Installation and Maintenance for Survivable Remote EPN

for

Avaya Communication Manager

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Issue 6
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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.

Warranty

Avaya Inc. provides a limited warranty on this product. Refer to your sales agreement to establish the terms of the limited warranty. In addition, Avaya's standard warranty language as well as information regarding support for this product, while under warranty, is available through the following Web site: http://www.avaya.com/support.

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.

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How to Get Help

For additional support telephone numbers, go to the Avaya support Web site: http://www.avaya.com/support. If you are:

- Within the United States, click the *Escalation Management* link. Then click the appropriate link for the type of support you need.
- Outside the United States, click the *Escalation Management* link. Then click the *International Services* link that includes telephone numbers for the international Centers of Excellence.

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).

Responsibility for Your Company's Telecommunications Security

The final responsibility for securing both this system and its networked equipment rests with you - Avaya's customer 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

TCP/IP Facilities

Customers may experience differences in product performance, reliability and security depending upon network configurations/design and topologies, even when the product performs as warranted.

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.

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, or IEC 60950-1, 1st Edition, including all relevant national deviations as listed in Compliance with IEC for Electrical Equipment (IECEE) CB-96A.

Safety of Information Technology Equipment, CAN/CSA-C22.2 No. 60950-00 / UL 60950, 3rd Edition, or CAN/CSA-C22.2 No. 60950-1-03 / UL 60950-1.

Safety Requirements for Information Technology Equipment, AS/NZS 60950:2000.

One or more of the following Mexican national standards, as applicable: NOM 001 SCFI 1993, NOM SCFI 016 1993, NOM 019 SCFI 1998.

The equipment described in this document may contain Class 1 LASER Device(s). These devices comply with the following standards:

- EN 60825-1, Edition 1.1, 1998-01
- 21 CFR 1040.10 and CFR 1040.11.

The LASER devices used in Avaya equipment typically operate within the following parameters:

Typical Center Wavelength	Maximum Output Power
830 nm - 860 nm	-1.5 dBm
1270 nm - 1360 nm	-3.0 dBm
1540 nm - 1570 nm	5.0 dBm

Luokan 1 Laserlaite

Klass 1 Laser Apparat

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

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, EN55022:1998, and AS/NZS 3548.

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

Power Line Emissions, IEC 61000-3-2: Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions.

Power Line Emissions, IEC 61000-3-3: Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems.

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.

REN Number

For MCC1, SCC1, CMC1, G600, and G650 Media Gateways:

This equipment complies with Part 68 of the FCC rules. On either the rear or inside the front cover 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.

For G350 and G700 Media Gateways:

This equipment complies with Part 68 of the FCC rules and the requirements adopted by the ACTA. On the rear of this equipment is a label that contains, among other information, a product identifier in the format US:AAAEQ##TXXXX. The digits represented by ## are the ringer equivalence number (REN) without a decimal point (for example, 03 is a REN of 0.3). If requested, this number must be provided to the telephone company.

For all media gateways:

The REN is used to determine the quantity of devices that 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 tables.

For MCC1, SCC1, CMC1, G600, and G650 Media Gateways:

Manufacturer's Port Identifier	FIC Code	SOC/ REN/ A.S. Code	Network Jacks
Off premises station	OL13C	9.0F	RJ2GX, RJ21X, RJ11C
DID trunk	02RV2-T	0.0B	RJ2GX, RJ21X
CO trunk	02GS2	0.3A	RJ21X
	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	6.0F	RJ48C, RJ48M
	04DU9-IKN	6.0F	RJ48C, RJ48M
	04DU9-ISN	6.0F	RJ48C, RJ48M
120A4 channel service unit	04DU9-DN	6.0Y	RJ48C

For G350 and G700 Media Gateways:

Manufacturer's Port Identifier	FIC Code	SOC/ REN/ A.S. Code	Network Jacks
Ground Start CO trunk	02GS2	1.0A	RJ11C
DID trunk	02RV2-T	AS.0	RJ11C
Loop Start CO trunk	02LS2	0.5A	RJ11C
1.544 digital interface	04DU9-BN	6.0Y	RJ48C
	04DU9-DN	6.0Y	RJ48C
	04DU9-IKN	6.0Y	RJ48C
	04DU9-ISN	6.0Y	RJ48C
Basic Rate Interface	02IS5	6.0F	RJ49C

For all media gateways:

If the terminal equipment (for example, the media server or media gateway) 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.

A plug and jack used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ACTA. A compliant telephone cord and modular plug is provided with this product. It is designed to be connected to a compatible modular jack that is also compliant. 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.

This equipment meets the applicable Industry Canada Terminal Equipment Technical Specifications. This is confirmed by the registration number. The abbreviation, IC, before the registration number signifies that registration was performed based on a Declaration of Conformity indicating that Industry Canada technical specifications were met. It does not imply that Industry Canada approved the equipment.

Installation and Repairs

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

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://www.avaya.com/support.

All Avaya media servers and media gateways 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

CE

Avaya Inc. declares that the equipment specified in this document bearing the "CE" (*Conformité Europeénne*) 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).

Copies of these Declarations of Conformity (DoCs) can be obtained by contacting your local sales representative and are available on the following Web site: http://www.avaya.com/support.

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。

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Haverhill, MA 01835 USA
Attention: Avaya Account Management

E-mail: totalware@gwsmail.com

For the most current versions of documentation, go to the Avaya support Web site: http://www.avaya.com/support.

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Chapter 1: About This Document

The Survivable Remote EPN (SREPN) is a disaster recovery operation rather than an additional reliability option. As such, the SREPN, if administered properly, provides phone service to users on the remote EPN when the link to the main server fails or is broken, or when the main server itself or center stage fails. “main server” in this document means either an Avaya DEFINITY® Server R, the Avaya S8500 Media Server, or the Avaya S8700 Media Server.

The SREPN can be either a single carrier cabinet (the Avaya SCC1 Media Gateway) and a multicarrier cabinet (the Avaya MCC1 Media Gateway). The survivable remote processor (SRP) is available only as a single carrier cabinet and does not hold any port cards. You install and administer the SRP (with its associated SREPN) as a standalone Avaya Communication Manager running on a DEFINITY® Server SI with its own dial plan and AAR/ARS patterns. This means that you must administer the SRP (*in addition to the main server PPN*) for all phones and other equipment connected to SREPN. Ideally, you will administer equipment on the SRP to duplicate, as much as possible, the service provided by the main server PPN. *Given that the main server PPN is independently administered from the SRP, only those translations administered on the SRP will operate when a failure occurs*.

This book provides installation and maintenance procedures for technicians installing and maintaining the Survivable Remote Expansion Port Network (SREPN).

The Survivable Remote Processor (SRP) is a TN2404-based processor complex collocated with the remote EPN cabinet. The SRP and its EPN cabinet are connected with fiber optic cabling.

The EPN can be remoted over fiber optic cables through the Switch Node Interface (SNI) and Expansion Interface (EI) circuit packs or over DS1-CONV. Figure 1 shows an example of the essential hardware connections for the Survivable Remote EPN over DS1-CONV facilities.

Figure 1: Survivable Remote EPN hardware connections (over DS1-CONV facilities)

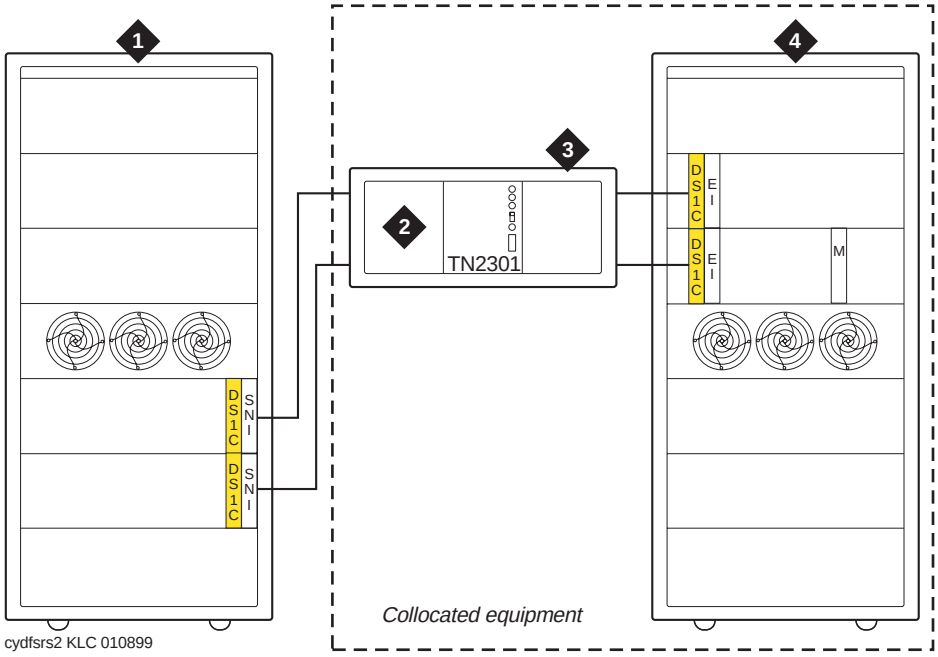

Figure notes:

1. **DEFINITY Server R (shown) or S8700 Media Server (not shown)**
2. **DEFINITY Server SI processor complex**
3. **Survivable Remote processor (SRP)**
4. **Survivable Remote EPN (SREPN)**

Features not supported

The following table lists the features that are not supported by SREPN.

Table 1: Features not supported by SREPN *1 of 3*

AAR	Demand Print
Audible Message Waiting	Digital Multiplexed Interface
Audio Information Exchange (AUDIX) Interface	Distributed Communications System
Call Charge Information	Enhanced DCS

1 of 3

Table 1: Features not supported by SREPN *2 of 3*

Call Detail Recording	Extension Number Portability
Call Management System	External Device Alarming
CallVisor Adjunct Switch Application Interface	Flexible Billing
Centralized Attendant Service	Inbound Call Management
Customer-Provided-Equipment Alarm	Inter-PBX Attendant Service (IAS)
DCS	Intraflow and Interflow
DCS Alphanumeric Display for Terminals	Look-Ahead Interflow
DCS Attendant Control of Trunk Group Access	Look-Ahead Routing
DCS Attendant Direct Trunk Group Selection	Messaging Server Interface (MAPD)
DCS Attendant Display	Node Number Routing
DCS Automatic Callback	Private Network Access
DCS Automatic Circuit Assurance	Property Management System Interface
DCS Busy Verification of Terminals and Trunks	QSIG
DCS Call Coverage	QSIG Call Forwarding (Diversion)
DCS Call Forwarding	QSIG Call Transfer
DCS Call Waiting	QSIG Name and Number Identification
DCS Distinctive Ringing	QSIG Path Replacement (ANF-PR)
DCS Leave Word Calling	QSIG Transit Counter (ANF-TC)
DCS Multi-appearance Conference/ Transfer	Reason Codes

2 of 3

Table 1: Features not supported by SREPN *3 of 3*

DCS Over ISDN-PRI D-channel	Uniform Dial Plan
DCS Trunk Group Busy/Warning Indication	Voice Response Integration

3 of 3

Intended audience

The information in this book is intended for use by:

- Installation or maintenance technicians dispatched to site with an Avaya Communication Manager on a DEFINITY® Server to either install the SREPN equipment or in response to a trouble alarm or a user trouble report
- A maintenance technician located at a remote maintenance facility
- The user's assigned maintenance technician.

Technicians are expected to have a knowledge of telecommunications fundamentals and of Avaya Communication Manager on DEFINITY® Servers to the extent that the procedures in this book can be performed, in most cases, without assistance.

This book is not intended to solve all levels of troubles. It is limited to troubles that can be solved by using the Alarm Log, Error Log, trouble-clearing procedures, maintenance tests, and traditional troubleshooting methods. If trouble conditions persist, it is the responsibility of the maintenance technician to escalate the problem to a higher level of technical support. Escalation should conform to the procedures in the *Technical and Administration Escalation Plan*.

- Chapter 2: SREPN Installation and Upgrade covers the upgrade path and installation instructions for the Survivable Remote EPN equipment.
- Chapter 3: SREPN Maintenance covers the trouble isolation, repair, and reset of the Survivable Remote EPN system.

Conventions used

This document uses the following typographic conventions:

- Information you type at the system access terminal (SAT) terminal for the Avaya Communication Manager on a DEFINITY Server is shown in the following typeface: **list system-parameters maintenance**
- Information displayed on the terminal screen is shown in the following typeface: `login`
- Keyboard keys are shown in the following typeface: **Enter**.

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

- The word *solution*, is a general term meaning the Avaya Communication Manager on a DEFINITY Server solution. The word *server*, is a general term meaning the Avaya DEFINITY Server SI or Server R. The word *software*, is a general term meaning a release of Avaya Communication Manager.
- Solutions and servers in this book are called: Avaya Communication Manager, Avaya DEFINITY Server SI, and DEFINITY Server R or Avaya S8700 Media Server.
- Circuit pack codes (such as TN2182B) are shown with the minimum acceptable alphabetic suffix (for example, B in the code TN2182B).

  The alphabetic suffix of the circuit pack is very important in the Survivable Remote equipment configuration. And, not every *vintage* of either the minimum or a higher suffix code is necessarily acceptable.

  Note:

  Technicians should reference internally available Avaya information on *Circuit Pack Vintages and Change Notices* about the usable vintages of specific circuit pack codes (including the suffix) on the DEFINITY Servers running Avaya Communication Manager.
- Avaya Communication Manager running on an Avaya DEFINITY Enterprise Communications Server is abbreviated as DEFINITY ECS.

Admonishments used in this book are as follows:

CAUTION:

This sign is used to indicate possible harm to software, possible loss of data, or possible service interruptions.

WARNING:

This sign is used where there is possible harm to hardware or equipment.

DANGER:

This sign is used to indicate possible harm or injury to people.

Safety precautions

When performing maintenance or translation procedures on the system, users must observe certain precautions. Observe all caution, warning, and danger admonishments to prevent loss of service, possible equipment damage, and possible personal injury. In addition, the following precautions regarding electromagnetic interference (EMI) and static electricity must be observed:

Electromagnetic interference

This equipment generates, uses, and can radiate radio frequency energy. Electromagnetic fields radiating from the switch may cause noise in the customer's equipment, called electromagnetic interference (EMI). If the equipment is not installed and used in accordance with this installation and maintenance book, radio interference may result.

WARNING:

To maintain the EMI integrity of the system, maintenance personnel must ensure that all cabinet panels, covers, and so forth, are firmly secured before leaving the customer's premises.

Static electricity

To prevent or reduce electrostatic discharge (ESD), always attach a wrist grounding strap before working on switch components or handling circuit packs.

CAUTION:

Electrostatic discharge can damage or destroy circuit packs containing integrated circuits (ICs).

The ESD wrist strap, cable assembly, and spare fuses are packed in a plastic bag and placed in the top of the system cabinet. Use the ESD wrist strap when troubleshooting, performing maintenance, or handling any circuit packs.

Remove/Install circuit packs

CAUTION:

When the power is on:

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

Security issues

A number of matters concerning maintenance are affected by security issues. For details, be sure to consult the *Avaya Toll Fraud and Security Handbook*, 555-025-600.

CAUTION:

Login security is an attribute of the Avaya DEFINITY Enterprise Communications Server (ECS).

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, Installation and Maintenance for Survivable Remote EPN *for Avaya Communication Manager*, 555-233-121.
- E-mail your comments to **document@avaya.com**

Where to get additional help

Other documents in the library for the Avaya Communication Manager on DEFINITY Servers

Other books in the library for Avaya Communication Manager (on either Avaya DEFINITY server or Avaya S8100 Media Server) in which there is general information on troubleshooting associated with maintenance procedures include:

- Chapter 5, “Alarms, Errors and Troubleshooting,” in *Maintenance for Avaya DEFINITY® Server R*.
- *Maintenance for Avaya DEFINITY® Server SI*
- *Avaya MCC1 Media Gateway and Avaya SCC1 Media Gateway Installation and Avaya DEFINITY® Server SI Upgrades Made Easy*
- *Administrator's Guide for Avaya Communication Manager*

Trouble escalation

For additional support telephone numbers:

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

   http://avaya.com/support

2. If you are:
   - Within the United States, click *Escalation Lists*, which includes escalation phone numbers within the USA.
   - Outside the United States, click *Escalation Lists* then click *Global Escalation List*, which includes phone numbers for the regional Centers of Excellence.

How to order media

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

This book and any other books about Avaya Communication Manager (running on a DEFINITY Server or an Avaya S8100 Media Server) can be ordered directly from:

Globalware Solutions
200 Ward Hill Avenue
Havehill, MA 01835 USA

+1-800-457-1235 (voice)
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+1 410-568-3680 (voice)
+1 410-891-0207 (fax)

Trademarks and Service Marks

This document contains references to the following Avaya trademarked products:

- **AUDIX**®
- Avaya Communication Manager
- Avaya SoftConsole
- Avaya Integrated Management
- Callmaster®
- CallVisor®
- CentreVu™
- CONVERSANT®
- DEFINITY®
- DEFINITY ONE™
- FORUM™
- INTUITY™
- INTUITY Lodging™
- MERLIN®

- OneVision™
- Quorum™
- SYSTIMAX®
- TRANSTALK™
- VOICE POWER®

The following products are registered trademarks of AT&T:

- ACCUNET®
- DATAPHONE®
- MEGACOM®
- MULTIQUEST®
- TELSEER®

The following products are trademarked by their corresponding vendor:

- 3Com®, Sportster®, and U.S. Robotics® are registered trademarks of the 3Com Corporation
- 4ESS™, 5ESS™ and Ascend® are marks of Lucent Technologies, Inc.
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- Music Mate®, Zone Mate® are registered trademarks of Harris Corporation
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- Paradyne™and COMSPHERE™are trademarks of Paradyne Corporation
- PictureTel® is a registered trademark of PictureTel Corporation
- ProShare® is a registered trademark of Intel Corporation
- 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
- UNIX® is a registered trademark of X/Open Corporation
- Zydacron trademark registration is pending for Zydacron Corporation.

Standards compliance

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

ITU-T (Formerly CCITT)	ANSI	Australia AS3260
ECMA	FCC Part 15 and Part 68	IEC 825
ETSI	EN55022	IEC950
IPNS	EN50081	UL 1459
DPNSS	EN50082	UL1950
National ISDN-1	UNI 3.1	CSA C222 Number 225
National ISDN-2	CISPR22	TS001
ISO-9000	Australia AS3548 (AS/NZ3548)	ILMI 3.1

LASER product

An Avaya DEFINITY Server or Media Server may contain a Class 1 LASER device if single-mode fiber optic cable is connected to a remote expansion port network (EPN). The laser device operates within the following parameters:

Maximum Power Output:	-5 dBm
Wavelength:	1310 nm
Mode Field Diameter:	8.8 µm

CLASS 1 LASER PRODUCT

IEC 825 1993

DANGER:
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 information.

Electromagnetic compatibility standards

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

- 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 Avaya DEFINITY Servers and Media Servers conform 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. declares that the Avaya DEFINITY equipment specified in this document bearing the “CE” mark conforms to the European Union Electromagnetic Compatibility Directives.

The “CE” (Conformité Europeénne) 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 products:

- Global AC-powered Multicarrier Cabinet (MCC)
- DC-powered Multicarrier Cabinet (MCC) with 25-Hz ring generator
- AC-powered Single-Carrier Cabinet (SCC) with 25-Hz ring generator

- AC-powered Compact Single-Carrier Cabinet (CSCC) with 25-Hz ring generator
- Enhanced DC Power System

Federal Communications Commission statement

Part 68: Statement

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, with these exceptions:

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

This 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 number of devices 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 can 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.

