INS**

ISDN Network Service

**inside call**

A call placed from one telephone to another within the local communications system.

**Integrated Services Digital Network (ISDN)**

A public or private network that provides end-to-end digital communications for all services to which users have access by a limited set of standard multipurpose user-network interfaces defined by the CCITT. Through internationally accepted standard interfaces, ISDN provides digital circuit-switched or packet-switched communications within the network and links to other ISDNs to provide national and international digital communications. See also [Integrated Services Digital Network Basic Rate Interface \(ISDN-BRI\)](#) and [Integrated Services Digital Network Primary Rate Interface \(ISDN-PRI\)](#).

**Integrated Services Digital Network Basic Rate Interface (ISDN-BRI)**

The interface between a communications system and terminal that includes two 64-kbps B-channels for transmitting voice or data and one 16-kbps D-channel for transmitting associated B-channel call control and out-of-band signaling information. ISDN-BRI also includes 48 kbps for transmitting framing and D-channel contention information, for a total interface speed of 192 kbps. ISDN-BRI serves ISDN terminals and digital terminals fitted with ISDN terminal adapters. See also [Integrated Services Digital Network \(ISDN\)](#) and [Integrated Services Digital Network Primary Rate Interface \(ISDN-PRI\)](#).

**Integrated Services Digital Network Primary Rate Interface (ISDN-PRI)**

The interface between multiple communications systems that in North America includes 24 64-kbps channels, corresponding to the North American digital signal level-1 (DS1) standard rate of 1.544 Mbps. The most common arrangement of channels in ISDN-PRI is 23 64-kbps B-channels for transmitting voice and data and 1 64-kbps D-channel for transmitting associated B-channel call control and out-of-band signaling information. With nonfacility-associated signaling (NFAS), ISDN-PRI can include 24 B-channels and no D-channel. See also [Integrated Services Digital Network \(ISDN\)](#) and [Integrated Services Digital Network Basic Rate Interface \(ISDN-BRI\)](#).

**intercept tone**

An tone that indicates a dialing error or denial of the service requested.

**interface**

A common boundary between two systems or pieces of equipment.

**internal call**

A connection between two users within a system.

**International Telecommunications Union (ITU)**

Formerly known as International Telegraph and Telephone Consultative Committee (CCITT), ITU is an international organization that sets universal standards for data communications, including ISDN. ITU members are from telecommunications companies and organizations around the world. See also [BX.25](#).

**International Telegraph and Telephone Consultative Committee**

See [International Telecommunications Union \(ITU\)](#).

**Internet protocol**

Software that tracks the Internet address of nodes, routes outgoing messages, and recognizes incoming messages.

**interflow**

The ability for calls to forward to other splits on the same PBX or a different PBX using the Call Forward All Calls feature.

**intraflow**

The ability for calls to redirect to other splits on the same PBX on a conditional or unconditional basis using call coverage busy, don't answer, or all criteria.

**internal measurements**

BCMS measurements that are made by the system. ACD measurements that are made external to the system (via External CMS) are referred to as external measurements.

**in-use lamp**

A red light on a multiappearance voice terminal that lights to show which call appearance will be selected when the handset is lifted or which call appearance is active when a user is off-hook.

**INWATS**

Inward Wide Area Telephone Service

**IO**

Information outlet

**IP**

See [Internet protocol](#).

**ISDN**

See [Integrated Services Digital Network \(ISDN\)](#).

**ISDN Gateway (IG)**

A feature allowing integration of the switch and a host-based telemarketing application via a link to a gateway adjunct. The gateway adjunct is a 3B-based product that notifies the host-based telemarketing application of call events.

**ISDN trunk**

A trunk administered for use with ISDN-PRI. Also called ISDN facility.

**ISDN-PRI terminal adapter**

An interface between endpoint applications and an ISDN PRI facility. ISDN-PRI terminal adapters are currently available from other vendors and are primarily designed for video conferencing applications. Accordingly, currently available terminal adapters adapt the two pairs of video codec data (V.35) and dialing (RS-366) ports to an ISDN PRI facility.

**IS/DTT**

Integrated Services/digital tie trunk

**ISN**

Information Systems Network

**ISO**

International Standards Organization

**ISV**

Independent software vendor

**ITP**

Installation test procedure

**ITU**

International Telecommunications Union

**IXC**

Interexchange carrier code

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**K**

**kHz**

Kilohertz

**kbps**

Kilobits per second

**kbyte**

Kilobyte

**kg**

Kilogram

---

## L

### LAN

Local area network

### LAP-D

Link Access Procedure on the D-channel

### LAPD

Link Access Procedure data

### LATA

Local access and transport area

### lb

Pound

### LBO

Line buildout

### LDN

Listed directory number

### LDS

Long-distance service

### LEC

Local exchange carrier

### LED

See [light-emitting diode \(LED\)](#).

