



**Multiple Level Precedence and Preemption
(MLPP) Installation, Feature Description,
and Administration
for Avaya Communication Manager**

555-245-113
Issue 1
November 2003

**Copyright 2003, Avaya Inc.
All Rights Reserved**

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.

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 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

Safety Requirements for Customer Equipment, ACA Technical Standard (TS) 001 - 1997

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

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 operate within the following parameters:

- Maximum power output: -5 dBm to -8 dBm
- Center Wavelength: 1310 nm to 1360 nm

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 and EN55022:1998.

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

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

Federal Communications Commission Statement

Part 15:

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

Part 68: Answer-Supervision Signaling

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

- answered by the called station,
- answered by the attendant, or
- routed to a recorded announcement that can be administered by the customer premises equipment (CPE) user.

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

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

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

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.

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



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

Copies of these Declarations of Conformity (DoCs) 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。

To order copies of this and other documents:

Call: Avaya Publications Center
Voice 1.800.457.1235 or 1.207.866.6701
FAX 1.800.457.1764 or 1.207.626.7269

Write: Globalware Solutions
200 Ward Hill Avenue
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>.

Contents

About this document	9
• Audience	9
• Organization	10
• Conventions	10
• Technical support	11
• Related documents	11
Introduction	13
• Precedence Calling	13
• Precedence Routing	14
• Precedence Call Waiting	14
• Preemption	14
• Announcements for Precedence Calling	14
• Line Load Control	15
Hardware and software requirements	17
• Hardware requirements	17
• Software requirements	18
Checking that the MLPP feature is enabled	18
Installing or Upgrading MLPP software	19
• Notice on DEFINITY® Server R	20
• Upgrading an existing MLPP system	20
Updating trunk translations	21
Upgrade paths	21
Feature descriptions and administration	23
• Announcements for Precedence Calling	23
Detailed description	24
Considerations	24
Interactions	24
Administration	24

- Dual Homing 27
 - Detailed description 27
 - Considerations 27
 - Interactions 27
 - Administration 28
- End Office Access Line Hunting 28
 - Detailed description 28
 - Considerations 28
 - Interactions 28
 - Administration 28
- Line Load Control 29
 - Detailed description 29
 - Considerations 30
 - Interactions 30
 - Administration 31
- Precedence Calling 32
 - Detailed description 32
 - Precedence Calling diversion scenarios 34
 - Considerations 35
 - Interactions 36
 - Administration 38
 - How service domains affect preemption and precedence 41
- Precedence Call Waiting 45
 - Detailed description 45
 - Considerations 46
 - Interactions 46
 - Administration 47
- Precedence Routing 49
 - Detailed description 49
 - Considerations 50
 - Interactions 50
 - Administration 51
- Preemption 54
 - Detailed description 54
 - Considerations 54
 - Interactions 54
 - Administration 56

• Worldwide Numbering and Dialing Plan	58
Detailed description	58
Considerations	60
Interactions	60
Administration	61
A Sample Telephone Service Request	65
B Administration when connecting between Avaya communication servers	67
• Tie trunk groups	67
• DS1 circuit pack administration	71
• Administration when connecting to Nortel and Siemens switches	74
C Call progress tones	75
D Ringing patterns	77
Glossary	79
Index	83

About this document

This document provides installation information, feature descriptions, and administration procedures for the Communication Manager Software Release 2.0 (R2.0) Multiple Level Precedence and Preemption (MLPP) features. The MLPP features provide users the ability to interface and operate in a Defense Switched Network (DSN). The MLPP features include:

- [Announcements for Precedence Calling](#) on page 23
- [Dual Homing](#) on page 27
- [End Office Access Line Hunting](#) on page 28
- [Line Load Control](#) on page 29
- [Precedence Calling](#) on page 32
- [Precedence Call Waiting](#) on page 45
- [Precedence Routing](#) on page 49
- [Preemption](#) on page 54
- [Worldwide Numbering and Dialing Plan](#) on page 58



CAUTION:

MLPP is currently designed to meet only GSCR requirements for connection to a DSN (Defense Switched Network) by federal, state, or local government agencies, and as such is not currently designed for use in commercial enterprise environments. Activation of this feature in any other kind of network environment could result in unexpected/unwanted feature operations.