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
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 (comprising any Avaya Communication Manager on DEFINITY Solution) causes harm to the telephone network, the telephone company may notify you in advance that temporary discontinuance of service is be required. But if advance notice is not practical, the telephone company may 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 so you can make the necessary modifications to maintain uninterrupted service.

If trouble is experienced with this equipment or for repair or warranty information, please contact the Technical Service Center at 1-800-248-1234. If the equipment causes 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.

Chapter 2: SREPN Installation and Upgrade

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. W*ithout a license file, the switch does not provide normal call processing.*

Survivable remote processor (SRP) licenses

- All Release 10 and SRPs using Avaya Communication Manager require a License File.
- When the SRP is in standby mode, it is also in License-Normal mode.
- The SRP enters License-Error mode when it is activated by a broken link, and the 6-day countdown timer starts. This prevents the SRP from being used permanently as a PPN. Entry into License-Error mode generates a major LIC-ERR alarm on the PPN (see License File alarms on page 24).
- If the condition(s) that caused the system to enter License-Error mode has not been corrected/resolved, and the 6-day countdown timer has expired, the system enters No-License mode.
- The SRP returns to License-Normal mode when it is no longer in control of the SREPN. Should the SRP re-enter License-Error mode upon activation in the future, the countdown timer has the full 6 days.

License-Normal

- License File installed successfully
- Feature usage within prescribed limits
- The license file serial number(s) match. The system compares both active and standby hardware (duplex systems).
- If it is an SRP, then the expansion interface is down.

License-Error

- License File serial number does not match the hardware
- System software versions do not match
- Feature usage exceeded
- System cannot verify the standby serial number (duplex only)
- An SRP with the expansion interface up (prevents SRP from being used as a PPN)
- License has expired

No-License

- System software versions do not match
- License File missing or could not be installed
- Offer Categories do not match
- The condition(s) that caused the system to enter License-Error mode has not been corrected/resolved, and the 6-day countdown timer has expired.
- The switch returns to License-Normal mode when the license errors are cleared.

License File alarms

Hourly, the system performs certain maintenance routines associated with each mode:

- License-Normal
  - No License-Error (LIC-ERR) or No-License (NO-LIC) alarms or errors
  - License-Error timer is cancelled
- License-Error
  - Major alarm (LIC-ERR) generated
  - Hardware Error Log entry
  - License-Error countdown timer (6 days) started and blocks the **set time** command
- No-License
  - Major alarm (NO-LIC) generated
  - Hardware Error Log entry.

Troubleshooting License File alarms

See the LIC-ERR (License Error) Maintenance Object in the appropriate *Maintenance for Avaya DEFINITY® Server R* book for troubleshooting information.

Pre-upgrade checklist

In order to be properly prepared for the installation or upgrade, have the items listed in Table 2 ready.

Table 2: G3V4 to R8r through R10r and the Avaya Communication Manager on DEFINITY Server R pre-installation/upgrade checklist *1 of 2*

Item No.	Item ✔
3.	Software Release Letter
4.	Avaya Communication Manager on removable media
5.	Extra formatted removable media
6.	Authorized wrist grounding strap
7.	Documentation (book or PDF file) for the current release: • *Maintenance for Avaya DEFINITY® Server R* • *Administrator's Guide for Avaya Communication Manager*
8.	Your personal Single Sign-On (SSO) for RFA website authentication login.
9.	SAP order number with RTUs
10.	License File serial number(s)
11.	Transaction Record number
12.	System Identification (SID) number
13.	Switch telephone number or IP address

1 of 2

Table 2: G3V4 to R8r through R10r and the Avaya Communication Manager on DEFINITY Server R pre-installation/upgrade checklist *2 of 2*

Item No.	Item ✔
14.	Access to the RFA Information page for these items (if not already installed on your PC): • Features Extraction Tool (FET) application (upgrades only) • FET documentation (upgrades only) • License Installation Tool (LIT) application (installation and upgrade) • LIT documentation (installation and upgrade)
15.	Adobe Acrobat Reader application installed on your PC (to read FET and LIT documentation)
16.	Internet Explorer 5.0 or higher installed on your laptop/PC
17.	Intranet access to your designated RFA portal (see Go to the RFA website).

2 of 2

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 **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:

New Installations

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

Upgrades

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:

New Installations

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

Upgrades

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.

Check customer’s order

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 representative.

Unpack and inspect

READ THIS FIRST!

CAUTION:

A fully loaded system weighs approximately 48 lbs (22 kg). Use lifting precautions.

1. Verify the equipment received. See Figure 2: Equipment packed with the SRP cabinet (circuit packs not shown) on page 28. Actual equipment may vary in appearance and may ship in separate packages.
2. Refer to Table 3: Basic Required SRP parts list on page 29 through Table 9: Parts list for direct fiber configurations on page 31 for a list of Survivable Remote Processor (SRP) and Expansion Port Network (EPN) parts and Comcodes.

Figure 2: Equipment packed with the SRP cabinet (circuit packs not shown)

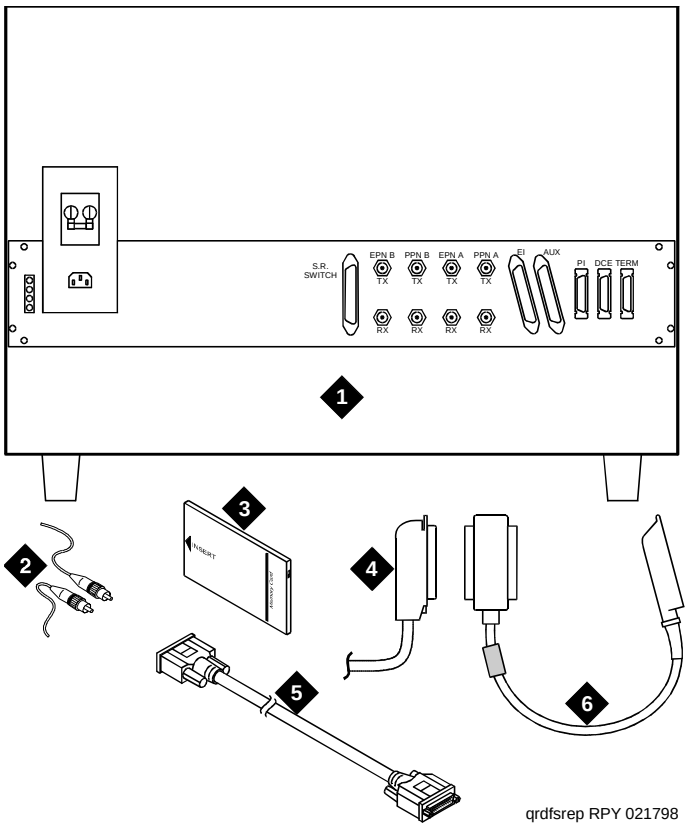


Figure notes:

1. **SRP cabinet (rear view)**
2. **Fiber optic cables (2 sets for standard/high reliability and 4 sets for critical reliability)**
3. **Translation card**
4. **B25A 25-pair (Group 300) cable**
5. **RS-232 cable**
6. **S.R. switch to EI 14-inch (35.5 cm) Y cable**

Table 3: Basic Required SRP parts list

Comcode	Description	Quantity
J58890L-2 List 30	SRP cabinet	1
108136474	TN2301 survivable remote switch circuit pack	1
108230624	TN570C expansion interface circuit pack	1
848486809	TN2401 or TN2401/2400 Network Control/Packet Control Assembly	1
108568262	TN2404 processor circuit pack	1
107784019	TN2182B tone clock-tone detector and call classifier circuit pack	1
848101440	S.R. switch to EI 14-inch (35.5 cm) Y cable	1
----------	RS-232 cable - connects between the SRP cabinet and the management terminal (if used)	1
105455109	Large retainer clips to hold the transceivers to the rear of the EPN (upgrades only)	1 for standard/high reliability 2 for critical reliability

Table 4: Optional SRP parts list

Comcode	Description	Quantity
108773912	TN771DP maintenance/test circuit pack (used only when packet bus is activated)	1
103557187	TN765 processor interface circuit pack	1

Table 5: Required EPN parts list

Comcode	Description	Quantity
108230624	TN570C expansion interface circuit pack	1
105533756	TN1654 DS1CONV circuit pack	1
108187170	TN775C maintenance circuit pack (Needed if one is not already there)	1

Table 6: Optional EPN parts list

Comcode	Description	Quantity
107089922	TN750C or TN2501AP Integrated Announcement circuit pack[a]	1

a. Announcements can only be saved to the flash memory. Do not save announcements to the SRP translations.

Table 7: Required Avaya DEFINTY ECS Server R PPN parts list

Comcode	Description	Quantity
105533756	TN1654 DS1CONV circuit pack[a] (Needed if using DS1 instead of fiber)	1
107737934	TN573B SNI circuit pack[b]	1
847245750 847245768	14-in. (36 cm) Y cable or 6 ft (2 m) Y cable	1

a. Replaces the TN574 circuit pack.

b. Needed if the TN574 circuit pack is replaced with the TN1654 circuit pack.

Table 8: Parts list for DS1CONV configurations

Comcode	Description	Quantity
106455348	9823A fiber optic transceiver	2 for standard/ high reliability 4 for critical reliability
847245776	DS1CONV Y cable	1 for standard/ high reliability 2 for critical reliability
407439975 multi-mode 407598358 single mode	50-ft (15 m) fiber optic cable—connects between the SRP cabinet and an EPN	2 for standard/ high reliability 4 for critical reliability
846301075	50-ft (15 m) B25A 25-pair (Group 300) cable	3

Table 9: Parts list for direct fiber configurations *1 of 2*

Comcode	Description	Quantity
106455348	9823A fiber optic transceiver	1 for standard/ high reliability 2 for critical reliability
106455363	9823B fiber optic transceiver (if multi-mode fiber is longer than 4900 ft (1494 m))	1 for standard/ high reliability 2 for critical reliability
107731853	300A fiber optic transceiver (if single mode fiber installation)	1 for standard/ high reliability 2 for critical reliability

1 of 2

Table 9: Parts list for direct fiber configurations *2 of 2*

Comcode	Description	Quantity
104266523 multi-mode 407598358 single mode	50-foot (15 m) fiber optic cable - connects between the SRP cabinet and an EPN	2 for standard/ high reliability 4 for critical reliability
846301075	50-foot (15.2 m) B25A 25-pair (Group 300) cable	3

2 of 2

Install the SRP cabinet

To install the SRP cabinet:

1. Place the SRP cabinet on the floor or on top of the other Single-Carrier Cabinets (SCC1). The maximum number of stackable cabinets is 4.

   Note:

   The expansion port network (EPN) appears in this document as either a Multicarrier Cabinet (MCC1) or SCC1.

Connect cabinet ground

For cabinet installation, power, and ground information, refer to the Single-Carrier Cabinet installation procedures in the *Avaya MCC1 Media Gateway and Avaya SCC1 Media Gateway Installation and Avaya DEFINITY® Server SI Upgrades Made Easy* document. The SRP needs a dedicated power source.

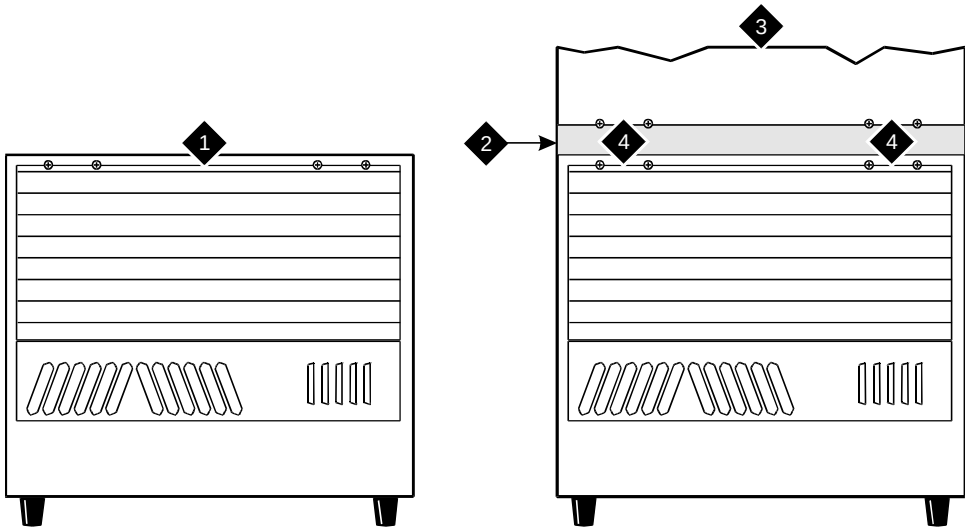
Install rear panels

To install near panels:

1. Install the rear panels and loosely thread each screw. See Figure 3: Rear panel screw locations on page 33.
2. For *unstacked* cabinets, tighten the screws securely.

   For a *stack* of cabinets, allow the screws (Figure Note 4 in Figure 3: Rear panel screw locations on page 33) to remain loose. These screws are tightened when the ground plates are installed.

Figure 3: Rear panel screw locations



grnd_plt CJL 030696

Figure notes:

1. **Cabinet in A position (No ground plate is installed on an unstacked cabinet)**
2. **Rear ground plate (Attached between stacked cabinets)**
3. **Cabinet in B position**
4. **Screws to loosen**

Install ground plates

Ground plates are installed between stacked cabinets, provide the ground connection between cabinets, provide radio frequency (RF) radiation protection, and help stabilize the cabinets.

Install rear ground plates

For systems with earthquake protection:

1. Loosen the four screws at the bottom of the top cabinet and at the top of the cabinet underneath the top cabinet. See Figure 3: Rear panel screw locations on page 33.
2. Align the mounting holes in the rear ground plate over the bottom screws in the top cabinet. See Figure 4: Rear ground plate and front plate or cabinet clip — side view on page 35.
3. Align the mounting holes in the ground plate with the four holes at the top of the cabinet below the top cabinet. Slide the mounting plate down to seat on the screws.
4. Do not tighten the screws yet.

Install front ground plates

For systems with radiation shielding and earthquake protection:

1. Use the front ground plate instead of the cabinet clip to attach the cabinets to each other. Use one front ground plate between two *stacked* cabinets.
2. At the front of the cabinets, align the holes in the top of the front ground plate with the holes at the bottom of the upper cabinet, and insert the four screws. Do not tighten the screws yet. See Figure 4: Rear ground plate and front plate or cabinet clip — side view on page 35.
3. At the front of the cabinets, align the holes in the bottom of the front ground plate with the holes at the top of the lower cabinet. Insert the four supplied #12-24 x 1/2-inch (1.27 cm) thread-forming screws.
4. Tighten all screws securely.

Figure 4: Rear ground plate and front plate or cabinet clip — side view

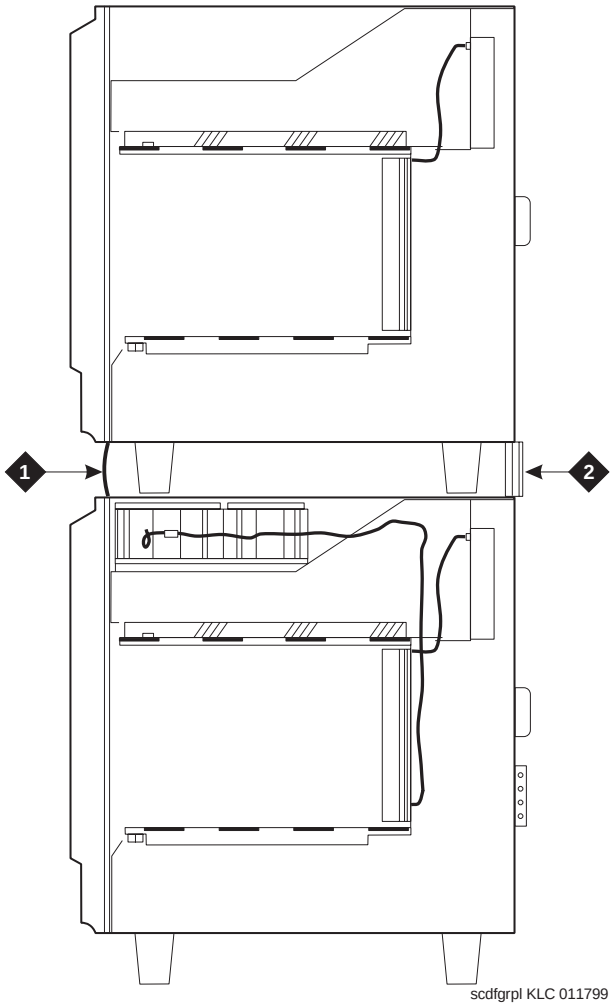


Figure notes:

1. **Front ground plate or cabinet clip**
2. **Rear ground plate**

Install cabinet clips

For systems without earthquake protection, a cabinet clip is required between each pair of stacked cabinets:

1. At the front of the cabinets, install a cabinet clip between each pair of cabinets by hooking the clip into the slot of the upper cabinet and snapping the straight leg of the clip into the slot on the lower cabinet. See Figure 5.

Figure 5: Location of Cabinet Clips

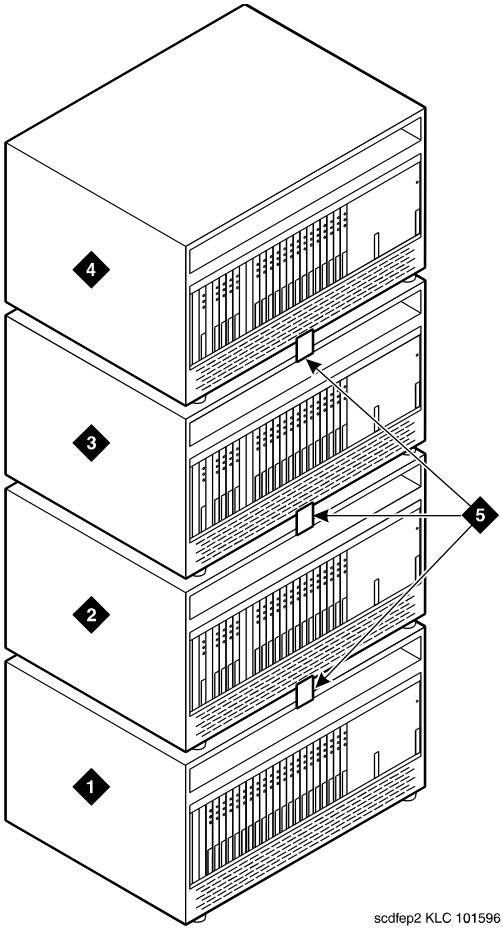


Figure notes:

1. **Control Cabinet**
2. **Port Cabinet or Duplicated Control Cabinet**
3. **Port Cabinet**
4. **SRP Cabinet**
5. **Cabinet Clips**

Connect cables to the SRP

The TN2301 survivable remote switch circuit pack is located in slot 7 of the SRP cabinet. Fiber optic transceivers are attached to the TN2301 circuit pack. Fiber cables are connected from these transceivers to the TX and RX connectors on the rear of the cabinet.

Note:

Always connect a fiber cable from a TX connector to an RX connector and vice versa.

Do not connect the cables to the EPN until you reach the Replace EPN circuit packs and make cable connections section.

Depending on the customer's configuration, refer to one of the following sections for connecting fiber cables to the SRP:

- Connect SRP fiber cables for standard/high reliability
- Connect SRP fiber cables for critical reliability

Connect SRP fiber cables for standard/high reliability

1. Connect the equipment as shown in Figure 6: SRP fiber cables for standard/high reliability on page 38.
2. Go to the Connect the SRP and management terminal section.