### light-emitting diode (LED)

A semiconductor device that produces light when voltage is applied. LEDs provide a visual indication of the operational status of hardware components, the results of maintenance tests, the alarm status of circuit packs, and the activation of telephone features.

### lightwave transceiver

Hardware that provides an interface to fiber-optic cable from port circuit packs and DS1 converter circuit packs. Lightwave transceivers convert electrical signals to light signals and vice versa.

### line

A transmission path between a communications system or CO switching system and a voice terminal or other terminal.

### line appearance

See [appearance](#).

### line buildout

A selectable output attenuation is generally required of DTE equipment because T1 circuits require the last span to lose 15–22.5 dB.

### line port

Hardware that provides the access point to a communications system for each circuit associated with a telephone or data terminal.

### link

A transmitter-receiver channel that connects two systems.

**link-access procedure on the D-channel (LAPD)**

A link-layer protocol on the ISDN-BRI and ISDN-PRI data-link layer (level 2). LAPD provides data transfer between two devices, and error and flow control on multiple logical links. LAPD is used for signaling and low-speed packet data (X.25 and mode 3) on the signaling (D-) channel and for mode-3 data communications on a bearer (B-) channel.

**LINL**

Local indirect neighbor link

**local area network (LAN)**

A networking arrangement designed for a limited geographical area. Generally, a LAN is limited in range to a maximum of 6.2 miles and provides high-speed carrier service with low error rates. Common configurations include daisy chain, star (including circuit-switched), ring, and bus.

**logical link**

The communications path between a processor and a BRI terminal.

**loop-start trunk**

A trunk on which, after establishing a connection with a distant switching system for an outgoing call, the system waits for a signal on the loop formed by the trunk leads before sending the digits of the called number.

**LSU**

Local storage unit

**LWC**

Leave Word Calling

---

**M**

**MAC**

Medium access

**MADU**

Modular asynchronous data unit

**main distribution frame (MDF)**

A device that mounts to the wall inside the system equipment room. The MDF provides a connection point from outside telephone lines to the PBX switch and to the inside telephone stations.

**main-satellite-tributary**

A private network configuration that can either stand alone or access an ETN. A main switch provides interconnection, via tie trunks, with one or more subtending switches, called satellites; all attendant positions for the main/satellite configuration; and access to and from the public network. To a user outside the complex, a main/satellite configuration appears as one switch, with one listed directory number (LDN). A tributary switch is connected to the main switch via tie trunks, but has its own attendant positions and LDN.

**maintenance**

Activities involved in keeping a telecommunications system in proper working condition: the detection and isolation of software and hardware faults, and automatic and manual recovery from these faults.

**management terminal**

The terminal that is used by the system administrator to administer the switch. The terminal may also be used to access the BCMS feature.

**major alarm**

An indication of a failure that has caused critical degradation of service and requires immediate attention. Major alarms are automatically displayed on LEDs on the attendant console and maintenance or alarming circuit pack, logged to the alarm log, and reported to a remote maintenance facility, if applicable.

**Manual-In work mode**

One of four agent work modes: the mode in which an agent is ready to process another call manually. See [Auto-In Work mode](#) for a contrast.

**MAP**

Maintenance action process

**MAPD**

Multiapplication platform for DEFINITY

**MA-UUI**

Message-Associated User-to-User Signaling

**Mbps**

Megabits per second

**M-Bus**

Memory bus

**Mbyte**

Megabyte

**MCC**

Multicarrier cabinet

**MCS**

Message Center Service

**MCT**

Malicious Call Trace

**MCU**

Multipoint control unit

**MDF**

Main distribution frame

**MDM**

Modular data module

**MDR**

Message detail record

**MEM**

Memory

**memory**

A device into which information can be copied and held, and from which information can later be obtained.

**memory shadowing link**

An operating-system condition that provides a method for memory-resident programs to be more quickly accessed, allowing a system to reboot faster.

**message center**

An answering service that supplies agents to and stores messages for later retrieval.

**message center agent**

A member of a message-center hunt group who takes and retrieves messages for voice-terminal users.

**MET**

Multibutton electronic telephone

**MF**

Multifrequency

**MFB**

Multifunction board

**MFC**

Multifrequency code

**MHz**

Megahertz

**MIM**

Management information message

**minor alarm**

An indication of a failure that could affect customer service. Minor alarms are automatically displayed on LEDs on the attendant console and maintenance or alarming circuit pack, sent to the alarm log, and reported to a remote maintenance facility, if applicable.