Additionally, while the media servers and media gateways referenced in this document support MLPP, only the following servers have been certified by the Joint Interoperability Test Command (JITC):

- DEFINITY Server CSI
- DEFINITY Server SI
- Avaya S8100 Media Server
- Avaya S8700 Media Server supporting an MCC1 or SCC1 Media Gateway

For an up-to-date listing of JITC-certified servers, go to <http://jitc.fhu.disa.mil/tssi> and select **TSSI Certifications** or **Intent to Certify**.

Audience

This document is intended for trained technicians and system administrators that install, administer, and maintain the MLPP features. These users should be familiar with other features such as Automatic Route Selection (ARS) and Recorded Announcements.

Organization

This document is organized into the following chapters:

- [Introduction](#) on page 13 contains a brief overview of the MLPP features.
- [Hardware and software requirements](#) on page 17 contains a listing of the hardware required by the MLPP features.
- [Installing or Upgrading MLPP software](#) on page 19 contains some key information for installing or upgrading the MLPP software.
- [Feature descriptions and administration](#) on page 23 contains descriptive and administrative information for each of the MLPP features.
- [Sample Telephone Service Request](#) on page 65 shows an example of a Telephone Service Request (TSR).
- [Administration when connecting between Avaya communication servers](#) on page 67 describes how to administer trunking for communication server platforms that use Communication Manager Software.
- [Call progress tones](#) on page 75 describes the different call progress tones used by the MLPP features.
- [Ringing patterns](#) on page 77 describes the different ringing patterns used by the MLPP features.
- [Glossary](#) on page 79 contains glossary terms and acronym expansions.
- [Index](#) on page 83.

Conventions

The following conventions are used in this document:

- The phrase "Avaya communication server" applies to communication servers (also known as switches) using either the Avaya Communication Manager Software. The Avaya communications servers include the following platforms:
 - DEFINITY Server CSI
 - DEFINITY Server SI
 - Avaya S8300 Media Server
 - Avaya S8700 Media Server
- All forms shown in this document are approximations of how the actual forms appear. Depending on the system options, the forms may vary.
- Administration command paths and options you enter in the data fields are shown as follows:

```
change system-parameters mlpp
```

Some administration command paths have additional actions available (such as **change**, **list**, **add**, and **display**). In this document, only the suggested action is shown in the administration sections.

- Field names within the administration forms are shown as follows:

Queue Length

- Feature access codes (FACs) vary between systems. In these procedures, FACs are represented by a blank line, such as _____. You should display your system FACs and fill in the missing codes as needed. Display the FACs with **display feature-access-codes**.

Technical support

To receive support on your system, call 1-800-242-2121 within the United States. Outside the United States, contact your local Avaya authorized representative.

Related documents

The end-user operation of the MLPP features is described in *Multiple Level Precedence and Preemption (MLPP) Operation*. Each end-user of the MLPP features should have a copy of this operation document or, at the minimum, a photocopy of the quick-reference card explaining how to use the MLPP features. To get this quick-reference card to your users:

- 1 Make a photocopy of the card.
- 2 Fill in the blank FACs.
- 3 Make photocopies of the modified card.
- 4 Distribute the photocopies to your end-users.

For information about Communication Manager Software and communication servers, refer to the following documentation:

- 555-245-801 - *Avaya Communication Manager, Avaya DEFINITY® Servers and Avaya S8100 Media Server Library CD*
- 555-233-825 - *Avaya S8300, S8500 and S8700 Media Server Library CD*
- Installation and upgrade information is located at the Made Easy Tools Web site:
<http://made-easy.avaya.com/>

About this document

Related documents

Introduction

The MLPP features allow users to request priority processing of their calls during critical situations. This section provides a high-level look at these features.



CAUTION:

MLPP is currently designed to meet only GSCR requirements for connection to a DSN (Defense Switched Network) by federal, state, or local government agencies, and as such is not currently designed for use in commercial enterprise environments. Activation of this feature in any other kind of network environment could result in unexpected/unwanted feature operations.

Additionally, while the media servers and media gateways referenced in this document support MLPP, only the following servers have been certified by the Joint Interoperability Test Command (JITC):

- DEFINITY Server CSI
- DEFINITY Server SI
- Avaya S8700 Media Server supporting an MCC1 or SCC1 Media Gateway

Precedence Calling

Precedence Calling is the centerpiece of the MLPP features. Precedence Calling allows users, on a call-by-call basis, to select a level of priority for each call based on their need and importance. The call receives higher-priority routing, whether the call is local or going around the world. Users may access five levels of precedence when placing calls:

- Flash Override (the highest precedence level)
- Flash
- Immediate
- Priority
- Routine (the default, and lowest precedence level)

Each station user is administered with a maximum precedence level (the more important the user, the higher the precedence level). Users cannot originate calls at precedence levels higher than their maximum administered level. Non-MLPP calls are treated as routine level precedence calls.