Connect SRP fiber cables for critical reliability

1. Connect the equipment as shown in Figure 7: SRP fiber cables for critical reliability on page 39.
2. Go to the Connect the SRP and management terminal section.

Figure 6: SRP fiber cables for standard/high reliability

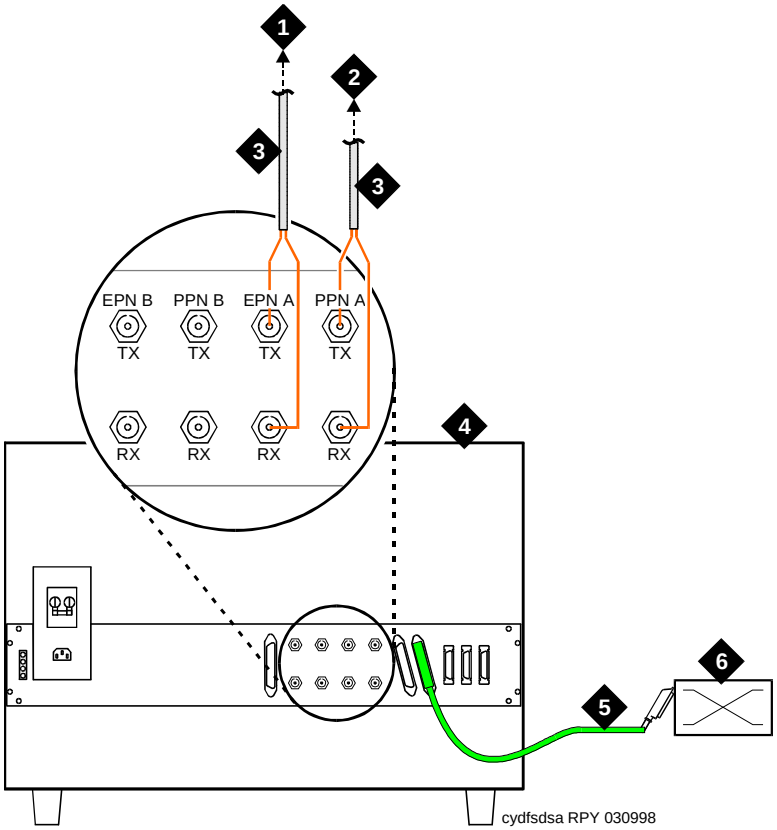


Figure notes:

1. **To EPN A**
2. **To Port Network Connectivity (PNC) A**
3. **Fiber optic cable**
4. **SRP cabinet**
5. **B25A 25-pair cable**
6. **Main Distribution Frame (MDF)**

Figure 7: SRP fiber cables for critical reliability

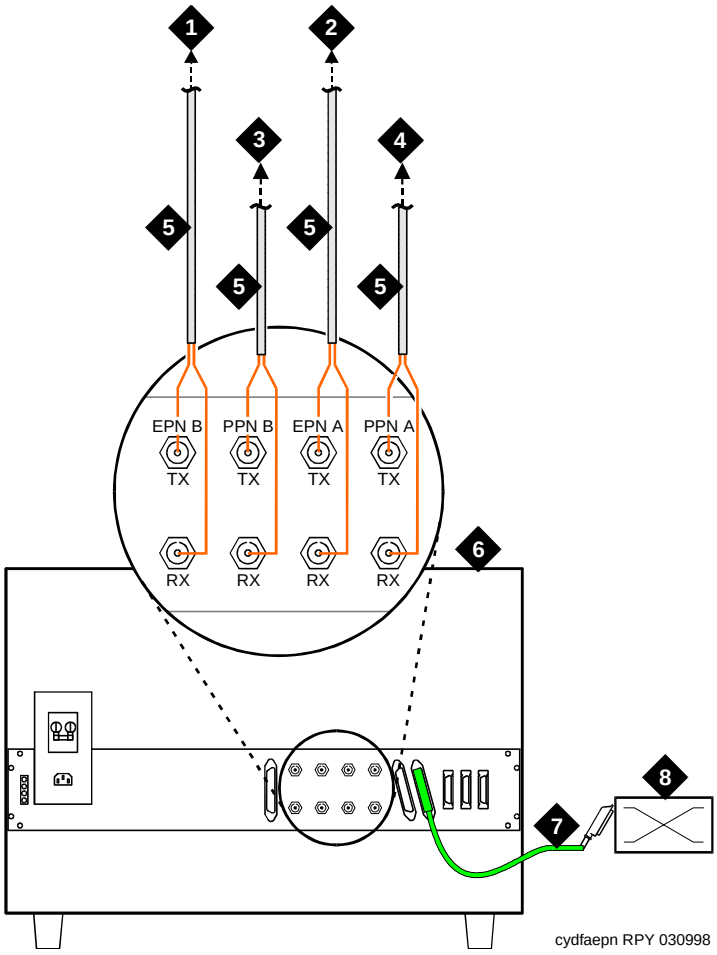


Figure notes:

1. To EPN B
2. To EPN A
3. To Port Network Connectivity (PNC) B
4. To Port Network Connectivity (PNC) A
5. Fiber optic cable
6. SRP cabinet
7. B25A 25-pair cable
8. Main Distribution Frame (MDF)

Connect the SRP and management terminal

If you are using a laptop/PC instead of a management terminal, refer to the section on Accessing the System in the Single-Carrier Cabinet installation procedures in the *Avaya MCC1 Media Gateway and Avaya SCC1 Media Gateway Installation and Avaya DEFINITY® Server SI Upgrades Made Easy* document.

1. See Figure 8 for SRP and management terminal connections.

Figure 8: SRP and management terminal connections

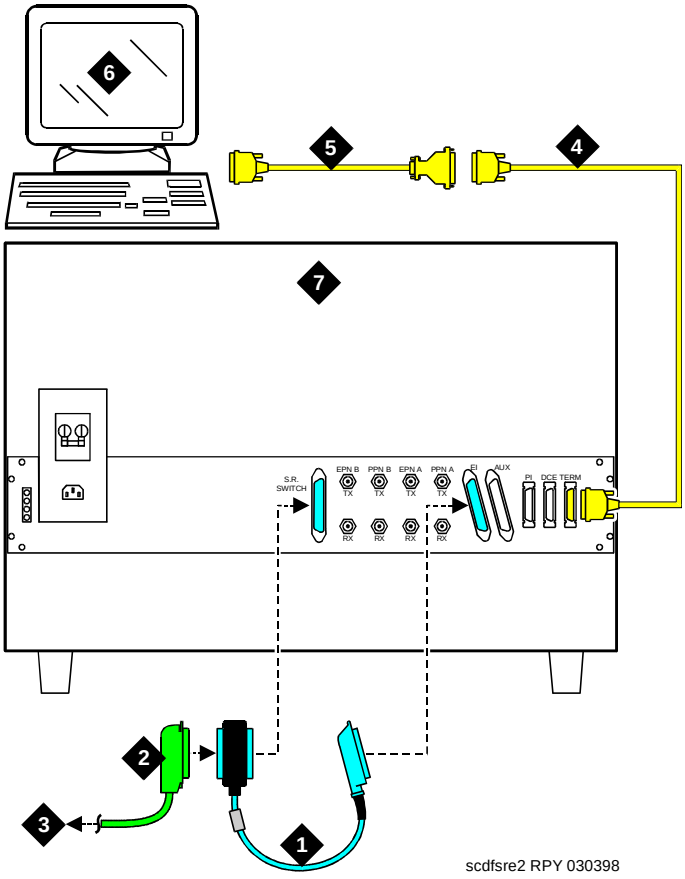


Figure notes:

1. **14-in. (35.5 cm) Y cable**
2. **B25A 25-pair cable**
3. **To Main Distribution Frame (MDF)**
4. **RS-232 cable**
5. **RS-232 null modem cable (to COM2 connector on management terminal)**
6. **Management terminal**
7. **SRP cabinet**

MDF connections

Punch down the following wires at the MDF. See Table 10.

Table 10: 110 block cross-connect pins

SRP Aux		EPN Aux	
Color[a]	**Cross-Connect Pin Number**	**Cross-Connect Pin Number**	**Color**
G-V	46	3	W-O
SRP Aux		**SRP Switch**	
Color	**Cross-Connect Pin Number**	**Cross-Connect Pin Number**	**Color**
W-O	3	46	G-V
V-G	45	23	BK-O
EPN Aux		**SRP Switch**	
Color	**Cross-Connect Pin Number**	**Cross-Connect Pin Number**	**Color**
O-W	4	24	O-BK
W-G	5	47	V-BR
W-BR	7	48	BR-V
V-BL	41	41	V-BL
BL-V	42	42	BL-V
V-G	45	43	V-O
G-V	46	44	O-V

a. The following wire colors apply to this table:

W = White, BL = Blue, O = Orange, G = Green, BR = Brown, BK = Black, V = Violet

Power up the SRP

To power up the SRP:

1. Set the TN2301 switch to the Restore (RSTR) position during the administration to prevent the cabinet from going into the survive mode.
2. At the rear of the SRP, set the circuit breaker to **ON**. This starts the system initialization and test.

Deliver or install the License File on the SRP

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

To administer no-license/emergency numbers:

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

   The Feature-Related System Parameters screen displays:

Figure 9: Feature-Releated System Parameters

```
change system-parameters features

                        FEATURE-RELATED SYSTEM PARAMETERS

SYSTEM-WIDE PARAMETERS
                      Switch Name: Albania
     Emergency Numbers - Internal: XXXXXX External: XXXXXXXXXXXXXXXXXXXX
  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.

Administer the Avaya Communication Manager and SRP

CAUTION:

Do not save announcements to the SRP translation card.

Note:

Administering the SRP may take several hours.

Note:

This documentation assumes that the computer or system access terminal for the main DEFINITY Server running Avaya Communication Manager and the system access terminal for the SRP are located in the same room. If this is not the case, make the appropriate provisions.

Note:

Not all administration should be copied directly (Example: coverage paths, abbreviated dial lists, and bridged appearances). These administration items may not be valid if the SRP goes into survival mode.

Note:

The following are examples of the types of administration that need to be added to the SRP. Since configurations and administration varies for every switch, it is not possible to list all of the administration that is needed for your SRP.

PPN administration

For PPN administration:

1. Log onto Communication Manager on the DEFINITY Server R.
2. Type **display system-parameters maintenance** and press **Enter**. Record the product ID for later use.
3. Choose an option and enter one of the following commands:
   - If changing an existing EPN to an SREPN, type **change cabinet** <**number**> (cabinet number of the SREPN) and press **Enter**.
   - If adding a new EPN as an SREPN, type **add cabinet** <**next**> (next gives you the next available number).
4. In the `Survivable Remote EPN`? field, type **y**.
5. In the `Survivable Remote Processor ID` field, add the product ID of the SRP. The product ID is located on the display system-parameters maintenance screen on the SRP system access terminal.
6. Press **Enter** to effect the changes.

SRP administration

First, administer the hardware, then the software, and, finally, any individual features.

Administering the hardware

1. On Communication Manager on DEFINITY Server R, type **list cabinet** and press **Enter**. Identify the port network of the SREPN. See Figure 10.

Figure 10: List cabinet screen

```
list cabinet                                                    SPE B

                              CABINET REPORT

No. Type Layout Room      Floor      Building    A     B     C     D     E
1    PPN 5-car  CS_1      1          ABC_DE    PN 01 PN 01 PN 01 SN 01 SN 01
2    EPN 5-car  CS_1      1          ABC_DE    PN 04 PN 04 PN 04 PN 16 PN 16
3   sEPN 5-car  CS_1      1          ABC_DE    PN 05 PN 05 PN 05 SN 44 SN 44
4    EPN 5-car  B-32      B          VWX_YZ    PN 06 PN 06 PN 06 SN 07 SN 07
5    EPN 5-car  2-12      2          MNO_PQ    PN 08 PN 08 PN 08 SN 09 SN 09
6    EPN 5-car  E-51      1          VWX_YZ    PN 10 PN 10 PN 10 SN 11 SN 11
```

2. Display the hardware in the SREPN by typing **display circuit-packs** <**number**> (the port network number of the SREPN) and pressing **Enter**.

   Note:

   The port network numbers differ between the Avaya Communication Manager on DEFINITY Server R and the SRP. On the DEFNITY Server R, the port network that you may be displaying is 5; whereas, on the SRP system, the port network that you are adding circuit packs to is always 2.

3. On the SRP system, type **change circuit-packs 2** and press **Enter**. All the circuit packs displayed on the DEFINITY Server R that are not specific to the R (such as packet gateways or DS1CONV) must be added to the SRP. Be sure to add circuit packs to all necessary carriers.

   Note:

   Save often the information you add to the SRP system.

4. Press **Enter** to effect the changes.

Administering the software

Identify and add trunk information

Administration for each of the circuit packs in the SREPN needs to be added to the SRP. For every trunk circuit pack, the trunk administration must be added and for every port on every line circuit pack, the station administration must be added.

1. On the DEFINITY Server R, type **list configuration port-network** <**number**> (number of the SREPN port network) and press **Enter**. Identify the slot numbers of the trunk circuit packs.
2. For each trunk circuit pack on the DEFINITY Server R, type **display port** <**CCSS01**> (where CCSS01 is the circuit pack and port location of the first port on the trunk circuit pack) and press **Enter**. The Port Information screen appears. The `Identification:` field shows the trunk group and member information for that port. (For example, 98/1 means that this port is member 1 of trunk group 98.)
3. Type **display trunk-group** <**number**> (number is the trunk group member) and press **Enter**.
4. On the SRP system, type **add trunk-group** <**number**> and press **Enter**.
5. Add all of the trunk group information (displayed on the DEFINITY Server R) to the SRP system.

   Note:

   The port network numbers differ between the DEFINITY Server R and the SRP. On the DEFINITY Server R, the port network that you may be displaying is 5; whereas, on the SRP system, the port network that you are adding circuit packs to is always 2.
6. The Member Assignments screen on the DEFINITY Server R appears. Note the number of the members in the trunk group.

   Are all the ports for that trunk circuit pack members of that trunk?

   - If yes, add the members, press **Enter** and repeat steps 2-6 for the next trunk circuit pack.
   - If no, repeat step 2 for all the ports on the trunk circuit pack that are not accounted for in that trunk group. (For example, if trunk group 98 has only 4 members, which correspond to ports 1 - 4, return to step 2 and type **display port** <**CCSS05**> and press **Enter** to determine the trunk group for port 5.) Then follow steps 3 and 4 with the new trunk group information.

   Note:

   For more information about administering trunks, refer to the *Administrator's Guide for Avaya Communication Manager.*
7. Type **save translation** and press **Enter**.

Identify and add station information

1. On the DEFINITY Server R, type **list configuration port-network** <**number**> (number of the SREPN port network) and press **Enter**. Identify the slot numbers of the line circuit packs.
2. For each line circuit pack on the DEFINITY Server R, type **display port** <**CCSS01**> (where CCSS01 is the circuit pack and port location of the first port on the line circuit pack) and press **Enter**. The Port Information screen appears. The `Identification:` field shows the type of station and its extension for that port.
3. Type **display station** <**extension**> (extension of the station) and press **Enter**.

   Note:

   The display command depends on the administration of that port - **display station** for stations, **display data** for data terminals, and so forth.
4. On the SRP system, type **add station** <**extension**> (extension is the same station extension as above) and press **Enter**.
5. Duplicate all of the station information displayed on the DEFINITY Server R to the SRP system.

   Note:

   Remember to add any additional system administration that may be needed. For example, if the station has a coverage path, you need to administer the coverage path. Some of the administration for the station may not work if the SREPN goes into survive mode (such as coverage paths, abbreviated dial lists, and bridged appearances).
6. Repeat steps 2 - 5 for every port on every line circuit pack in the SREPN.

   Note:

   For more information about administering stations, refer to the *Administrator's Guide for Avaya Communication Manager.*
7. Type **save translation** and press **Enter**.

Identify and add other circuit packs

For circuit packs other than trunk and line, follow the same guidelines.

1. Display each port on the circuit pack and the equipment type displayed on the port information screen.
2. Display the equipment on the DEFINITY Server R management teminal and add the information to the SRP system.
3. Type **save translation** and press **Enter**.

Administering the system features

Note:

Customer options available to SRP are the same as those available on the existing DEFINITY Server R. These are administered by the regional CSA.

Any differences in features from the DEFINITY Server R to DEFINITY Server SI are experienced in the survivable mode. Refer to the feature administration descriptions for the DEFINITY Server R and DEFINITY Server SI for further details.

System administration needs to be added to the SREPN including dialplan, system features, system maintenance, system security, feature-access-codes, and so forth. Administer in the same manner as listed above.

1. Display the information on the DEFINITY Server R system. For example, type **display feature-access-codes** and press **Enter**.
2. Add the information to the SRP system. For example, type **change feature-access-codes** and press **Enter**.
3. Type **save translation** (optional) and press **Enter**.

Administering the maintenance parameters

Page 1 of the system-parameters maintenance form contains 2 fields that must be administered for the abbreviated alarm report. Figure 11 shows the screen with the `First OSS Telephone Number:` and `Second OSS Telephone Number:` fields that are administered with offsite notification numbers. The `Abbrev Alarm Report?` fields associated with these numbers must be set to avoid unnecessary notification calls.

1. Set the two `Abbreviated Alarm Report` fields to **y** and press **Enter**.

Figure 11: Maintenance-related system parameters screen