**MIPS**

Million instructions per second

**MIS**

Management information system

**MISCID**

Miscellaneous identification

**MMCS**

Multimedia Call Server

**MMCH**

Multimedia call handling

**MMI**

Multimedia interface

**MMS**

Material Management Services

**MO**

Maintenance object

**modem**

A device that converts digital data signals to analog signals for transmission over telephone circuits. The analog signals are converted back to the original digital data signals by another modem at the other end of the circuit.

**modem pooling**

A capability that provides shared conversion resources (modems and data modules) for cost-effective access to analog facilities by data terminals. When needed, modem pooling inserts a conversion resource into the path of a data call. Modem pooling serves both outgoing and incoming calls.

**modular processor data module (MPDM)**

A processor data module (PDM) that can be configured to provide several kinds of interfaces (RS-232C, RS-449, and V.35) to customer-provided data terminal equipment (DTE). See also [processor data module \(PDM\)](#).

**modular trunk data module (MTDM)**

A trunk data module that can be configured to provide several kinds of interfaces (RS-232, RS-449, and V.35) to customer-provided data terminal equipment.

**modulator-demodulator**

See [modem](#).

**monitored call**

See [active-notification call](#).

**MOS**

Message-oriented signaling

**MPDM**

Modular processor data module

**MS**

Message server

**ms**

Millisecond

**MS/T**

Main satellite/tributary

**MSA**

Message servicing adjunct

**MSG**

Message service

**MSL**

Material stocking location

**MSM**

Modular System Management

**MSS**

Mass storage system

**MSSNET**

Mass storage/network control

**MT**

Management terminal

**MTDM**

Modular trunk data module

**MTP**

Maintenance tape processor

**MTT**

Multitasking terminal

**multiappearance voice terminal**

A terminal equipped with several call-appearance buttons for the same extension, allowing the user to handle more than one call on that same extension at the same time.

**Multicarrier cabinet**

A structure that holds one to five carriers. See also [single-carrier cabinet](#).

**Multifrequency Compelled (MFC) Release 2 (R2) signaling**

A signal consisting of two frequency components, such that when a signal is transmitted from a switch, another signal acknowledging the transmitted signal is received by the switch. R2 designates signaling used in the United States and in countries outside the United States.

**multiplexer**

A device used to combine a number of individual channels into a single common bit stream for transmission.

**multiplexing**

A process whereby a transmission facility is divided into two or more channels, either by splitting the frequency band into a number of narrower bands or by dividing the transmission channel into successive time slots. See also [time-division multiplexing \(TDM\)](#).

**multirate**

The new N x DS0 service (see N x DS0).

**MWL**

Message-waiting lamp

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**N**

**N+1**

Method of determining redundant backup requirements. Example: if four rectifier modules are required for a DC-powered single-carrier cabinet, a fifth rectifier module is installed for backup.

**N x DS0**

N x DS0, equivalently referred to as N x 64 kbps, is an emerging standard for wideband calls separate from H0, H11, and H12 ISDN channels. The emerging N x DS0 ISDN multirate circuit mode bearer service will provide circuit-switched calls with data-rate multiples of 64 kbps up to 1536 kbps on a T1 facility or up to 1920 kbps on an E1 facility. In the switch, N x DS0 channels will range up to 1984 kbps using NFAS E1 interfaces.

**NANP**

North American Numbering Plan

**narrowband**

A circuit-switched call at a data rate up to and including 64 kbps. All nonwideband switch calls are considered narrowband.

**native terminal support**

A predefined terminal type exists in switch software, eliminating the need to alias the terminal (that is, manually map call appearances and feature buttons onto some other natively supported terminal type).

**NAU**

Network access unit

**NCA/TSC**

Noncall-associated/temporary-signaling connection

**NCOSS**

Network Control Operations Support Center

**NCSO**

National Customer Support Organization

**NEC**

National Engineering Center

**NEMA**

National Electrical Manufacturer's Association

**NETCON**

Network-control circuit pack

**network**

A series of points, nodes, or stations connected by communications channels.

**network-specific facility (NSF)**

An information element in an ISDN-PRI message that specifies which public-network service is used. NSF applies only when Call-by-Call Service Selection is used to access a public-network service.

**network interface**

A common boundary between two systems in an interconnected group of systems.

**NFAS**

See [Nonfacility-associated signaling \(NFAS\)](#).

**NI**

Network interface

**NID**

Network Inward Dialing

**NM**

Network management

**NN**

National number

**node**

A switching or control point for a network. Nodes are either tandem (they receive signals and pass them on) or terminal (they originate or terminate a transmission path).

**Nonfacility-associated signaling (NFAS)**

A method that allows multiple T1 and/or E1 facilities to share a single D-channel to form an ISDN-PRI. If D-channel backup is not used, one facility is configured with a D-channel, and the other facilities that share the D-channel are configured without D-channels. If D-channel backup is used, two facilities are configured to have D-channels (one D-channel on each facility), and the other facilities that share the D-channels are configured without D-channels.

**NPA**

Numbering-plan area

**NPE**

Network processing element

**NQC**

Number of queued calls

**NSE**

Night-service extension

**NSU**

Network sharing unit

**null modem cable**

Special wiring of an RS-232-C cable such that a computer can talk to another computer (or to a printer) without a modem.

**NXX**

Public-network office code

---

**O**

**OA**

Operator assisted

**occurrence**

See [appearance](#).

**OCM**

Outbound Call Management

**offered load**

The traffic that would be generated by all the requests for service occurring within a monitored interval, usually one hour.

**ONS**

On-premises station

**OPS**

Off-premises station

**optical drive**

A system backup for DEFINITY ECS G3r platform that saves data to an optical disk (called removable media).

**OPX**

Off-premises extension

**OQT**

Oldest queued time

**OSHA**

Occupational Safety and Health Act

**OSI**

Open Systems Interconnect

**OSS**

Operations Support System

**OSSI**

Operational Support System Interface

**OTDR**

Optical time-domain reflectometer

**othersplit**

The work state that indicates that an agent is currently active on another split's call, or in ACW for another split.

**OTL**

Originating Test Line

**OTQ**

Outgoing trunk queuing

**outgoing gateway**

A PBX that routes an incoming call on a trunk administered for Supplementary Services Protocol B to a trunk *not* administered for Supplementary Services Protocol B.

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**P**

**PACCON**

Packet control

**packet**

A group of bits (including a message element, which is the data, and a control information element (IE), which is the header) used in packet switching and transmitted as a discrete unit. In each packet, the message element and control IE are arranged in a specified format. See also [packet bus](#) and [packet switching](#).

**packet bus**

A wide-bandwidth bus that transmits packets.

**packet switching**

A data-transmission technique whereby user information is segmented and routed in discrete data envelopes called packets, each with its own appended control information, for routing, sequencing, and error checking. Packet switching allows a channel to be occupied only during the transmission of a packet. On completion of the transmission, the channel is made available for the transfer of other packets. See also [BX.25](#) and [packet](#).

**PAD**

Packet assembly/disassembly

**paging trunk**

A telecommunications channel used to access an amplifier for loudspeaker paging.

**party/extension active on call**

A party is on the call if he or she is actually connected to the call (in active talk or in held state). An originator of a call is always a party on the call. Alerting parties, busy parties, and tones are not parties on the call.

**PBX**

Private branch exchange

**PC**

See [personal computer \(PC\)](#).

**PCM**

See [pulse-code modulation \(PCM\)](#).

**PCOL**

Personal central-office line

**PCOLG**

Personal central-office line group

**PCS**

Permanent switched calls

**PDM**

See [processor data module \(PDM\)](#).

**PDS**

Premises Distribution System

**PE**

Processing element

**PEC**

Price element code

**PEI**

Processor element interchange

**personal computer (PC)**

A personally controllable microcomputer.

**PGATE**

Packet gateway

**PGN**

Partitioned group number

**PI**

Processor interface

**PIB**

Processor interface board

**pickup group**

A group of individuals authorized to answer any call directed to an extension within the group.

**PIDB**

Product image database

**PKTINT**

Packet interface

**PL**

Private line

**PLS**

Premises Lightwave System

**PMS**

Property Management System

**PN**

Port network

**PNA**

Private network access

**POE**

Processor occupancy evaluation

**POP**

Point of presence

**port**

A data- or voice-transmission access point on a device that is used for communicating with other devices.

**port carrier**

A carrier in a multicarrier cabinet or a single-carrier cabinet containing port circuit packs, power units, and service circuits. Also called a port cabinet in a single-carrier cabinet.

**port network (PN)**

A cabinet containing a TDM bus and packet bus to which the following components are connected: port circuit packs, one or two tone-clock circuit packs, a maintenance circuit pack, service circuit packs, and (optionally) up to four expansion interface (EI) circuit packs in DEFINITY ECS. Each PN is controlled either locally or remotely by a switch processing element (SPE). See also [expansion port network \(EPN\)](#) and [processor port network \(PPN\)](#).