```
change system-parameters maintenance                    Page   1 of   3   SPE A
                  MAINTENANCE-RELATED SYSTEM PARAMETERS
OPERATIONS SUPPORT PARAMETERS
            Product Identification: 1010101010
          First OSS Telephone Number: 9~p5380532         Abbrev Alarm Report? y
         Second OSS Telephone Number: 9~p5380533         Abbrev Alarm Report? y
  Alarm Origination to OSS Numbers: both
         Cleared Alarm Notification? y                Suspension Threshold: 5
               Restart Notification? y
            Test Remote Access Port? y
         CPE Alarm Activation Level: none
      Customer Access to INADS Port? y
        Repeat Dial Interval (mins): 7
SCHEDULED MAINTENANCE
                   Start Time: 23 : 00                   Stop Time: 06 : 00
            Daily Maintenance: daily              Save Translation: daily
 Control Channel Interchange: daily     System Clocks Interchange: daily
              SPE Interchange: daily
```

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.

Administering the synchronization source

Note:

Do not administer a trunk on the SREPN as the synchronization source for the DEFINITY Server R. If the system goes into the survive mode, the DEFINITY Server R loses its sync source.

To administer the sync source for the SRP:

1. On the SRP system, type **change synchronization** and press **Enter**.
2. Enter a DS1 trunk circuit pack on the SRP as the primary sync source.
3. Press **Enter** to effect the changes.

Note:

When the system is in the survive mode, the synchronization of the SRP comes from the DS1 trunk circuit pack. When the system is in the normal mode, the synchronization of the SRP reverts back to the tone clock and causes a SYNC alarm in the alarm logs of the SRP.

4. When all administration is completed on the SRP, type **save translation** and press **Enter**.
5. Return the TN2301 switch to the AUTO position.

Replace main server’s circuit packs

If the DEFINITY Server R has the TN574 DS1CONV circuit pack:

1. Replace the TN574 DS1CONV circuit pack with the TN1654 DS1CONV circuit pack.
2. If you have a TN573 SNI circuit pack, replace it with a TN573B SNI circuit pack.

Replace EPN circuit packs and make cable connections

To replace EPN circuit packs and make cable connections, follow this procedure:

1. Power down the EPN.
2. If this is a previously installed EPN, then remove the DS1CONV to EI cable.
3. Install the TN775C maintenance circuit pack.
4. Install the TN570C expansion interface circuit pack.

5. Replace the TN574 circuit pack with the TN1654 DS1CONV circuit pack.
6. Depending on the customer's configuration, refer to one of the following sections:
   - Connect DS1CONV cables for standard/high reliability
   - Connect DS1CONV cables for critical reliability
   - Connect direct fiber cables for standard/high reliability
   - Connect direct fiber cables for critical reliability

Connect DS1CONV cables for standard/high reliability

To connect DS1CONV cables for standard/high reliability, follow this procedure:

1. Connect the equipment as shown in Figure 12: EPN DS1CONV standard/high reliability cable connections on page 55.
2. Power up the EPN.
3. Go to the Test the SRP section.

Connect DS1CONV cables for critical reliability

To connect DS1CONV cables for critical reliability, follow this procedure:

1. Connect the equipment as shown in Figure 13: EPN DS1CONV critical reliability cable connections on page 56.
2. Power up the EPN.
3. Go to the Test the SRP section.

Connect direct fiber cables for standard/high reliability

To connect direct fiber cables for standard/high reliability, follow this procedure:

1. Connect the equipment as shown in Figure 14: EPN Direct fiber standard/high reliability cable connections on page 57.
2. Power up the EPN.
3. Go to the Test the SRP section.

Connect direct fiber cables for critical reliability

To connect direct fiber cables for critical reliability, follow this procedure:

1. Connect the equipment as shown in Figure 15: EPN Direct fiber critical reliability cable connections on page 58.
2. Power up the EPN.
3. Go to the Test the SRP section.

Figure 12: EPN DS1CONV standard/high reliability cable connections

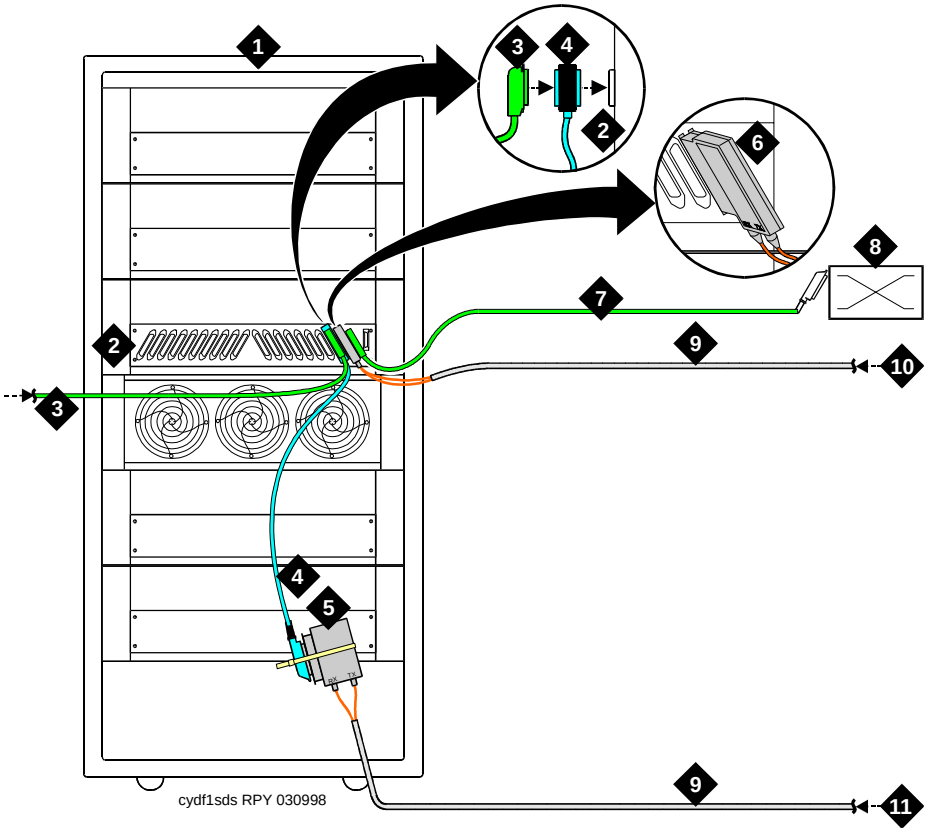


Figure notes:

1. **MCC1 cabinet**
2. **EPN carrier A**
3. **DS1 cable from Port Network Connectivity (PNC) A link**
4. **DS1CONV 2-ft (61 cm) Y cable (Tie wrap the cable to the cabinet.)**
5. **9823A transceiver**
6. **9823A transceiver on the EI connector**
7. **B25A 25-pair cable**
8. **Main Distribution Frame (MDF)**
9. **Fiber optic cables**
10. **From the EPN A TX and RX connectors on the rear of the SRP**
11. **From the PPN A TX and RX connectors on the rear of the SRP**

Figure 13: EPN DS1CONV critical reliability cable connections

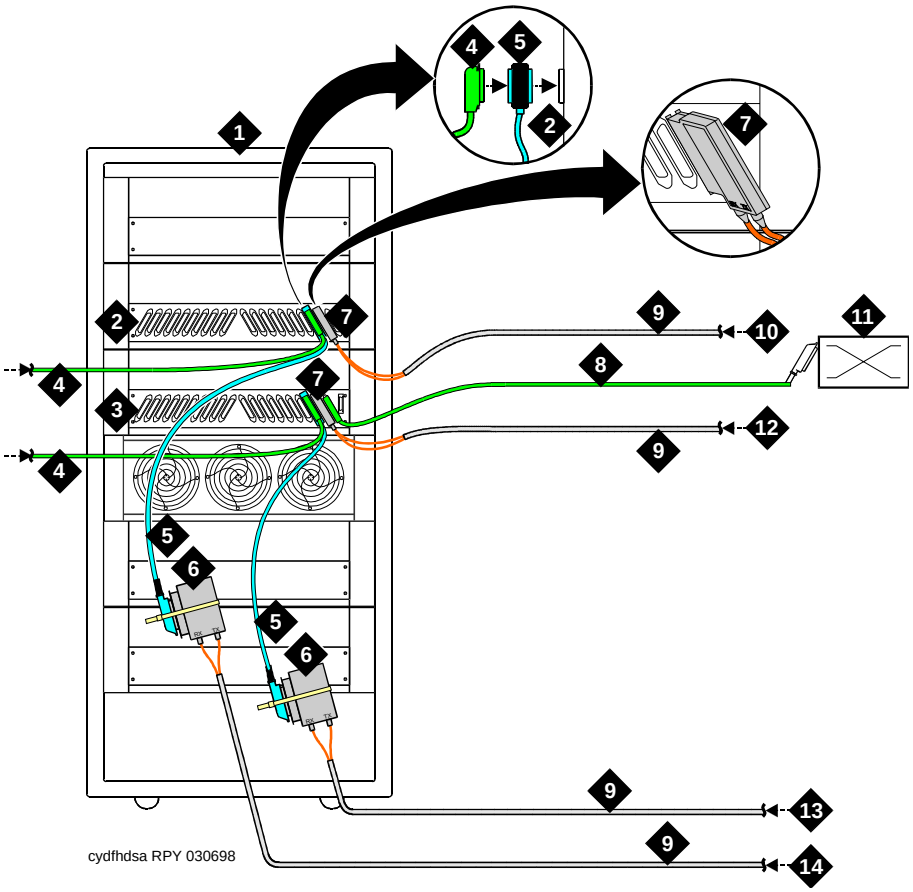


Figure notes:

1. MCC1 cabinet
2. EPN carrier B
3. EPN carrier A
4. DS1 cables from Port Network Connectivity (PNC) A and B links
5. DS1CONV 2-ft (61 cm) Y cable (Tie wrap the cable to the cabinet.)
6. 9823A transceiver
7. 9823A transceiver on the EI connector
8. B25A 25-pair cable
9. Fiber optic cables
10. From the EPN B TX and RX connectors on the rear of the SRP
11. Main Distribution Frame (MDF)
12. From the EPN A TX and RX connectors on the rear of the SRP
13. From the PPN A TX and RX connectors on the rear of the SRP
14. From the PPN B TX and RX connectors on the rear of the SRP

Figure 14: EPN Direct fiber standard/high reliability cable connections

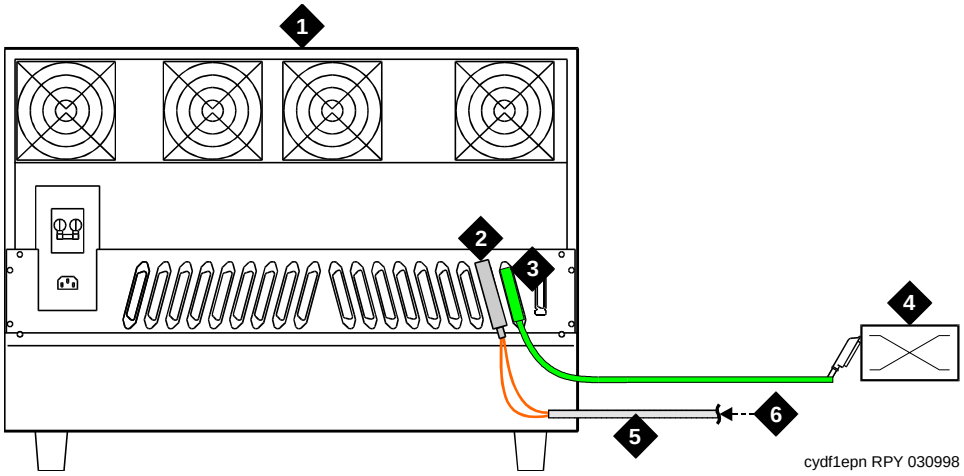


Figure notes:

1. **SCC1 cabinet**
2. **9823A transceiver on the EI connector**
3. **B25A 25-pair cable**
4. **Main Distribution Frame (MDF)**
5. **Fiber optic cable**
6. **From the EPN A TX and RX connectors on the rear of the SRP cabinet**

Figure 15: EPN Direct fiber critical reliability cable connections

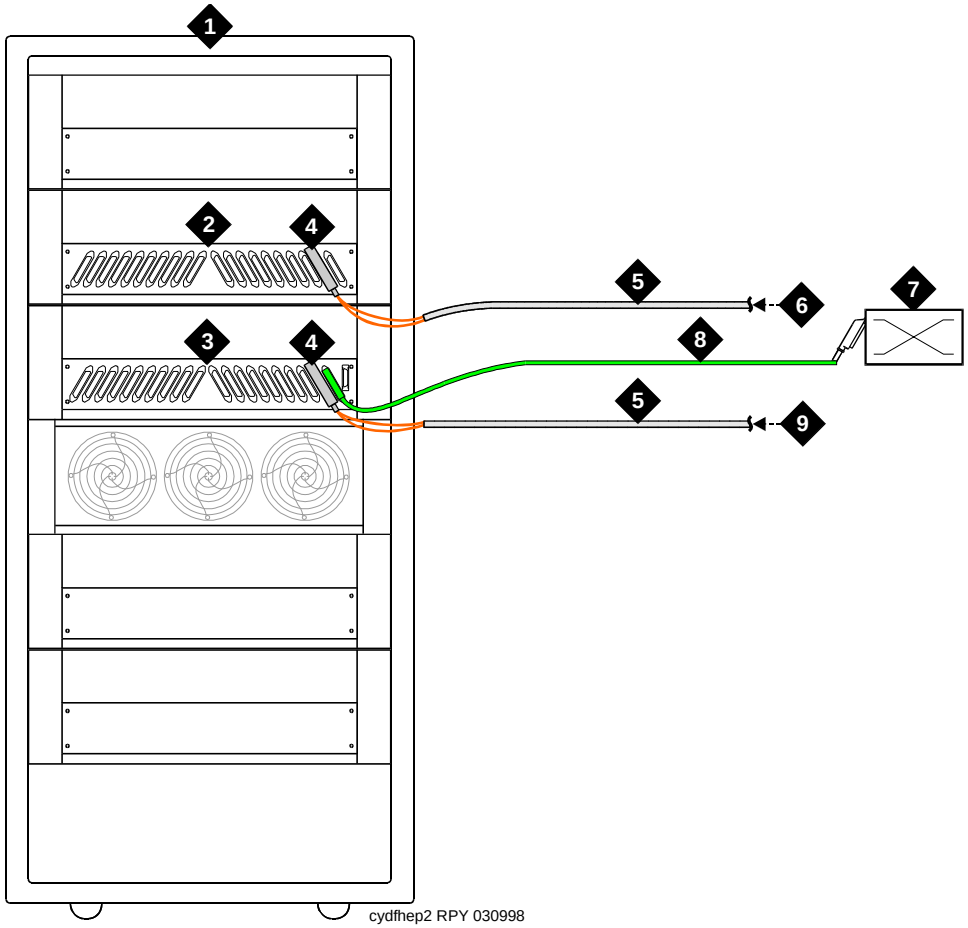


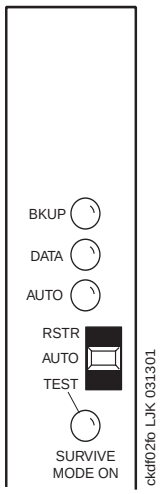
Figure notes:

1. **MCC1 cabinet**
2. **EPN carrier B**
3. **EPN carrier A**
4. **9823A transceiver on the EI connector**
5. **Fiber optic cables**
6. **From the EPN B TX and RX connectors on the rear of the SRP**
7. **Main Distribution Frame (MDF)**
8. **B25A 25-pair cable**
9. **From the EPN A TX and RX connectors on the rear of the SRP**

Test the SRP

After the SRP is fully administered and the TN2301 switch (Figure 16) is in the AUTO position, you are ready to test the SRP.

Figure 16: TN2301 faceplate switch and LEDs



Test the survive mode function

1. Type **list cabinet** and press **Enter** on the main server's system terminal. Determine which EPN is "watched" by Survivable Remote equipment by looking for the lower-case "s" before the letters "EPN" in the Type field as shown in Figure 17. Note that there may be more than 1 EPN designated as Survivable.

Figure 17: List cabinet screen (example shown is on DEFINITY Server R)

```
list cabinet                                                    SPE B

                              CABINET REPORT

No. Type Layout Room      Floor      Building    A     B     C     D     E
1    PPN 5-car  CS_1      1          ABC_DE    PN 01 PN 01 PN 01 SN 01 SN 01
2   sEPN 5-car  CS_1      1          ABC_DE    PN 04 PN 04 PN 04 PN 16 PN 16
3    EPN 5-car  CS_1      1          ABC_DE    PN 05 PN 05 PN 05 SN 44 SN 44
4    EPN 5-car  B-32      B          VWX_YZ    PN 06 PN 06 PN 06 SN 07 SN 07
5    EPN 5-car  2-12      2          MNO_PQ    PN 08 PN 08 PN 08 SN 09 SN 09
6    EPN 5-car  E-51      1          VWX_YZ    PN 10 PN 10 PN 10 SN 11 SN 11
```

2. Type **status health** and press **Enter** on the main server's system terminal. The status of the SREPN should be "up." See Figure 18.

Figure 18: Status health screen (DEFINITY Server R or S8700 Media Server)

```
status health                                                    SPE A

 PNC: A-PNC/auto B-PNC/functional   ALARMS: Maj:   2  Min:   2  Wrn:  104
 Pwr: comm Sync:loc l    Logins:2  BUSYOUT: Trk    0  Stn:   0  Oth:   18
 Cab EmTr  Mj Mn Wn PNC     Cab EmTr  Mj Mn Wn PNC      Cab EmTr  Mj Mn Wn PNC
  1  auto-  0| 0|47 up
  2  auto-  0| 0|12 up
```

3. Type **status health** and press **Enter** on the SRP system access terminal. The status of the SREPN should be "down." See Figure 19.

Figure 19: Status health screen (SRP)

```
status health
ALARM SUMMARY                                  CABINET STATUS
       Major:    1                             Emerg  Alarms
       Minor:    0                       Cab Trans Mj Mn Wn PNC
     Warning:   10                         1 auto-  0| 0| 5 up
BUSY-OUT SUMMARY                           2 auto-  1| 0| 0 dn
      Trunks:    0                         3 n.a.   0| 0| 0 dn
    Stations:    0
      Others:    0
PROCESSOR OCCUPANCY STATUS
Static:   1%     SM:   4%
    CP:   0%   Idle:  95%
CRITICAL SYSTEM STATUS
  Active SPE: A/auto
  Duplicated? SPE:n
   SPE Power: commercial
 Time Source: local
    # Logins: 1
```

4. Place a voice call from a telephone on the DEFINITY Server R PPN to a telephone on the SREPN and verify the talk path.
5. Physically disconnect all PNC A and B fiber cables from the connectors on the rear of the SRP cabinet. Take care not to mix up or contaminate the fibers. After about a minute, the red emergency transfer LED on TN775C maintenance circuit pack turns on.

6. Verify that the red SURVIVE MODE ON LED on the TN2301 turns on in approximately 2 minutes. The SREPN performs a cold reset and functions again under the control of the SRP, although it may take longer for some facilities (such as trunks) to be fully restored.

   If the SURVIVE MODE ON LED does not turn on, refer to Testing the TN2301 function and wiring in Chapter 3: SREPN Maintenance.

7. Type **status health** and press **Enter** on the DEFINITY Server R. The status of the SREPN should be “dn” or “fe” (far end).
8. Type **status health** and press **Enter** on the SRP system. The status of the SRP should be “up.”
9. Place a voice call between two telephones on the EPN and verify the talk path.
10. Reconnect all PNC A and B fiber cables to the rear of the SRP cabinet.
11. Move the TN2301 switch to the restore (RSTR) position. The SURVIVE MODE ON LED immediately turns off.
12. Move the TN2301 switch to the AUTO position.
13. Verify that the SREPN is back in service on the DEFINITY Server R within 1-2 minutes.
14. Type **status health** and press **Enter** on the DEFINITY Server R. The status of the SREPN should be “up.”
15. Type **status health** and press **Enter** on the SRP system. The status of the SREPN should be “down.”

Verify the test switch operation

1. Type **display alarms** and press **Enter** on the DEFINITY Server R while in the normal mode.
2. Type **pnc** in the `Category` field and press **Enter**.
3. Resolve any FIBER-LK, SNI-BD, EXP-INTF, and DS1-CONV errors. Refer to the *DEFINITY ECS Release 10 Maintenance for R10r*.
4. Place the TN2301 switch to the TEST position.
5. Verify that the SURVIVE MODE ON LED on TN2301 turns on immediately. Within 2 minutes, the SREPN performs a cold reset and functions again under the control of the SRP, although it may take longer for some facilities (such as trunks) to be fully restored.
6. Type **status health** and press **Enter** on the DEFINITY Server R. The status of the SREPN should be “dn” or “fe” (far end).
7. Type **status health** and press **Enter** on the SRP system. The status of the SRP should be “up.”
8. Type **display errors** and press **Enter** on the DEFINITY Server R.
9. Type **pnc** in the `Category` field and press **Enter**. Note the errors associated with the SREPN or its connections. These errors appear when the link to the SREPN is good and you are in the survive mode.

10. Place a voice call between two telephones on the SREPN and verify the talk path.
11. Place the TN2301 switch to the AUTO position. The SURVIVE MODE ON LED immediately turns off.
12. Verify that the SREPN is back in service on the DEFINITY Server R within 1-2 minutes.
13. Type **status health** and press **Enter** on the DEFINITY Server R. The status of the SREPN should be “up.”
14. Type **status health** and press **Enter** on the SRP system. The status of the SREPN should be “down.”

Verify the SRP status

1. Verify that the TN2301 switch is in the AUTO position and the green AUTO LED is on.
2. Verify that the red BKUP LED on the TN2301 is off.
3. Verify that the red SURVIVE MODE ON LED is off.
4. Verify that the yellow DATA LED is on.
5. Verify that the green LED on the EPN TN775C maintenance circuit pack is double flashing. This indicates that EPN can go into the survive mode if needed.

Upgrade the SRP

Note:

The Survivable Remote EPN (SREPN) will not be sold after November 3, 2003. However, existing systems will continue to be supported with upgrades of Communication Manager.

Pre-upgrade checklist

In order to be properly prepared for the or upgrade, have the items listed in Table 11 ready.

Table 11: G3V4 through R9r to R10r pre-upgrade checklist *1 of 2*

Item No.	Item	✔
1.	Software Release Letter	
2.	Avaya Communication Manager on removable media	
3.	Extra formatted removable media	
4.	Authorized wrist grounding strap	
5.	Documentation (book or PDF file) for the current release: • *Maintenance for Avaya DEFINITY Server R* • *Administrator's Guide for Avaya Communication Manager*	
6.	Your personal Single Sign-On (SSO) for RFA website authentication login.	
7.	SAP order number with RTUs	
8.	License File 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): • Features Extraction Tool (FET) application (upgrades only) • FET documentation (upgrades only) • License Installation Tool (LIT) application (installation and upgrade) • LIT documentation (installation and upgrade)	

1 of 2

Table 11: G3V4 through R9r to R10r pre-upgrade checklist *2 of 2*

Item No.	Item	✔
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 Go to the RFA website).	

2 of 2

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 **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.

Check link status

The link must be up and functioning before you can upgrade.

1. Check the link status between the DEFINITY Server R PPN and the associated SREPN.

   Note:

   When the link is up, it generates a major LIC-ERR alarm at the PPN.

2. If the system is in "survive mode," resolve the alarms and return the link to service before proceeding with the upgrade.

Upgrade the switch

Continue the upgrade by referring to the upgrade procedures for the DEFINITY Server SI in the *Avaya MCC1 Media Gateway and Avaya SCC1 Media Gateway Installation and Avaya DEFINITY® Server SI Upgrades Made Easy* document.

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

To administer no-license/emergency numbers:

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

   The Feature-Related System Parameters screen displays:

Figure 20: Feature-Releated System Parameters

```
change system-parameters features

                        FEATURE-RELATED SYSTEM PARAMETERS

SYSTEM-WIDE PARAMETERS
                      Switch Name: Albania
     Emergency Numbers - Internal: XXXXXX External: XXXXXXXXXXXXXXXXXXXX
  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.