**port-network connectivity**

The interconnection of port networks (PNs), regardless of whether the configuration uses direct or switched connectivity.

**PPM**

1. Parts per million
2. Periodic pulse metering

**PPN**

See [Primary Rate Interface \(PRI\)](#).

**PRI**

See [Primary Rate Interface \(PRI\)](#).

**primary extension**

The main extension associated with the physical voice or data terminal.

**Primary Rate Interface (PRI)**

A standard ISDN frame format that specifies the protocol used between two or more communications systems. PRI runs at 1.544 Mbps and, as used in North America, provides 23 64-kbps B-channels (voice or data) and one 64-kbps D-channel (signaling). The D-channel is the 24th channel of the interface and contains multiplexed signaling information for the other 23 channels.

**PRI endpoint (PE)**

The wideband switching capability introduces PRI endpoints on switch line-side interfaces. A PRI endpoint consists of one or more contiguous B-channels on a line-side T1 or E1 ISDN PRI facility and has an extension. Endpoint applications have call-control capabilities over PRI endpoints.

**principal**

A terminal that has its primary extension bridged on one or more other terminals.

**principal (user)**

A person to whom a telephone is assigned and who has message-center coverage.

**private network**

A network used exclusively for the telecommunications needs of a particular customer.

**private network office code (RNX)**

The first three digits of a 7-digit private network number.

**processor carrier**

See [control carrier](#).

**processor data module (PDM)**

A device that provides an RS-232C DCE interface for connecting to data terminals, applications processors (APs), and host computers, and provides a DCP interface for connection to a communications system. See also [modular processor data module \(MPDM\)](#).

**processor port network (PPN)**

A port network controlled by a switch-processing element that is directly connected to that PN's TDM bus and LAN bus. See also [port network \(PN\)](#).

**processor port network (PPN) control carrier**

A carrier containing the maintenance circuit pack, tone/clock circuit pack, and SPE circuit packs for a processor port network (PPN) and, optionally, port circuit packs.

**PROCR**

Processor

**Property Management System (PMS)**

A stand-alone computer used by lodging and health-services organizations for services such as reservations, housekeeping, and billing.

**protocol**

A set of conventions or rules governing the format and timing of message exchanges to control data movement and correction of errors.

**PSC**

Premises service consultant

**PSDN**

Packet-switch public data network

**PT**

Personal terminal

**PTC**

Positive temperature coefficient

**PTT**

Postal Telephone and Telegraph

**public network**

The network that can be openly accessed by all customers for local and long-distance calling.

**pulse-code modulation (PCM)**

An extension of pulse-amplitude modulation (PAM) in which carrier-signal pulses modulated by an analog signal, such as speech, are quantized and encoded to a digital, usually binary, format.

---

**Q**

**QPPCN**

Quality Protection Plan Change Notice

**QSIG**

A set of open standards for Enterprise Networking. QSIG is a protocol defining message exchanges (signalling) at the "Q" reference point between two PBXs.

**quadrant**

A group of six contiguous DS0s in fixed locations on an ISDN-PRI facility. Note that this term comes from T1 terminology (one-fourth of a T1), but there are five quadrants on an E1 ISDN-PRI facility (30B + D).

**queue**

An ordered sequence of calls waiting to be processed.

**queuing**

The process of holding calls in order of their arrival to await connection to an attendant, to an answering group, or to an idle trunk. Calls are automatically connected in first-in, first-out sequence.

---

**R**

**RAM**

See [random-access memory \(RAM\)](#).

**random-access memory (RAM)**

A storage arrangement whereby information can be retrieved at a speed independent of the location of the stored information.

**RBS**

Robbed-bit signaling

**RC**

Radio controller

**RCL**

Restricted call list

**read-only memory (ROM)**

A storage arrangement primarily for information-retrieval applications.

**recall dial tone**

Tones signalling that the system has completed a function (such as holding a call) and is ready to accept dialing.

**redirection criteria**

Information administered for each voice terminal's coverage path that determines when an incoming call is redirected to coverage.

**Redirection on No Answer**

An optional feature that redirects an unanswered ringing ACD call after an administered number of rings. The call is then redirected back to the agent.

**remote home numbering-plan area code (RHNPA)**

A foreign numbering-plan area code that is treated as a home area code by the Automatic Route Selection (ARS) feature. Calls can be allowed or denied based on the area code and the dialed CO code rather than just the area code. If the call is allowed, the ARS pattern used for the call is determined by these six digits.

**Remote Operations Service Element (ROSE)**

A CCITT and ISO standard that defines a notation and services that support interactions between the various entities that make up a distributed application.

**removable media**

Medium used for system backup in a DEFINITY ECS G3r.

**REN**

Ringer equivalency number

**reorder tone**

A tone to signal that at least one of the facilities, such as a trunk or a digit transmitter, needed for the call was not available.

**report scheduler**

Software that is used in conjunction with the system printer to schedule the days of the week and time of day that the desired reports are to be printed.

**RFP**

Request for proposal

**RHNPA**

See [remote home numbering-plan area code \(RHNPA\)](#).

**RINL**

Remote indirect neighbor link

**RISC**

Reduced-instruction-set computer

**RLT**

Release-link trunk

**RMATS**

Remote Maintenance, Administration, and Traffic System

**RNX**

Route-number index (private network office code)

**ROM**

See [read-only memory \(ROM\)](#).

**ROSE**

See [Remote Operations Service Element \(ROSE\)](#).

**RPN**

Routing-plan number

**RS-232C**

A physical interface specified by the Electronic Industries Association (EIA). RS-232C transmits and receives asynchronous data at speeds of up to 19.2 kbps over cable distances of up to 50 feet.

**RS-449**

Recommended Standard 449

**RSC**

Regional Support Center

---

**S**

**S1**

The first logical signalling channel of DCP. The channel is used to provide signaling information for DCP's I1 channel.

**S2**

The second logical signaling channel of DCP. The channel is used to provide signaling information for DCP's I2 channel.

**SABM**

Set Asynchronous Balance Mode

**SAC**

Send All Calls

**SAKI**

See [sanity and control interface \(SAKI\)](#).

**sanity and control interface (SAKI)**

A custom VLSI microchip located on each port circuit pack. The SAKI provides address recognition, buffering, and synchronization between the angel and the five control time slots that make up the control channel. The SAKI also scans and collects status information for the angel on its port circuit pack and, when polled, transmits this information to the archangel.

**SAT**

System access terminal

**SCC**

1. See [single-carrier cabinet](#).
2. Serial communications controller

**SCD**

Switch-control driver

**SCI**

Switch communications interface

**SCO**

System control office

**SCOTCH**

Switch Conferencing for TDM Bus in Concentration Highway

**SCSI**

See [small computer system interface \(SCSI\)](#).

**SDDN**

Software-Defined Data Network

**SDI**

Switched Digital International

**SDLC**

Synchronous data-link control

**SDN**

Software-defined network

**SFRL**

Single-frequency return loss

**SID**

Station-identification number

**simplex system**

A system that has no redundant hardware.

**simulated bridged appearance**

The same as a temporary bridged appearance; allows the terminal user (usually the principal) to bridge onto a call that had been answered by another party on his or her behalf.

**single-carrier cabinet**

A combined cabinet and carrier unit that contains one carrier. See also [Multicarrier cabinet](#).

**single-line voice terminal**

A voice terminal served by a single-line tip and ring circuit (models 500, 2500, 7101A, 7103A).

**SIT**

Special-information tones

**small computer system interface (SCSI)**

An ANSI bus standard that provides a high-level command interface between host computers and peripheral devices.

**SMDR**

Station Message Detail Recording

**SN**

Switch Node

**SNA**

Systems Network Architecture

**SNC**

Switch Node Clock

**SNI**

Switch Node Interface

**SNMP**

Simple Network Management Protocol

**software**

A set of computer programs that perform one or more tasks.

**SPE**

Switch Processing Element

**SPID**

Service Profile Identifier

**split**

See [ACD work mode](#).

**split condition**

A condition whereby a caller is temporarily separated from a connection with an attendant. A split condition automatically occurs when the attendant, active on a call, presses the start button.

**split number**

The split's identity to the switch and BCMS.

**split report**

A report that provides historical traffic information for internally measured splits.

**split (agent) status report**

A report that provides real-time status and measurement data for internally measured agents and the split to which they are assigned.

**SSI**

Standard serial interface

**SSM**

Single-site management

**SSV**

Station service

**ST3**

Stratum 3 clock board

**staffed**

Indicates that an agent position is logged in. A staffed agent functions in one of four work modes: Auto-In, Manual-In, ACW, or AUX-Work.

**STARLAN**

Star-Based Local Area Network

**Station Message Detail Recording (SMDR)**

An obsolete term now called CDR — a switch feature that uses software and hardware to record call data. See [Call Detail Recording \(CDR\)](#).

**standard serial interface (SSI)**

A communications protocol developed for use with 500-type business communications terminals (BCTs) and 400-series printers.