Reset system 3 command

If you use the **reset system 3** command to read the PPN translations to the SRP:

1. Type **reset system 3 preseve-license** and press Enter.

   This command preserves the SRP License File, which matches this SRP's hardware identification number only, but duplicates PPN translations.

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.

Chapter 3: SREPN Maintenance

Before starting to troubleshoot

Note:

When the Survivable Remote Processor (SRP) is in Normal mode, the Expansion Interface circuit pack's yellow LED flashes (see Table 17: Expansion Interface circuit pack YELLOW LED flashing states on page 84). *This is normal*. The links to its counterpart in the Avaya DEFINITY Server R *are* down and are not re-established until the SRP goes into Survive mode.

Similarly, after normal service is returned to the SREPN, the SRP is in an *alarmed state*. *This is normal for the SRP* and indicates that the TN2301 has disconnected from the SREPN, and the SRP is no longer in control. EXP-INTF errors and alarms and failures of Tests #237 and #238 are also normal.

For more information about these conditions see Post-reset check.

Servicing the Survivable Remote EPN (SREPN) equipment involves both the DEFINITY Server R and the SI processors. Therefore, you may need to refer to these maintenance manuals:

- *Maintenance for Avaya DEFINITY® Server R*
- *Maintenance for Avaya DEFINITY® Server SI.*

SREPN connections

- The EPN can be remoted over fiber optic cables through Switch Node Interface (SNI) and Expansion Interface (EI) circuit packs
- DS1-CONV facilities

Figure 21 shows an example of the essential hardware connections for the Survivable Remote EPN over DS1-CONV facilities.

Figure 21: Survivable Remote EPN hardware connections over DS1-CONV facilities

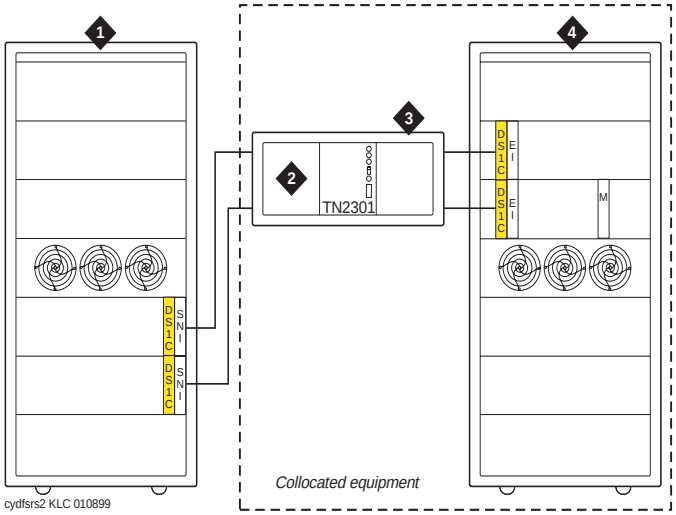


Figure notes:

1. **DEFINITY Server R**
2. **DEFINITY Server SI processor complex**
3. **Survivable Remote processor (SRP)**
4. **Survivable Remote EPN (SREPN)**

CAUTION:

Only the TN1654 DS1-CONV circuit pack can be used for DS1-CONV-remoted SREPN systems.

The circuit pack with the “M” in the SREPN cabinet (Figure 21) indicates the TN775C Maintenance circuit pack that monitors the status of the fiber link between the DEFINITY Server R and the SREPN.

Figure 22 shows the front of the SRP cabinet, typical circuit packs installed, and the position of the TN2301 SRSwitch circuit pack.

Figure 22: Front view - SRP cabinet

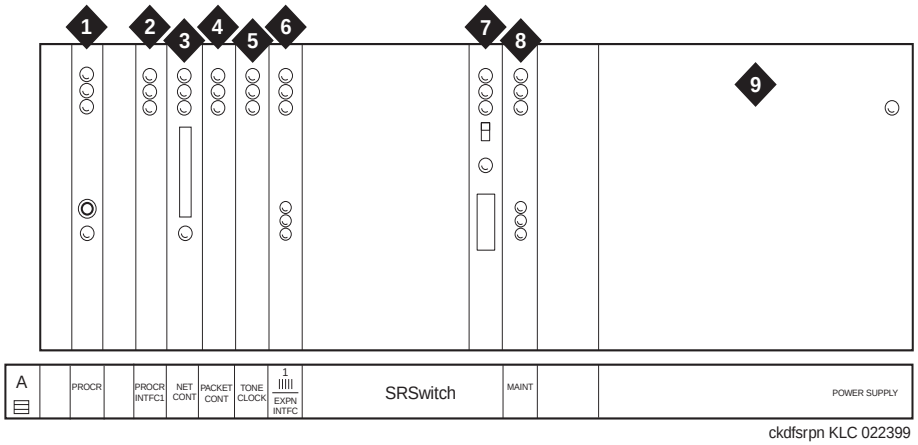


Figure notes:

1. **Processor (TN2404)**
2. **)Processor interface (TN765)**
3. **Network/Packet Control (TN2401 or TN2401/2400) or Network control (TN777B - Release 6 and earlier)**
4. **Packet control (TN778 - Release 6 and earlier)**
5. **Tone/Clock (TN2182)**
6. **Expansion interface (TN570C)**
7. **SRSwitch (TN2301)**
8. **Maintenance/Test (TN771D)**
9. **Power supply**

Required and optional circuit packs

Survivable Remote Processor (SRP)

Table 12 lists the required and optional circuit packs in the SRP:

Table 12: Required and optional circuit packs - SRP *1 of 2*

Required		Optional		
Circuit pack	**Description**	**Circuit pack**	**Description**	**Comments**
TN2404	Processor	TN765	Processor Interface	Used for PRI applications
TN2401 or TN2401/ TN2400	Network/ Packet control assembly	TN771DP	Maintenance/ Test	Used only when packet bus is activated

1 of 2

Table 12: Required and optional circuit packs - SRP *2 of 2*

Required		Optional		
Circuit pack	**Description**	**Circuit pack**	**Description**	**Comments**
TN2182B	Tone/Clock	TN1654	DS1-CONV	Only used when remoting through DS1 facilities
TN2301	SRSwitch			
TN570C	Expansion interface			

2 of 2

Survivable Remote EPN

Table 13 lists the required and optional circuit packs in the SREPN:

Table 13: Required and optional circuit packs - SREPN

Required			Optional		
Circuit pack	**Description**	**Comments**	**Circuit pack**	**Description**	**Comments**
TN570C	Expansion Interface	Always used in an EPN	TN750C TN2501AP	Integrated Announcement	Do not save the announcements to the SRP translation card.
TN775C	Maintenance	Monitors link connection to PPN			

Interfacing circuit packs

The Survivable Remote equipment can operate through:

- Expansion Interface connections
- DS1-CONV connections

Expansion Interface connections

- TN570C Expansion Interface (EI) circuit packs use either the 9823A (multimode) or the 300A (single mode) transceivers.

  Note:

  A new SREPN system includes the TN570C EI circuit pack. Earlier EI circuit packs (for example, TN570B) are not supported.

DS1-CONV connections

- TN1654 DS1-Converter supports T1/E1 remoting and wideband applications.
- Standard and High Reliability systems use pairs of TN1654, not mixed with the earlier TN574.
- Critical Reliability systems require TN1654 circuit packs on the duplicate pair.

Transfer sequence to Survive mode

Transfer from Normal to Survive mode is automatic and is controlled by the TN775C Maintenance board. Figure 23 shows an example schematic of the link switching within the TN2301 circuit pack.

Figure 23: TN2301 link switching schematic

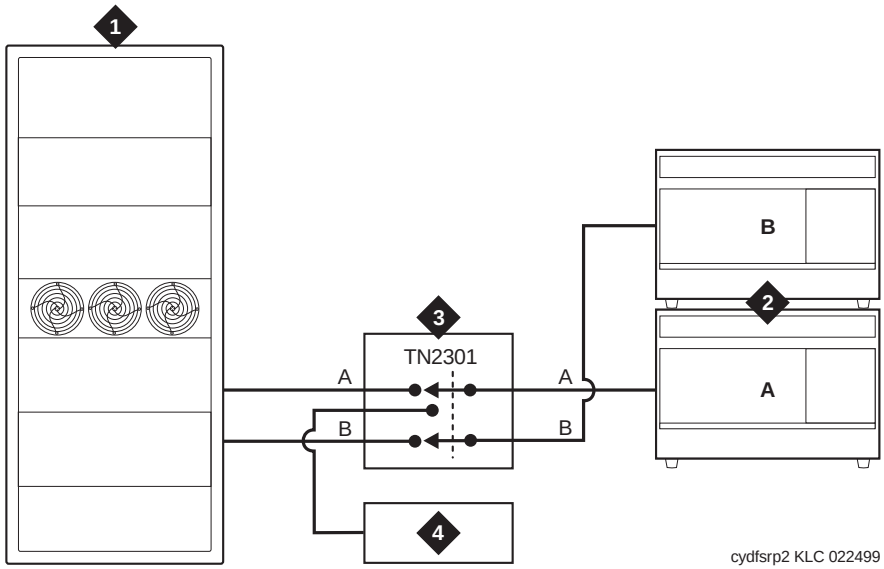


Figure notes:

1. **DEFINITY Server R (shown) or S8700 Media Server (not shown)**
2. **Survivable Remote EPN (SREPN)**
3. **SRSwitch (TN2301)**
4. **Survivable Remote processor (SI)**

The transfer sequence to Survive mode is as follows:

1. Links from the main server PPN to one of its configured SREPNs fail.
2. The TN775C Maintenance circuit pack (A-carrier SREPN) detects the link failure and signals the TN2301 to disconnect its links to the main server and connect the SREPN Expansion Interface.
3. The TN2404 Survivable Remote processor (SRP) takes over control of the EPN in Survive mode on Link A. Link B is left open while the SRP is in control of the SREPN.

   Note:

   In Survive mode, the SRSwitch (TN2301) puts the EI/SNI circuit pack in the main server into loopback mode and generates a major LIC-ERR (license error) alarm at the PPN.

Table 14 shows the sequence of events to transfer to the Survive mode, the approximate times for each event, and the service affected at each stage.

Table 14: Transfer sequence to Survivable Remote mode

If the link between the Release 10r and an EPN is down for	Then	Service affected
1 minute	Emergency Transfer Mode activated.	Only established calls preserved.[a]
2-3 minutes	System “waits” to determine whether the main server is going through a reset 3.	
3 minutes	Survive mode activated for each SREPN.[b]	Established calls terminated (restart)
5-6 minutes	Transfer sequence completed; EPN service restored.	Intra-EPN calls possible[c]

a. Similar to Emergency Transfer mode, only established, intra-EPN calls are preserved. No new or originating calls can be made.

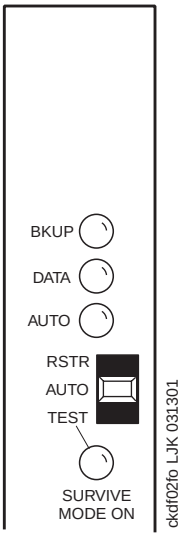
b. Transfer to Survive mode includes a cold restart of the SREPN.

c. Calls using the link back to the main server are not possible.

TN2301 (SRSwitch)

The SRSwitch circuit pack (TN2301) occupies 6 slots in the SRP cabinet. Figure 24 shows the faceplate switch and LEDs for the TN2301 circuit pack.

Figure 24: TN2301 faceplate switch and LEDs



Faceplate switch

Table 15 indicates the 3 positions for the faceplate switch and the use for each.

Table 15: Faceplate switch positions and uses

Label	Position	Use
RSTR	Top	Forces control to the DEFINITY Server R by switching from Survive mode to Normal mode[a]
AUTO	Middle	Ready to go into Survive mode. The switch should be in this position except during installation, testing, or releasing the SRP from Survive mode.
TEST	Bottom	Forces control to the SRP (Survive mode). Links to the SREPN are through the SRP (TN2404 Processor).[1] **CAUTION:** This is for installation and testing only. Do not leave the switch in this position.

a. This switch position overrides the **restore survivable-remote-link** command from the SAT. See Restore from remote location later in this chapter for more information.

SREPN connections

Figure 25 shows a detailed view of the rear panel connectors.

Figure 25: SREPN rear panel - detail

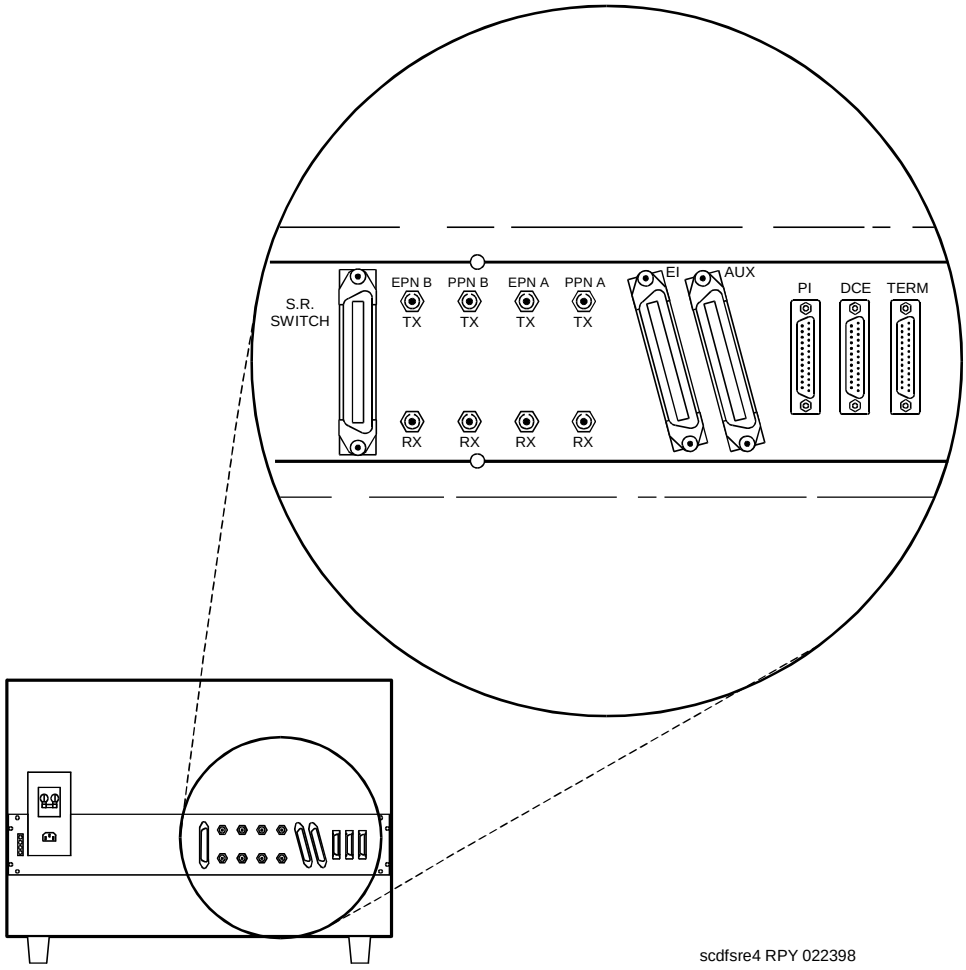


Figure 26 shows example hardware connections in the direct fiber system.

Figure 26: Detailed SRP direct fiber connections

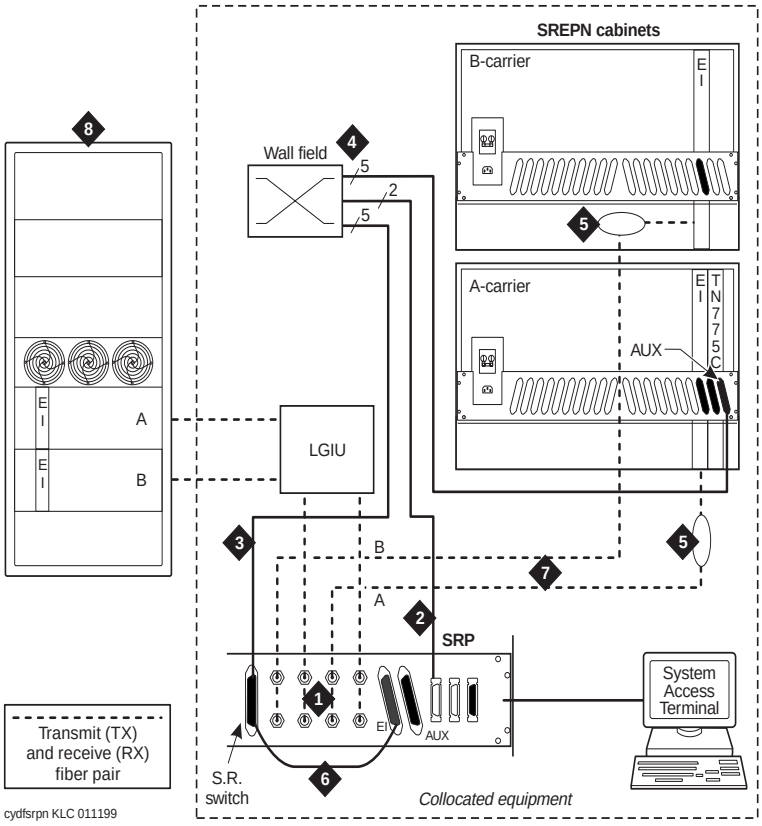


Figure notes:

1. **Fiber transmit (TX) and receive (RX) pairs for A and B carriers.**
2. **SRP AUX B25A 25-pair cable; max. length = 50 ft. (15 m):**
3. **Major SRP power failure alarm lead**
4. **Remote restore signal leads**
5. **TN2301 - SRSwitch B25A 25-pair cable; max. length = 50 ft. (15 m):**
6. **-48V from SREPN (through wall field)**
7. **SRSwitch -48V major SRP power failure alarm lead**
8. **SRSwitch -48V signal leads**
9. **SREPN AUX connector B25A 25-pair cable; max. length = 50 ft. (15 m). Refer to the MDF connections in Chapter 2: SREPN Installation and Upgrade:**
10. **-48V to SRSwitch (through wall field)**
11. **SRP Alarm**
12. **SRSwitch signal leads**
13. **Fiber transceivers (9823A)**
14. **14-in. (36 cm) Y-Cable (Comcode 847245750)**
15. **Fiber optic cable pairs**
16. **Avaya DEFINITY Server R (shown) or S8700 Media Server (not shown)**

Figure 27 shows example hardware connections in the DS1-CONV system.

Figure 27: Detailed SRP DS1-CONV connections

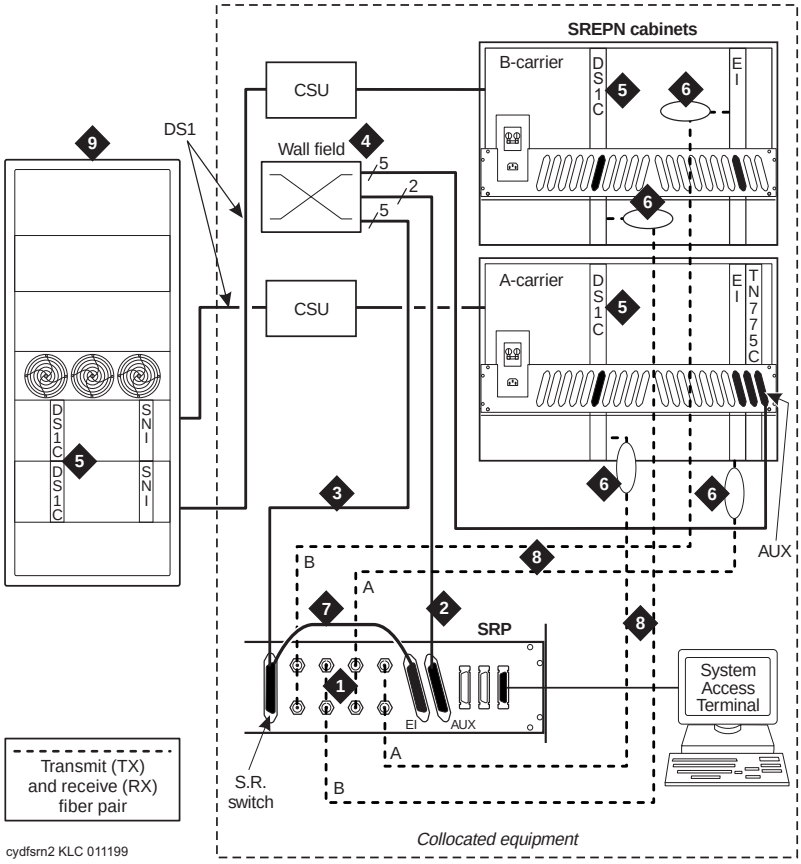


Figure notes:

1. **Fiber transmit (TX) and receive (RX) pairs for A and B carriers.**
2. **SRP AUX B25A 25-pair cable; max. length = 50 ft. (15 m):**
3. **Major SRP power failure alarm lead**
4. **Remote restore signal leads**
5. **TN2301 - SRSwitch B25A 25-pair cable; max. length = 50 ft. (15 m):**
6. **-48V from SREPN through wall field**
7. **SRSwitch -48V power failure alarm lead**
8. **SRSwitch signal leads**
9. **SREPN AUX connector B25A 25-pair cable; max. length = 50 ft. (15 m). Refer to the MDF connections in Chapter 2: SREPN Installation and Upgrade:**
10. **-48V to SRSwitch through wall field**
11. **SRP Alarm**
12. **SRSwitch signal leads**
13. **TN1654 (DS1-CONV) can be used only in combination with another TN1654.**
14. **Fiber transceivers (9823A - multimode)**
15. **14-in. (36 cm) Y-Cable (Comcode 848101440)**
16. **Fiber optic cable pairs**
17. **Avaya DEFINITY Server R (shown) or S8700 Media Server (not shown)**

Maintenance procedure

Since Survive mode is invoked because of a link failure between the main server and an EPN, the maintenance strategy is to:

1. Check system status
2. Repair the link connection
3. Reconnect the Main Server to the EPN
4. Post-reset check

The final sections of this chapter provide information for resolving

- Power alarms
- System resets

Check system status

Begin the troubleshooting process by gathering information about the system components.

- Circuit pack LEDs
- Which EPN is survivable?
- EI interactions
- Testing the TN2301 function and wiring
- Health of port network connections
- Administered links

Circuit pack LEDs

SRSwitch (TN2301) LED interpretation

Table 16 lists the conditions indicated by the LEDs on the TN2301 circuit pack.

Table 16: TN2301 LED interpretation

LED (color)	Condition	Interpretation
BKUP - Backup power (red)	On steady	Backup power (-48v) from the SREPN to the TN2301 has failed.
DATA (yellow)	On steady	Data passing through the TN2301 to/from the A-carrier EI board in the EPN.
	Off	If off and no service-affecting conditions are present, Critical Reliability B-carrier links to the Release 10r are up.
AUTO (green)	On steady	Indicates that the TN2301 faceplate switch is in the AUTO position. This is normal when in-service.
SURVIVE MODE ON (red)	On steady	Survive mode activated either by the Maintenance circuit pack control or the faceplate switch is in the TEST position.

Expansion Interface (TN570C) LED interpretation

The Expansion Interface circuit pack has red, green, and yellow **LED**s. The red and green **LED**s show the standard conditions:

- Red indicates an alarm condition
- Green indicates maintenance testing in progress

The yellow **LED** is used to provide useful visual status information:

- Active **EI** circuit packs:
  - Have their yellow **LED** on solid (for an inter-**EPN EI** in a direct-connect system)
  - Blink a pattern of 2 seconds on and 200 ms off.
- The standby PNC EI circuit packs should have their yellow **LED**s off.

Note:

Another way to determine which PNC (and therefore, which **EI** in a port network) is active and which is standby, use the **status port-network** and **status PNC** commands.

See Table 17 for the possible **EI** yellow **LED** states.

Table 17: Expansion Interface circuit pack YELLOW LED flashing states

Condition	LED On	LED Off
Fiber Out-of-Frame[a]	0.1 second	0.1 second
In Frame-No Neighbor[b]	0.5 second	0.5 second
Expansion Interface Active[c]	2 seconds	0.2 second
Expansion Interface Active[d]	Solid on	Never off
Expansion Interface Standby[e]	Never on	Solid off

a. This flashing state corresponds to Error Codes 769 and 770 from the Hardware Error Log and indicates a failure of Test #238. These error codes are usually accompanied by Error Code 1281 (no Expansion Interface or Switch Node Interface detected on opposite end of fiber). This condition may be caused by the absence of the neighbor Expansion Interface or Switch Node Interface circuit pack, a broken or missing fiber, or a missing lightwave transceiver on either endpoint (Expansion Interface or Switch Node Interface circuit packs).

   When the SRP is in Survive mode, this flash rate at the Release 10r EI/SNI circuit pack is normal, because the TN2301 puts the fiber into looparound back to the Release 10r.

b. This corresponds to Error Code 1281 from the Hardware Error Log and indicates a failure of Test #237. This condition is usually due to the failure of this Expansion Interface circuit pack or a failed Expansion Interface or Switch Node Interface circuit pack counterpart.

   When the SRP is in Normal mode, the Expansion Interface circuit pack's yellow LED flashes at this rate. THIS IS NORMAL. The links to its counterpart in the R10r ARE down and are not re-established until the SRP goes into Survive mode.

c. This is the normal state for an Active EPN Expansion Interface circuit pack that is also the bus master (Expansion Archangel) in the EPN.

d. This is the normal state for an Active Expansion Interface circuit pack that is not the bus master (Expansion Archangel) for an EPN. This applies only in direct-connect configurations where the Expansion Interface circuit pack in an EPN is connected through a fiber link to an Expansion Interface circuit pack in the other EPN. This state also applies for an active Expansion Interface circuit pack located in the PPN.

e. This is the normal state for a standby Expansion Interface circuit pack in the PPN and EPN.

Note:

In an **EPN** the TN775C E**PN** Maintenance circuit pack monitors the sanity of the Expansion Interface circuit pack. If the EI circuit pack should cycle between sane and insane several times, the Maintenance circuit pack holds the EI circuit pack reset.

- If a new Expansion Interface circuit pack is installed in the **EPN** and the red **LED** stays on, remove the **EPN** Maintenance circuit pack because it may be holding the new EI circuit pack reset.

  This can happen when there is a link problem to the **EPN,** and the **EPN** restarts several times.

- Reinstall the maintenance circuit pack after the Expansion Interface circuit pack is physically inserted and the EI circuit pack's red **LED** is off.

Which EPN is survivable?

1. On the DEFINITY Server R, type the **list cabinet** command and press **Enter**. Determine which EPN is "watched" by Survivable Remote equipment by looking for the lower-case "s" before the letters "EPN" in the Type field as shown in Figure 28.

Figure 28: List cabinet screen (DEFINITY Server R)

```
list cabinet                                                    SPE B

                              CABINET REPORT

No. Type Layout Room      Floor      Building    A     B     C     D     E
1    PPN 5-car  CS_1      1          ABC_DE    PN 01 PN 01 PN 01 PN 01 SN 01
2   sEPN 5-car  CS_1      1          ABC_DE    PN 02 PN 02 PN 02 PN 02 PN 02
```

2. Once you have located the physical equipment, check to see whether the Red SURVIVE MODE ON LED is on, indicating that the system is in Survive Mode.

EI interactions

Although complex to troubleshoot, the following two interactions with EI circuit packs may be present:

- Alarms logged against an EPN that involve an Expansion Interface circuit pack acting as the Expansion Archangel
- EI and Tone/Clock synchronization interactions. Synchronization is involved in the link between two active EI circuit packs or between an active EI circuit pack and an active SNI circuit pack. If the frequency of the clock is out of the specified range ("out of spec"), an EI fiber link can go down.
  - The EI circuit pack reports slip errors if synchronization is not operating properly.
  - Examine the EI circuit packs as a possible cause when diagnosing synchronization problems.

For both topics, refer to the EXP-INTF section in your maintenance manual.

Testing the TN2301 function and wiring

If the SURVIVE MODE ON LED does not turn on when the PNC A and B links are down, then the TN2301 (SRSwitch) does not detect the SRCntrl and SRCntrlRtn signals (see 110 block cross-connect pins) from the Maintenance circuit pack (TN775C). Possible causes are the

- Maintenance circuit pack's relay not closing
- TN2301 detection circuit malfunctioning
- Wiring between the SRSwitch (TN2301) and the Maintenance (TN775C) circuit packs is incorrect.

To verify the detection circuit and wiring:

1. Momentarily short the cross-connect pins 45 and 46 on the EPN Aux wall field. See 110 block cross-connect pins.

   This should force the TN2301 to switch to Survive mode.

2. If the red SURVIVE MODE ON LED still does not light, verify the wiring.
3. If the wiring is good, replace the TN2301 circuit pack. See Replacing the TN2301 circuit pack.

Health of port network connections

Depending on the conditions present when the system switched from Normal to Survive mode, it may be in either Emergency Transfer or Survive mode.

To determine the mode in which the system is operating:

1. Get on overall report on each cabinet's PNC status (**status health**) *on both the Release 10r and the SRP systems*. Figure 29 shows the Release 10r screen, and Figure 30 shows the SRP screen.

Figure 29: Status health screen (Release 10r)

```
status health                                                    SPE A

 PNC: A-PNC/auto B-PNC/functional   ALARMS: Maj:   2  Min:   2  Wrn:  104
 Pwr: comm Sync:loc l    Logins:2  BUSYOUT: Trk    0  Stn:   0  Oth:   18
 Cab EmTr  Mj Mn Wn PNC     Cab EmTr  Mj Mn Wn PNC      Cab EmTr  Mj Mn Wn PNC
  1  auto-  0| 0|47 up
  2  auto-  0| 0|12 up
```

Figure 30: Status health screen (SRP)

```
status health
ALARM SUMMARY                                    CABINET STATUS
       Major:    1                                 Emerg  Alarms
       Minor:    0                          Cab Trans Mj Mn Wn PNC
     Warning:   10                            1 auto-  0| 0| 5 up
BUSY-OUT SUMMARY                              2 auto-  1| 0| 0 dn
      Trunks:    0                           3 n.a.   0| 0| 0 dn
    Stations:    0
      Others:    0
PROCESSOR OCCUPANCY STATUS
Static:   1%     SM:   4%
    CP:   0%   Idle:  95%
CRITICAL SYSTEM STATUS
  Active SPE: A/auto
  Duplicated? SPE:n
   SPE Power: commercial
 Time Source: local
    # Logins: 1
```

2. Under the PNC field column of the status health screen, read whether the link is up, dn (down), or fe (far-end on the DEFINITY Server R Center Stage Switch systems) on both systems (bold in both examples) and use Table 18 to answer these two questions:
   - Is the link problem on DEFINITY Server R or the SREPN side?
   - Is the system in Emergency Transfer or Survive mode?

Table 18: DEFINITY Server R and SRP link status

If the Release 10r link is	And the SRP link is	Then the SRP is in	Where to look for problem
Down	Up	Survive mode	Between DEFINITY Server R and the SREPN
Down	Down	Emergency Transfer mode	SREPN side (EI circuit pack, transceivers, or fibers)
Up	Down	Normal mode	No problem

Administered links

1. To see how the links are administered, enter **list fiber-link** *on both the main server and the SRP systems*. Figure 31 (for the DEFINITY Server R) and Figure 32: List fiber-link screen (SRP) on page 88 (for the SRP) show examples of both fiber and DS1 CONV links.

Figure 31: List fiber-link screen (example shown is DEFINITY Server R)

```
list fiber-link                                              Page   1   SPE A
                          FIBER LINK ADMINISTRATION
FIBER -------- ENDPOINT 1 --------  -------- ENDPOINT 2 --------
LINK# TYPE A-PNC DS1   B-PNC DS1    TYPE A-PNC DS1   B-PNC DS1    DS1
           LOC   CONV  LOC   CONV         LOC   CONV  LOC   CONV   CONV
                 LOC         LOC               LOC         LOC    TYPE
 1    sni  01E03       01D03        ei   02A01       02B02

 2    sni  01E02       01D02        ei   01E01       01D01

 3    sni  01E04       01D04        ei   03A01       03B02

 4    sni  01E19       01D19        ei   03E01       03D02

 5    sni  01E20 01E21 01D20 01D21  ei   04A01 04A02 04B02 04B03  TN574
Primary Facility:           A                          A
 9    sni  01E18 02B16 01D18 02C16  ei   09A01 09A02 09B02 09B03  TN1654
Primary Facility:B          B                 B          B
```

Figure 32: List fiber-link screen (SRP)

```
list fiber-link                                          Page 1 SPE A

                        FIBER LINK ADMINISTRATION

FIBER -------- ENDPOINT 1 --------  -------- ENDPOINT 2 --------
LINK# TYPE A-PNC DS1   B-PNC DS1    TYPE A-PNC DS1   B-PNC DS1   DS1
           LOC   CONV  LOC   CONV         LOC   CONV  LOC   CONV  CONV
                 LOC         LOC               LOC         LOC   TYPE

1     sni  01A17       01B17        ei   10E01 10D02

2     sni  01A18       01B18        ei   06E01 06D02

3     sni  01E20 01E21 01D20 01D21  ei   22A01 22A02 22B02 22B03 TN574
```

2. Enter **status sys-link UUCSS** to obtain status information and the current or faulted hardware path (the list of hardware components over which the link travels).

Figure 33: Status sys-link screen (example shown is DEFINITY Server R)

```
status sys-link 01e20                                    Page   1 of   2   SPE A

     Location: 01E2001       Type/Chan: INL            Alarms: none
 Current Path: present    Faulted Path: none       Last Fault:
        State: up
                              Current Hardware Path
            Maintenance                          Maintenance
 Location    Name       Alarms                    Location    Name       Alarms
 01A1        PKT-INT    none
 PN 01       PKT-BUS    none
 01E01       EXP-INTF   none
 2 A-PNC     FIBER-LK   none
 01E02       SNI-BD     none
 01E20       SNI-BD     none
```

Table 19 describes when the current or faulted hardware path displays.

Table 19: Current and faulted hardware paths

If link is	Current hardware path displays?	Faulted hardware path displays?	Focus attention on path
up	Y	N	current
down	N	Y	faulted

For more information on system links and hardware paths, refer to:

- SYS-LINK Maintenance Object in your maintenance manual.
- System links on page 113

3. Look for alarms on the components listed under the appropriate hardware path. If any alarms are present, follow the maintenance procedures for the alarmed components to clear those alarms first.
4. To help corroborate the information that you have gathered, inspect the Alarm and Error logs (Figure 34 shows a DEFINITY Server R example).

Note:

Since the system is in Survive mode, the main server thinks it has lost its connections to the EPN. Therefore, alarms may be present, even though the problem has been diagnosed and fixed.

Figure 34: Display alarms screen (example shown is DEFINITY Server R)

```
display alarms                                          Page   1 of   2   SPE A
                                  ALARM REPORT
Port       Maintenance On   Alt     Alarm   Svc    Ack? Date        Date
           Name        Brd? Name    Type    State  1 2   Alarmed     Resolved
01E02      SNI-PEER    n            MAJOR                 03/09/00:21 00/00/00:00
01E20      SNI-CONF    n            MAJOR                 03/09/00:26 00/00/00:00
PN02       EXP-PN       n            MAJOR                 03/09/00:30 00/00/00:00
PN02       EXP-PN       n            MAJOR                 03/09/00:30 00/00/00:00
2 A-PNC    FIBER-LK    n            MAJOR                 03/09/00:30 00/00/00:00
2 A-PNC    FIBER-LK    n           MAJOR                03/09/00:30 00/00/00:00
2 A-PNC    FIBER-LK    n           MAJOR                03/09/00:30 00/00/00:00
```

Table 20 lists other alarmed Maintenance Objects while in Survive mode.

Table 20: Maintenance Objects alarmed in Survive mode

Maintenance Object	Description
DS1 CONV-BD	**DS1-CONV** circuit packs
EXP-LINK	Expansion Link
EXP-INTF	Expansion Interface
SNI-BD	Switch Node Interface circuit packs

Repair the link connection

After determining on which side (main server or SREPN) the problem lies:

1. Test the fiber connection by entering **test fiber-link *number*** [***a-pnc*** | ***b-pnc***] if duplicated, [***short*** | ***long***]. Figure 35 shows an example of the test results for a DEFINITY Server R.