**status lamp**

A green light that shows the status of a call appearance or a feature button by the state of the light (lit, flashing, fluttering, broken flutter, or unlit).

**stroke counts**

A method used by ACD agents to record up to nine customer-defined events per call when CMS is active.

**SVN**

Security-violation notification

**switch**

Any kind of telephone switching system. See also [communications system](#).

**switchhook**

The buttons located under the receiver on a voice terminal.

**switch-node (SN) carrier**

A carrier containing a single switch node, power units, and, optionally, one or two DS1 converter circuit packs. An SN carrier is located in a center-stage switch.

**switch-node (SN) clock**

The circuit pack in an SN carrier that provides clock and maintenance alarm functions and environmental monitors.

**switch-node interface (SNI)**

The basic building block of a switch node. An SNI circuit pack controls the routing of circuit, packet, and control messages.

**switch-node link (SNL)**

The hardware that provides a bridge between two or more switch nodes. The SNL consists of the two SNI circuit packs residing on the switch nodes and the hardware connecting the SNIs. This hardware can include lightwave transceivers that convert the SNI's electrical signals to light signals, the copper wire that connects the SNIs to the lightwave transceivers, a full-duplex fiber-optic cable, DS1 converter circuit cards and DS1 facilities if a company does not have rights to lay cable, and appropriate connectors.

**switch-processing element (SPE)**

A complex of circuit packs (processor, memory, disk controller, and bus-interface cards) mounted in a PPN control carrier. The SPE serves as the control element for that PPN and, optionally, for one or more EPNs.

**SXS**

Step-by-step

**synchronous data transmission**

A method of sending data in which discrete signal elements are sent at a fixed and continuous rate and specified times. See also [association](#).

**SYSAM**

System Access and Administration

**system administrator**

The person who maintains overall customer responsibility for system administration. Generally, all administration functions are performed from the Management Terminal. The switch requires a special login, referred to as the system administrator login, to gain access to system-administration capabilities.

**system printer**

An optional printer that may be used to print scheduled reports via the report scheduler.

**system report**

A report that provides historical traffic information for internally measured splits.

**system-status report**

A report that provides real-time status information for internally measured splits.

**system manager**

A person responsible for specifying and administering features and services for a system.

**system reload**

A process that allows stored data to be written from a tape into the system memory (normally after a power outage).

---

**T**

**T1**

A digital transmission standard that in North America carries traffic at the DS1 rate of 1.544 Mbps. A T1 facility is divided into 24 channels (DS0s) of 64 kbps. These 24 channels, with an overall digital rate of 1.536 Mbps, and an 8-kbps framing and synchronization channel make up the 1.544-Mbps transmission. When a D-channel is present, it occupies channel 24. T1 facilities are also used in Japan and some Middle-Eastern countries.

**TAAS**

Trunk Answer from Any Station

**TABS**

Telemetry asynchronous block serial

**TAC**

Trunk-access code

**tandem switch**

A switch within an electronic tandem network (ETN) that provides the logic to determine the best route for a network call, possibly modifies the digits outpulsed, and allows or denies certain calls to certain users.

**tandem through**

The switched connection of an incoming trunk to an outgoing trunk without human intervention.

**tandem tie-trunk network (TTTN)**

A private network that interconnects several customer switching systems.

**TC**

Technical consultant

**TCM**

Traveling class mark

**TDM**

See [time-division multiplexing \(TDM\)](#).

**TDR**

Time-of-day routing

**TEG**

Terminating extension group

**terminal**

A device that sends and receives data within a system. See also [administration terminal](#).

**tie trunk**

A telecommunications channel that directly connects two private switching systems.

**time-division multiplex (TDM) bus**

A bus that is time-shared regularly by preallocating short time slots to each transmitter. In a PBX, all port circuits are connected to the TDM bus, permitting any port to send a signal to any other port.

**time-division multiplexing (TDM)**

Multiplexing that divides a transmission channel into successive time slots. See also [multiplexing](#).

**time interval**

The period of time, either one hour or one-half hour, that BCMS measurements are collected for a reports.

**time slice**

See [time interval](#).

**time slot**

64 kbps of digital information structured as eight bits every 125 microseconds. In the switch, a time slot refers to either a DS0 on a T1 or E1 facility or a 64-kbps unit on the TDM bus or fiber connection between port networks.

**time slot sequence integrity**

The situation whereby the N octets of a wideband call that are transmitted in one T1 or E1 frame arrive at the output in the same order that they were introduced.