   For this example, the fiber connection on the DEFINITY Server R side is bad.

Figure 35: Test fiber-link screen (example shown is DEFINITY Server R)

```
test fiber-link 2 a-pnc                                  Page 1 SPE A

                              TEST RESULTS

Port      Maintenance Name  Alt. Name  Test No.  Result            Error Code

2 A-PNC   FIBER-LK                     777       FAIL
2 A-PNC   FIBER-LK                     759       FAIL               135
2 A-PNC   FIBER-LK                     989       FAIL               241
2 A-PNC   FIBER-LK                     237       ABORT             2100
2 A-PNC   FIBER-LK                     238       ABORT             2100
```

2. If any of the test results shown in Figure 35 fail, isolate the problem:
   a. Busyout the suspected fiber connection with the **busyout fiber-link *number*** [***a-pnc*** | ***b-pnc***] if duplicated, command.
   b. Ensure a reliable fiber connection to the DEFINITY Server R. See Fault isolation procedures later in this chapter for a flowchart of steps to isolate and test fiber connections.
   c. Use the **release fiber-link *number*** [***a-pnc*** | ***b-pnc***] if duplicated, command to restore the fiber connections.
   d. Test the fiber connection again with the **test fiber-link *number*** [***a-pnc*** | ***b-pnc***] if duplicated, [***short*** | ***long***] command.
   e. If all tests on all components PASS, skip to the Check system status section.
3. If necessary, refer to FIBER-LK Maintenance in your maintenance manual.

Reconnect the Main Server to the EPN

CAUTION:

Ensure that the links are repaired before proceeding with the next section. See Fault isolation procedures for troubleshooting help.

To reconnect the SREPN to Avaya DEFINITY Server R or S8500 or S8700 Media Server:

1. Set the switch on the TN2301 circuit pack to the RSTR position for at least 1 second and return the switch to the AUTO position.

   or

   From a remote dial-in connection to the SRP, use the **restore survivable-remote-link** command to reset the SRP. See the Restore from remote location section later in this chapter.

2. Check for the following LED status:
   - Red (SURVIVE MODE ON) is off
   - Green (AUTO) is on steady, meaning that the SREPN is ready to assume processor control for the EPN should another link failure occur.
3. Wait at least 3 minutes while the EPN goes through its cold restart.
4. Check the status of the link connections (**status health**) *on both the main server and the SRP systems* to determine whether the link between the main server and the EPN is up. (See Figure 29: Status health screen (Release 10r) on page 86.)

Post-reset check

Check to see that the following conditions are met before leaving the customer premises:

1. The EI circuit pack in the SRP should be fast flashing. *This is appropriate for Normal mode*, because the links are connected from the SREPN to the main server. Figure 36 shows the SREPN EI board test results.

Figure 36: Test fiber-link screen (SRP)

```
test fiber-link                                          Page 1 SPE A

                              TEST RESULTS

Port      Maintenance Name  Alt. Name  Test No.  Result            Error Code

01A01    EXP-INTF                      237       FAIL
01A01    EXP-INTF                      238       FAIL
01A01    EXP-INTF                      240       FAIL              1032
01A01    EXP-INTF                      241       ABORT             1033
01A01    EXP-INTF                      589       ABORT             1033
01A01    EXP-INTF                      316       PASS
```

These Fail and Abort results are appropriate for Normal mode.

2. After normal service is returned to the SREPN, the SRP is in an *alarmed state*. This is *normal* for the SRP and indicates that the TN2301 has disconnected from the SREPN, and the SRP is no longer in control. Connections are re-established between the EI in the SREPN and its EI/SNI counterpart in the main server PPN, and the system is now in its original Avaya DEFINITY Server R (or S8500 or S8700 Media Server)-EI configuration.

Power alarms

Carrier power failure

A carrier power failure generates a MAJOR alarm against the CARR-POW Maintenance Object. This condition is evident by:

- A CARR-POW alarm in the Alarm or Error logs on the DEFINITY Server SI system (SRP).
- The LEDs in the SRP cabinet are all dark except for the yellow LED on the TN2301 circuit pack.

To troubleshoot this alarm:

1. Refer to the CARR-POW Maintenance Object in your maintenance manual for information on resolving this alarm.

   Note:

   When power is restored, the system comes up in Normal mode. If the power outage is longer than the holdover time of the EPN battery but shorter than the holdover time for the SRP battery, the DEFINITY Server SI (the SRP) can come up in Survive mode.

-48V backup power to the TN2301 circuit pack

Loss of the -48V backup power from the wall field to the TN2301 generates an alarm (major or minor, depending on administration) against the EXT-DEV (External Device) Maintenance Object. Visually, this condition is evident by the TN2301's red BKUP LED on steady. To troubleshoot this alarm:

1. Review the MDF connections section in Chapter 2: SREPN Installation and Upgrade to familiarize yourself with the cabling and connections both to and from the cross-connect wall field.
2. Check the connections to the cabinet and wall field before replacing the board. Check for -48V across pins 41 and 42 of the cross-connect field. See 110 block cross-connect pins for more information.
3. If power in all cabinets is good, the -48V connections on the circuit pack may be bad. Replace the circuit pack using the procedures outlined in the Replacing the TN2301 circuit pack section.

System resets

Resetting the main server with either the **reset system 4** or **reset system 5** commands breaks down and then re-establishes the PPN-to-EPN links during the reset sequence. Since these links may be down longer than 3 minutes, the SREPN maintenance circuit pack (TN775C) signals the TN2301 circuit pack to begin the transfer sequence to Survivable Remote Mode. This sequence is detailed earlier in Table 15: Faceplate switch positions and uses on page 78.

1. Ensure that the main server reset sequence is complete before proceeding.
2. Check the status of the link connections (**status health**) *on both the main server and the SRP systems* to determine whether the link between the main server and the EPN is up. (See Table 18: DEFINITY Server R and SRP link status on page 87.)
3. Test the fiber connections:
   a. Enter **test fiber-link *<number> [a-pnc | b-pnc]*** if duplicated, ***[short | long]*** for either fiber or DS1-CONV connections.
   b. If the test fails, continue to troubleshoot the connection problem; if it passes, continue with Step 4.
4. Set the switch on the TN2301 circuit pack to the RSTR position for at least 1 second and return the switch to the AUTO position.

   OR

   From a remote dial-in connection to the SRP, enter **restore survivable-remote-link** to reset the SRP. For more information see the Restore from remote location section later in this chapter.

Note:

After normal service is returned to the SREPN, the SRP is in an *alarmed state*. This is *normal* for the SRP and indicates that the TN2301 has disconnected from the SREPN, and the SRP is no longer in control. Connections have been re-established between the EI in the SREPN and its EI/SNI counterpart in the main server.

Fault isolation procedures

Use the following procedure to isolate faults on a fiber link. This section contains information on:

- Fiber fault isolation
- Loopback tests

Fiber fault isolation

CAUTION:

On systems with duplicated Port Network Connectivity (PNC), first busyout the standby PNC (**busyout pnc-standby**) before busying out any of the following standby components:

- *Fiber-Link (FIBER-LK)*
- *Standby Expansion Interface (EXP-INTF)*
- *Switch Node Interface (SNI)*
- *DS1 Converter (DS1-CONV)*

WARNING:

Calls are dropped when busying out of any of these components on a simplex PNC.

CAUTION:

Be sure to release all busied out components after completing the tests.

To isolate fiber link faults use two procedures:

- Gather information
- Test the fiber link hardware

Gather information

1. Know which fiber span to isolate by using the link information (**status health**) reports from both the DEFINITY Server R and the SREPN and the information in Table 18: DEFINITY Server R and SRP link status on page 87.
2. Enter **display alarms** and press **Enter**.
3. Type **pnc** in the `Category` field, then choose **Enter**.

   Note:

   Since the system is in Survive mode, the main server thinks it has lost its connections to the EPN. Therefore, alarms may be present, even though the problem has been diagnosed and fixed.
4. Look for any *on-board* alarms other than the EI circuit pack. If there are any, replace the circuit pack. Do not replace the EI circuit pack unless there are on-board alarms.

   If No,
5. Enter **display errors** and press **Enter**.
6. Type **pnc** in the `Category` field, then choose **Enter**.
7. Check for any of the following errors:

Maintenance Object	Error Type
FIBER-LK	Any
SNI-BD	513
EXP-INTF	257 769 770 1281 1537 3073 3074 3075 3076 3585 3841 3842

8. If you find *one or more* of the above errors, go to Step 10.

9. If you find *none* of the errors in Step 7, then resolve any SNI-PEER errors.
   a. If there is one **SNI** circuit pack with many different SNI-PEER error types, replace the indicated **SNI** circuit pack
   b. If there are many SNI-PEER errors of the same error type, replace the indicted **SNI** circuit pack using Table 21.

Table 21: SNI-PEER errors

Error Type	SNI slot
1	2
257	3
513	4
769	5
1025	6
1281	7
1537	8
1793	9
2049	13
2305	14
2561	15
2817	16
3073	17
3329	18
3585	19
3841	20

   c. After replacing an **SNI** circuit pack, clear alarms by executing **test board UUCSS long clear** for all alarmed EXP-INTF circuit packs. Wait 5 minutes for any SNI-BD or SNI-PEER alarms to clear.

Note:

You can speed this process with **clear firmware counters** [**a-pnc** | **b-pnc**] for the repaired PNC.

10. Enter **list fiber-link** to get the physical location of the fiber-link endpoints.

11. If a **DS1-CONV** is administered to the fiber-link (**DS1-CONV** is y), enter **display fiber-link** to determine the physical location of the **DS1-CONV** circuit packs on the fiber-link.
12. Busyout the fiber link (**busyout fiber-link *number***).
13. Test the fiber link (**test fiber-link *number* long**).
14. If any tests in the sequence fail, proceed with Test the fiber link hardware below.

    Note:

    Test #759 may fail if SNI circuit packs are present.

15. If *all* of the tests pass, clear the alarms by executing **test board UUCSS long clear** for all alarmed EXP-INTF circuit packs. Wait 5 minutes for any SNI-BD, SNI-PEER, FIBER-LK, or DS1C-BD alarms to clear.

    Note:

    Test attempted on the EI circuit pack in the SREPN do not run.

    Note:

    The **clear firmware counters** [***a-pnc*** | ***b-pnc***] command for the PNC that was repaired may be quicker than clearing the alarms with the **test board UUCSS long clear** command.

Test the fiber link hardware

For each endpoint of the fiber link:

1. Busyout the circuit pack **(busyout board UUCSS**).
2. Test the circuit pack (**test board UUCSS long**) and record all test failures. When looking at test results, consult the explanations for Figure 37: Fiber fault isolation tests for SNI and EI circuit packs on page 101 and Figure 38: DS1-CONV loopback tests on page 102 later in this chapter.
3. Does `Board Not Assigned` display for an Expansion Interface in an EPN?

   a. If *Yes*, use the **test maintenance long** command to release an Expansion Interface that may be held reset by an EPN Maintenance circuit pack.

   Note:

   Tests attempted on the EI circuit pack in the SREPN do not run.

4. If *No*, Did EXP-INTF Test #242 fail?

   a. If Yes, replace the EI circuit pack and the lightwave transceiver (if present) and go back to Step 12 in the Gather information procedure above.

   Note:

   EXP-INTF Test #242 runs an on-board looparound if no lightwave transceiver is connected to the EI.

5. If *No*, Did SNI Test #757 fail?
   a. If *Yes*, replace the SNI circuit pack and go back to Step 12 in the Gather information procedure above.
6. If *No*, Did SNI Test #756 fail?
   a. If *Yes*, replace the SNI circuit pack and the lightwave transceiver (if present) and go back to Step 12 in the Gather information procedure above.
7. If *No*, Did EXP-INTF Test #240 fail?
   a. If *Yes*, replace the EI circuit pack and go back to Step 12 in the Gather information procedure above.
8. If *No*, Did Test #238 (EXP-INTF) or Test #989 (SNI) fail?
   a. If *Yes*, replace the lightwave transceivers and fiber-optic cable and go back to Step 12 in the Gather information procedure above.
   b. The faulted component can be further isolated by using information in the Loopback tests section later in this chapter.
   c. If a fiber out of frame condition exists and lightwave transceivers are used, check that both lightwave transceivers are of the same type, (9823A or 9823B). If they are not both the same, replace one of the lightwave transceivers so that they match. 9823A is used for distances up to 4900 feet (1493 m) and 9823B is used for distances up to 25,000 feet (7620 m).
9. If No, Is a DS1-CONV administered on the fiber-link?
   a. If *No* and the problem is still present, follow normal escalation procedures.
   b. If *Yes*, is there an SNI-BD 513 alarmed error (**display errors** for category **pnc**)? If yes, replace cabling between the SNI circuit pack and the DS1C circuit pack.
   c. If the alarm persists, first attempt the manual loopback procedure below, then replace the DS1C and the SNI circuit packs and go back to Step 12 in the Gather information procedure above.
10. If *No*, if the connected circuit pack is an EXP-INTF, did Test #238 fail?
    a. If *Yes*, replace cabling between the EXP-INTF circuit pack and the DS1C circuit pack. If Test #238 continues to fail, replace the DS1C and the EI circuit packs and go back to Step 12 in the Gather information procedure above.
11. If *No*, busyout the circuit pack **(busyout board UUCSS**).
12. Test the circuit pack (**test board UUCSS long)** for both DS1C circuit packs and note all test failures and aborts.

    Note:

    Test #790 fails with Error Code 1 when in Survive mode.

13. Did the test return `Board not inserted` for the near-end circuit pack (nearest the SPE), or for the far-end circuit pack in a simplex PNC?
    a. If *Yes*, replace the cabling between the DS1C circuit pack and the SNI or EI circuit pack.
    b. Wait 1 minute and retest.
    c. If the board is still not inserted, replace the DS1C circuit pack and the EI or SNI connected to it and Go back to Step 12 in the Gather information procedure above.
14. If *No*, visually check to see if any CSU devices are looped back.
    a. Busyout the circuit pack **(busyout board UUCSS**).
    b. Test for external loopback (**test ds1-facility UUCSS external-loop**) for each DS1 facility.

    Note:

    Many tests pass if the system is in Survive mode.
15. Did Test #788 pass and Test #789 fail?
    a. If yes, replace the DS1C and lightwave transceiver (if present) at the other end of the DS1C complex. (See Figure 38: DS1-CONV loopback tests on page 102)
    b. Go back to Step 12 in the Gather information procedure above.
16. If *No*, did Test #788 fail or abort and Test #789 fail or abort?
    a. If *Yes*, enter **test ds1-facility UUCSS long** for each administered and equipped DS1 facility.

    Note:

    If the Switch Node Interface (SNI) board's yellow LED is fast flashing (0.1 sec on/ 0.1 sec off), it can indicate a problem with the fiber from the SNI board to the SREPN. For more detailed information, refer to the SNI-BD Maintenance Object in your maintenance manual.

Loopback tests

The following section describes loopback tests:

- Fiber direct-connect system
- DS1-CONV system
- Manual loopback procedure

Fiber direct-connect system

Figure 37 shows the loopbacks performed on the **SNI** and EI circuit packs.

Figure 37: Fiber fault isolation tests for SNI and EI circuit packs

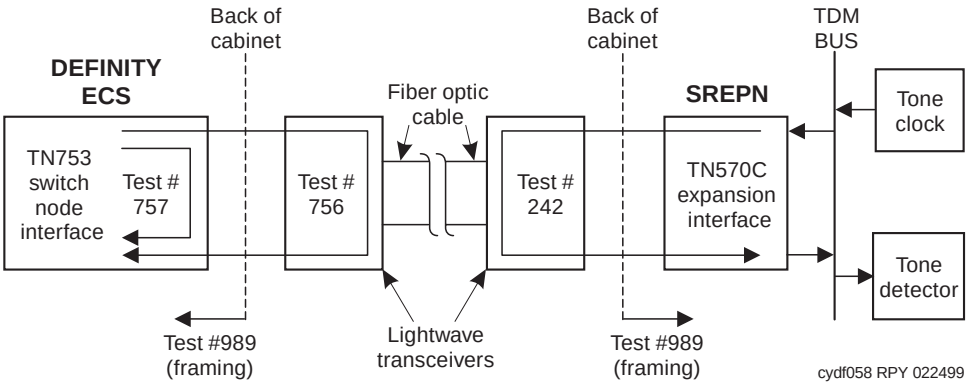


Figure 37 shows that:

- Test #756 reports the result of the off-board loopback
- Test #757 reports the result of the on-board loopback
- Test #756 and Test #757 can run individually or as part of the **test board UUCSS long** command for an **SNI** circuit pack.
- Test #242 can be run as part of the **test board UUCSS long** command for an Expansion Interface circuit pack. In addition to testing on-board components, this test is helpful for isolating problems *between a circuit pack and the lightwave transceiver*.

  The loopback shown in this diagram shows only part what Test #242 does. If no lightwave transceiver is connected to the Expansion Interface circuit pack, an on-board loopback is performed on the Expansion Interface circuit pack. For more information about Test #242, see the EXP-INTF Maintenance Object in your maintenance manual.

DS1-CONV system

Additional **DS1-CONV** loopback tests can further isolate the problem as shown in Figure 38.

Figure 38: DS1-CONV loopback tests

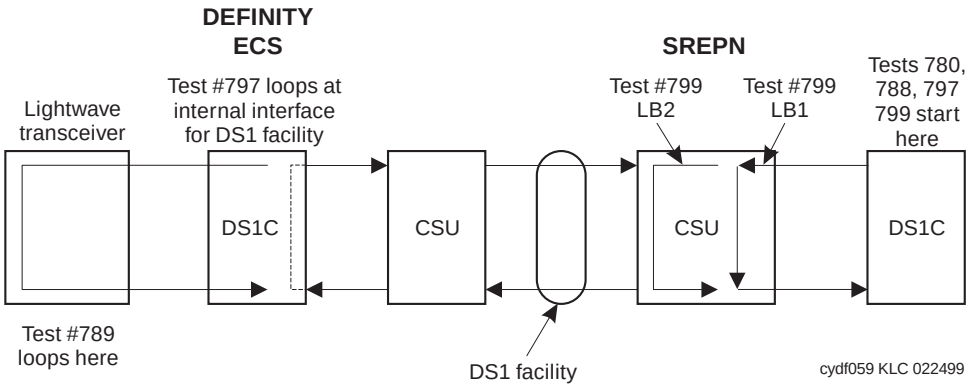


Figure 38 shows that:

- If Test #799 fails at LB1, the problem is with DS1C #1, CSU #1, or the connections between them.
- If Test #799 passes at LB1 and fails at LB2, the problem is with CSU #1.
- If Test #799 passes at LB1 and at LB2, the problem is with the DS1 facility, CSU #2, connections to CSU #2, or DS1C #2.
- For more information about loopback Tests #788 and #789 (isolates the lightwave transceiver), see the DS1 CONV-BD section in your maintenance manual.

Manual loopback procedure

Lightwave transceivers are not isolated as part of Expansion Interface or DS1-CONV circuit pack tests. For example, when the Expansion Interface Lightwave Transceiver Looparound Test (#242) and the Expansion Interface Local Loop Around Test #240 pass, this indicates that the Expansion Interface circuit pack is functioning properly, but it does not verify that the optical portion of the lightwave transceiver is functioning properly.

To being the manual loopback procedure:

1. If duplicate Expansion Interface Links are available, issue the **test board UUCSS** command on the standby Expansion Interface circuit packs on both ends of fiber.
2. If this test passes from both sides, but other tests fail, such as Test #241, this condition indicates either a faulty lightwave transceiver or a faulty fiber cable. To determine if either a lightwave transceiver or the fiber itself has failed, execute the Expansion Interface Manual loopback procedure described below.

   Note:

   This test can only be run from both Expansion Interface circuit packs if they are the Standby pair, and if the Active pair is working properly.

Use this procedure when

- Using DS1-CONV facilities and a 9823A lightwave transceiver.
- An EI/**SNI** circuit pack cannot be tested by software. For example, an EI circuit pack located in an EPN that is down cannot be tested. This can occur when communication between the switch node carrier and the **SPE** is down.

WARNING:
This procedure is destructive; all calls are broken down.

To begin the manual loopback procedure:

1. Run the configuration audit test (#759) on **SNI** circuit packs where possible with **test board UUCSS s**.
2. Run the Processor Route Audit Test (#760) with the **test board UUCSS long** command for the active **SNC** in the switch node carrier. If the active **SNC** is not inserted, Test #760 can be run with **test hardware-group pnc a-pnc** or **b-pnc**.
3. Determine whether more than one **SNI** is unable to communicate with software. Verify **SNI** and **SNC** circuit pack insertion with the **list configuration carrier UUC** command and check for **SNI** and **SNC** insertion for every administered switch node carrier.
4. If all of the **SNI**s and **SNC**s are not inserted (`No Board` displays for each board) in the entire PNC (either the a-pnc or the b-pnc), then the link between the **PPN EI** (on the PNC where **SNI** and **SNC** circuit packs did not insert) and the connected **SNI** is not functioning properly.
   a. Run the **test board UUCSS** command on the **PPN EI** and fix any problems found.
   b. Perform the manual loopback procedure for the **PPN EI**.
   c. Perform the manual loopback procedure for the **SNI** connected to the **PPN EI**.
   d. Replace the active **SNC**.
5. If the system has a two-level switch node carrier configuration, that is (*all* must apply)
   - SNI-SNI fiber links exist
   - The **SNI**s and **SNC**s in the second switch node carrier only (the switch node carrier that has no **SNI** connected to the **PPN EI**) are not inserted
   - At least two SNI-SNI fiber links exist.

   Then perform the following steps:
   a. Run the **test board UUCSS long** command on the **SNI**s in the first switch node carrier that are connected to **SNI**s in the second switch node carrier and fix any problems found.
   b. Replace the active **SNC**.
   c. Perform the manual loopback procedure for the **SNI**s in the second switch node carrier that are connected to **SNI**s in the first switch node carrier.

6. If software is unable to communicate with an **EPN EI,** but can communicate with the connected **SNI**:
   a. Run the **test board UUCSS long** command on the connected **SNI** and fix any problems found.
   b. Busyout the EI or SNI circuit pack (**busyout board UUCSS**).
7. Disconnect the transmit and receive fiber pair from the fiber connectors on the back of the cabinet.

   Note:

   Note which is the transmit and which is the receive side for proper re-connection at the end of this procedure.
8. Connect the transmit and receive cables together using the fiber optic coupler (Comcode 407643014, provided in Maintenance Kit #30) to create a loop as shown in Figure 39.

Figure 39: Manual loopback with fiber optic coupling

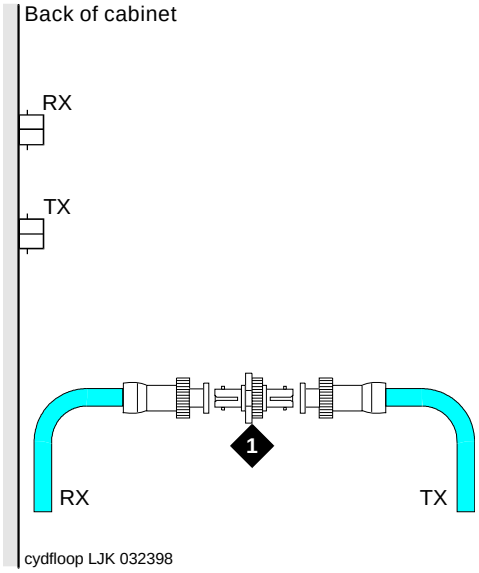


Figure notes:

1. **Fiber optic coupling (Comcode 407643014)**

9. Go to the front of the cabinet and inspect the yellow **LED**.
   a. If the yellow **LED** flashes on at a rate of once per second, the Expansion Interface or Switch Node Interface circuit pack or transceiver should be replaced.
   b. If the yellow **LED** flashes on at a rate of 5 times per second, the Expansion Interface or Switch Node Interface circuit pack or the lightwave transceiver may need replacement. This condition may also be due to a faulty system clock on the network containing the Expansion Interface circuit pack or in the switch node carrier containing the **SNI**.
   c. If the yellow **LED** was blinking before starting this procedure and the yellow **LED** is not blinking now, this circuit pack (Expansion Interface or Switch Node Interface) and the lightwave transceiver are functioning properly.
10. Replace faulty component(s) and reconnect the original fiber. Be sure to reconnect the fibers properly as noted in Step 7 in this Manual loopback procedure section.
11. Release the Expansion Interface circuit pack or Switch Node Interface circuit pack (**release board UUCSS**).
12. If problems still exist after the Manual Loopback Procedure indicates that both Expansion Interface circuit packs and both lightwave transceivers are healthy, verify that each optical fiber is connected to a transmitter at one end and a receiver at the other.

DS1 interface cable pinout

Table 22 shows the pin assignments for the cable connecting the TN1654 DS1-CONV circuit pack to **DS1** facilities.

Table 22: DS1 Interface Cable Connectors *1 of 2*

Lead	Desig.	50-Pin Connector Pin #	15-Pin Connector Color	Pin	Color
Plug 04					
Facility D Line In	LID	38	W-BL	11	W-BL
Facility D Line In	LID*	13	BL-W	03	BL-W
Facility D Line Out	LOD	39	W-O	09	W-O
Facility D Line Out	LOD*	14	O-W	01	O-W

1 of 2

Table 22: DS1 Interface Cable Connectors *2 of 2*

Lead	Desig.	50-Pin Connector Pin #	15-Pin Connector Color	Pin	Color
Plug 03					
Facility C Line In	LIC	41	W-G	11	W-G
Facility C Line In	LIC*	16	G-W	03	G-W
Facility C Line Out	LOC	42	W-BR	09	W-BR
Facility C Line Out	LOC*	17	BR-W	01	BR-W
Plug 02					
Facility B Line In	LIB	44	W-S	11	W-S
Facility B Line In	LIB*	19	S-W	03	S-W
Facility B Line Out	LOB	45	R-BL	09	R-BL
Facility B Line Out	LOB*	20	BL-R	01	BL-R
Plug 01					
Facility A Line In	LIA	47	R-O	11	R-O
Facility A Line In	LIA*	22	O-R	03	O-R
Facility A Line Out	LOA	48	R-G	09	R-G
Facility A Line Out	LOA*	23	G-R	01	G-R

2 of 2

110 block cross-connect pins

Table 23: 110 block cross-connect pins

SRP Aux				EPN Aux		
Amphenol Pin Number	**Color**	**Cross-Connect Pin Number**	**Lead Designation[a]**	**Cross-Connect Pin Number**	**Color**	**Amphenol Pin Number**
23	G-V	46	Cust Rtn	3	W-O	27
SRP Aux				**SRP Switch**		
Amphenol Pin Number	**Color**	**Cross-Connect Pin Number**	**Lead Designation**	**Cross-Connect Pin Number**	**Color**	**Amphenol Pin Number**
27	W-O	3	Pwr Fail (-48V)	46	G-V	23
48	V-G	45	Cust A	23	BK-O	37
EPN Aux				**SRP Switch**		
Amphenol Pin Number	**Color**	**Cross-Connect Pin Number**	**Lead Designation**	**Cross-Connect Pin Number**	**Color**	**Amphenol Pin Number**
02	O-W	4	Cust Rtn	24	O-BK	12
28	W-G	5	SRPresent	47	V-BR	49
29	W-BR	7	SRActive	48	BR-V	24
46	V-BL	41	-48V Rtn	41	V-BL	46
21	BL-V	42	-48V In	42	BL-V	21
48	V-G	45[b]	SR Cntrl	43	V-O	47
23	G-V	46[b]	SR Cntrl Rtn	44	O-V	22

a. When the loop between Cust A (alarm) and Cust Rtn (return) closes, the SRSwitch configures the SRP into Restore mode, overriding the faceplate switch setting. Closure of the customer alarm relay is controlled by an SRP SAT command which closes the customer alarm relay on the SRP processor.

   Pwr Fail (-48V) is grounded when the TN2301 detects that its -48V redundant power is bad.

   Cust A (alarm) - see above.

   SRPresent is always grounded, indicating to the TN775C (Maint.) that it is connected in a SREPN.

   SRActive is generated by TN775C (Maint.) to disconnect links from main server to SRP in Survive mode.

   -48V In/Rtn is input and return used by DC/DC converter for supplying redundant power to the optical transceivers.

   SR Cntrl/Rtn, when active, connects to the SR Cntrl Rtn signal on the TN775C (Maint.). Loop closed - TN2301 goes into Survive mode; loop open - TN2301 cannot come out of Survive mode without manual or remote reset.

b. Momentarily short these two leads on the EPN Aux to verify the detection circuit on the TN2301 and the Maintenance (TN775C) circuit pack wiring.

Figure 40 shows the pinout and cross-connections for the SREPN.

Figure 40: SREPN pinout and connections

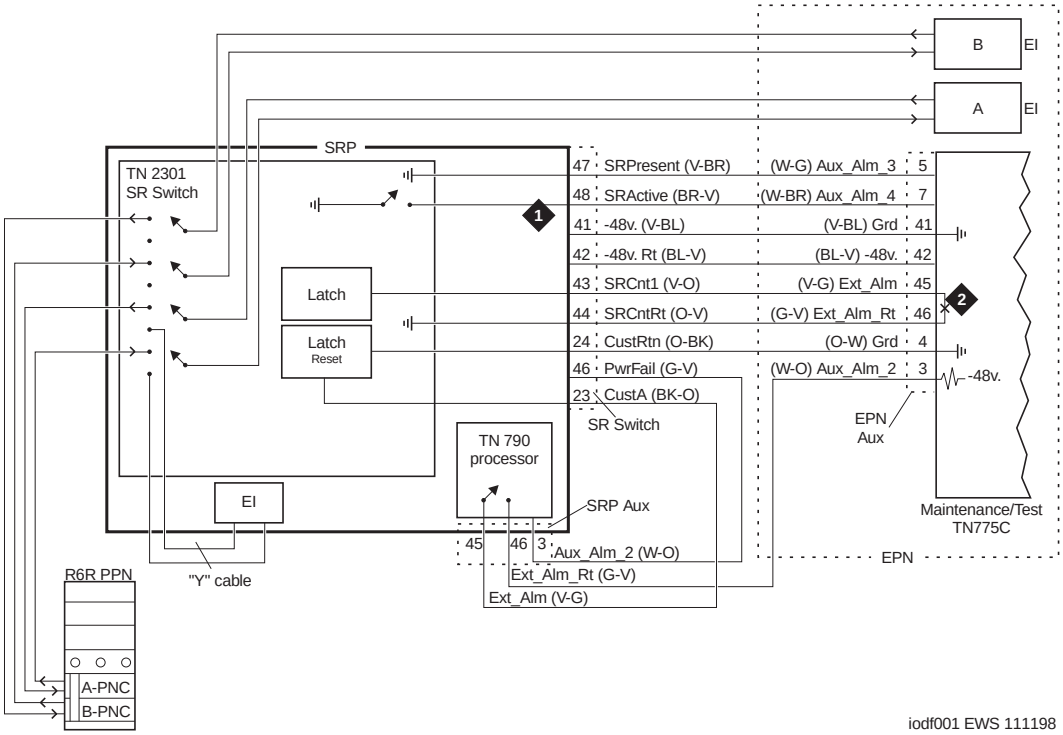


Figure notes:

1. **Switches to ground after link failure (approximately 3 minutes)**
2. **Momentary closure after 3 minutes**

Replacing the TN2301 circuit pack

CAUTION:

EPN service is interrupted until a replacement TN2301 is installed, powered up, and the EI links restored.

Unseat the circuit pack

To unseat the circuit pack:

1. Power down the cabinet by turning the power switch off.
2. Attach an ESD strap to your wrist.
3. Push the latch pin upward to unlock the locking lever.
4. Pull down on the locking lever until the circuit pack disconnects from its socket.
5. Pull the circuit pack just enough to break contact with the backplane connector, but do not remove it from the cabinet.

CAUTION:

Ensure that there is enough slack drawn from the extra fiber optic cabling from the bottom pan of the cabinet to clear the circuit pack from the cabinet (approximately 18 in. or 46 cm).

Replace the circuit pack

Note:

If the same optical transceivers can be reused, then the optical connections to the transceivers do not have to be removed. Just remove the transceivers from the old circuit pack and reconnect them to the corresponding connector positions on the replacement circuit pack.

To replace the circuit pack:

1. Remove the fiber connections from each transceiver, *taking care to note to which transceiver the cables go and which is the transmit (TX) and receive (RX) connections for each transceiver.* See Figure 41: Transceivers attached to the TN2301 circuit pack on page 111.

Figure 41: Transceivers attached to the TN2301 circuit pack

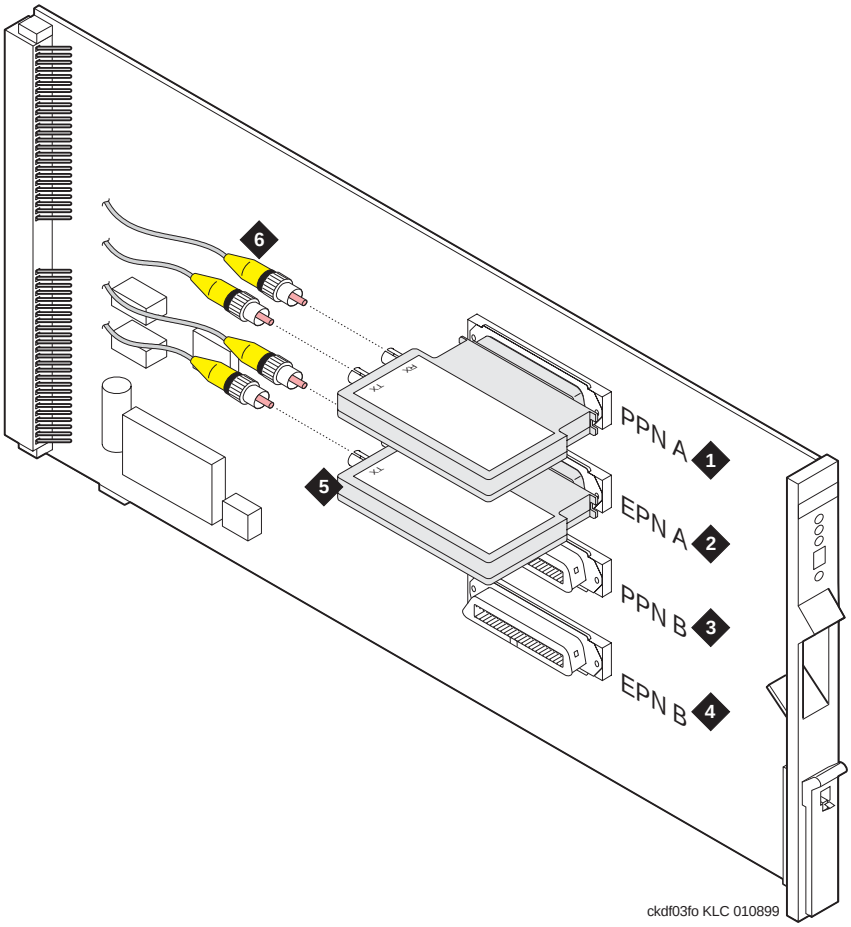


Figure notes:

1. **Connections from PPN A (lightwave transceiver type must match other end)**
2. **Connections to EPN A**
3. **Connections from PPN B**
4. **Connections to EPN B**
5. **Lightwave transceiver (9823A is always in this position)**
6. **Fiber optic cable pairs from the rear panel of the SRP cabinet**

2. Remove the bracket and then the transceivers from the old circuit pack and replace them *in the identical positions* on the new TN2301 circuit pack.
3. Replace the bracket over the transceivers to secure them to the board.
4. Feed the fiber cables through the slot in the back of the circuit pack and replace the fiber connections on each of the transceivers.
5. Insert the new circuit pack, feeding the fiber patch cords to the bottom pan of the cabinet.

Reseat the circuit pack

To reseat the circuit pack:

1. Reseat the circuit pack into the backplane connector.

   WARNING:
   Ensure that the fiber cables are not bent or pinched between the back of the circuit pack and the backplane of the cabinet.

2. Lift the locking lever until the pin engages.
3. Power up the cabinet.

Restore from remote location

The **restore survivable-remote-link** command reconfigures the EI link connections to the DEFINITY Server R PPN just as if the faceplate switch was manually set to the RSTR (Restore) position.

Note:
The TN2301 faceplate switch position overrides the **restore survivable-remote-link** command, should the two conflict.

Once the connection to the DEFINITY Server R is repaired:

1. Dial in and log onto the SRP processor.
2. Type the **restore survivable-remote-link** command, which closes the relay on the Processor circuit pack.
3. Wait at least 3 minutes while the EPN goes through its cold restart and then check the status of the link connections with the **status health** command for ***both*** *the main server and the SRP systems* to determine whether the link between the main server and the EPN is up (Figure 29: Status health screen (Release 10r) on page 86).

   When the connections are up on both sides (EPN and main server), the system is successfully reconnected.

The Table 24 describes the conditions in which the restore from a remote location is possible.

Table 24: TN2301 switch configuration based on input

Inputs to Control Logic				Modes
Remote restore	**Survive mode requested[a]**	**Switch position**	**SRP power**	**State of SREPN**
Not active	Not active	AUTO	Good	Normal mode: EPN connected with DEFINITY Server R PPN
Not active	Active	AUTO	Good	Survive mode: EPN connected to SRP
Not active	Does not matter	TEST	Good	Survive mode: EPN connected to SRP
Active	Does not matter	TEST	Good	Survive mode: EPN connected to SRP
Not active	Does not matter	RSTR	Good	Normal mode: EPN connected to DEFINITY Server R PPN
Not active	Does not matter	RSTR	Bad	Normal mode: EPN connected with DEFINITY Server R PPN
Active	Does not matter	AUTO or RSTR	Good	Normal mode: EPN connected to DEFINITY Server R PPN

a. The EPN Maintenance (TN775C) circuit pack requests switching to Survive mode.

System links

The state of a system link is dependent on the state of the various hardware components that it travels over. The switch maintains a list of hardware components over which the link travels, called the hardware path.

For each system link there is a current and a faulted hardware path as shown in Table 25.

Table 25: Hardware path data for link repair

Hardware path	Link status	Hardware path data present?	Errors cleared at recovery?
Current	Up	Yes	Yes
	Down	No	Yes
Faulted[a]	Up		Yes
	Down	Yes[b]	No

a. Path that the link traversed when it last went down.

b. The time at which the faulted path was last recorded is preserved and is accessible through the status sys-link location, which shows the state of both the hardware paths (current and faulted) and the state of each of the components in that path, and the list sys-link commands.

1. Focus attention on the *current hardware path* for problems that do not involve a link that is down.
2. If the link is down, focus on the *faulted hardware path*.
3. If any alarms are present, follow the maintenance procedures for the alarmed components to clear those alarms first.

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