**to control**

An application can invoke *Third Party Call Control* capabilities using either an adjunct-control or domain-control association.

**to monitor**

An application can receive *event reports* on an active-notification, adjunct-control, or domain-control association.

**TOD**

Time of day

**tone ringer**

A device with a speaker, used in electronic voice terminals to alert the user.

**TOP**

Task-oriented protocol

**trunk**

A dedicated telecommunications channel between two communications systems or COs.

**trunk allocation**

The manner in which trunks are selected to form wideband channels.

**trunk-data module**

A device that connects off-premises private-line trunk facilities and DEFINITY ECS. The trunk-data module converts between the RS-232C and the DCP, and can connect to DDD modems as the DCP member of a modem pool.

**trunk group**

Telecommunications channels assigned as a group for certain functions that can be used interchangeably between two communications systems or COs.

**TSC**

Technical Service Center

**TTI**

Terminal translation initialization

**TTR**

Touch-tone receiver

**TTT**

Terminating trunk transmission

**TTTN**

See [tandem tie-trunk network \(TTTN\)](#).

**TTY**

Teletypewriter

---

**U**

**UAP**

Usage-allocation plan

**UART**

Universal asynchronous transmitter

**UCD**

Uniform call distribution

**UCL**

Unrestricted call list

**UDP**

See [Uniform Dial Plan \(UDP\)](#).

**UL**

Underwriter Laboratories

**UM**

User manager

**Uniform Dial Plan (UDP)**

A feature that allows a unique 4- or 5-digit number assignment for each terminal in a multiswitch configuration such as a DCS or main-satellite-tributary system.

**UNMA**

Unified Network Management Architecture

**UNP**

Uniform numbering plan

**UPS**

Uninterruptible power supply

**USOP**

User service-order profile

**UUCP**

UNIX-to-UNIX Communications Protocol

## UUI

User-to-user information

---

## V

### VAR

Value-added reseller

### VDN

See [vector directory number \(VDN\)](#).

### vector directory number (VDN)

An extension that provides access to the Vectoring feature on the switch. Vectoring allows a customer to specify the treatment of incoming calls based on the dialed number.

### vector-controlled split

A hunt group or ACD split administered with the vector field enabled. Access to such a split is possible only by dialing a VDN extension.

### VIS

Voice Information System

### VLSI

Very-large-scale integration

### VM

Voltmeter

### VNI

Virtual nodepoint identifier

### voice terminal

A single-line or multiappearance telephone.

---

## W

### WATS

See [Wide Area Telecommunications Service \(WATS\)](#).

### WCC

World-Class Core

### WCR

World-Class Routing

### WCTD

World-Class Tone Detection

### WFB

Wireless fixed base

### Wide Area Telecommunications Service (WATS)

A service in the United States that allows calls to certain areas for a flat-rate charge based on expected usage.

**wideband**

A circuit-switched call at a data rate greater than 64 kbps. A circuit-switched call on a single T1 or E1 facility with a bandwidth between 128 and 1536 (T1) or 1984 (E1) kbps in multiples of 64 kbps. H0, H11, H12, and N x DS0 calls are wideband.

**wideband access endpoint**

Access endpoints, extended with wideband switching to include wideband access endpoints. A wideband access endpoint consists of one or more contiguous DS0s on a line-side T1 or E1 facility and has an extension. The Administered Connections feature provides call control for calls originating from wideband access endpoints.

**wink-start tie trunk**

A trunk with which, after making a connection with a distant switching system for an outgoing call, the system waits for a momentary signal (wink) before sending the digits of the called number. Similarly, on an incoming call, the system sends the wink signal when ready to receive digits.

**work mode**

One of four states (Auto-In, Manual-In, ACW, AUX-Work) that an ACD agent can be in. Upon logging in, an agent enters AUX-Work mode. To become available to receive ACD calls, the agent enters Auto-In or Manual-In mode. To do work associated with a completed ACD call, an agent enters ACW mode.

**work state**

An ACD agent may be a member of up to three different splits. Each ACD agent continuously exhibits a work state for every split of which it is a member. Valid work states are Avail, Unstaffed, AUX-Work, ACW, ACD (answering an ACD call), ExtIn, ExtOut, and OtherSpl. An agent's work state for a particular split may change for a variety of reasons (example: when a call is answered or abandoned, or the agent changes work modes). The BCMS feature monitors work states and uses this information to provide BCMS reports.

**write operation**

The process of putting information onto a storage medium, such as a hard disk.

**WSA**

Waiting session accept

**WSS**

Wireless Subscriber System

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**Z**

**ZCS**

Zero Code Suppression

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