Precedence Routing

When precedence calls are destined for other switches in a network, the Precedence Routing feature is used to route the calls. The Precedence Routing feature routes calls based on three main criteria:

- Routing based on the destination number
- Routing based on the precedence level
- Routing based on the time of day

These routing criteria are administrable and can be changed as required. Two related features are Dual Homing and End Office Access Line Hunting.

Precedence Call Waiting

After a precedence call is routed, the called party may already be busy on another call. Precedence Call Waiting allows the caller to "camp on" to the called party's line and wait for them to answer the call. The caller hears a special ringback tone and the called party hears a call waiting tone. Depending on the type of telephone being used, the called party can put the current call on hold and answer the call, or the called party must hang up on their current call to answer the incoming call.

Preemption

Preemption works with Precedence Routing to further extend the call routing capabilities of the MLPP features. Preemption, when allowed through administration, can actually disconnect an existing, lower-priority call, in order to complete a more important precedence call. Even non-MLPP calls are treated as routine level precedence calls, and can be preempted.

When this occurs, the callers on the existing call hear a tone indicating that the call is about to be preempted. The callers have three seconds to end the call before the call is automatically disconnected. After the existing call is disconnected, the new call is placed using preempted facility.

Announcements for Precedence Calling

In certain situations, precedence calls are blocked because of unavailable resources or improper use. When this occurs, recorded announcements are used to identify what went wrong. The announcements used for MLPP include:

- Blocked precedence call
- Unauthorized precedence level attempted
- Service interruption prevented call completion
- Busy, not equipped for Preemption or Precedence Call Waiting
- Vacant code

Line Load Control

Line Load Control is a feature that restricts a predefined set of station users from originating calls during a crisis or emergency. Through administration, users are assigned to a Line Load Control level based on their relative importance. When an emergency occurs, the administrator manually enables the feature to restrict calling by users of lower importance. When the emergency is over, the administrator manually disables the feature.

For example, if a security emergency occurs, station users who are responsible for managing the crisis will not be restricted from originating calls, but other station users (for example, in the accounting department) will be restricted. When the crisis is over, the system can be returned to normal operation by the administrator.

Hardware and software requirements

This section describes the hardware required for MLPP systems and the valid MLPP software loads.

Hardware requirements

The following circuit packs are required to support the MLPP features. If you are installing a new system, these circuit packs are delivered with a new system. If you are upgrading an existing system, you must replace any outdated circuit packs.

NOTE:

For a G700 or G350 Media Gateway supported by an S8300 Media Server, S8500 Media Server, or S8700 Media Server, no special vintage media modules are required. Analog trunking (with the MM711 Analog Media Module), DS1 trunking (with the MM710 E1/T1 Media Module), announcements (built into the processor and enabled by the license file), and tone clock services (built into the processor) are all standard implementations.

Type	Number	Requirements
DEFINITY Servers, S8100 Servers, and S8500 or S8700 Media Servers using G650, SCC1 and MCC1 Media Gateways		
Analog Tie Trunk	TN760E or newer (four ports per circuit pack)	Required for trunks that carry MLPP DTMF and MF 2/6 trunk traffic. Older version circuit packs may be used for non-MLPP traffic.
DS1 Trunk	TN464F or TN2464 Vintage 18 or newer (24 T1 channels or 32 E1 channels)	Required only for trunks that carry MLPP traffic. Older version circuit packs may be used for non-MLPP traffic. E1 trunks require a special TN464F circuit pack. See the Rapid Response Web site for more information (http://rr-db1.dr.avaya.com/rapid_response/MLPPins2.html)
Tone Clock	TN2182B or TN2182C (eight ports per circuit pack)	All tone clocks must be TN2182B or later, except when using MF 2/6 trunks, which require the TN2182C, Vintage 2 or later. See the Rapid Response Web site for more information (http://rr-db1.dr.avaya.com/rapid_response/MLPPins2.html) NOTE: The S8100 Media Server does not require a Tone Clock circuit pack. Tone clock service is built into the processor.
IP Server Interface	TN2312AP or TN2312BP	Must be Vintage 5 or later.

Software requirements

The MLPP software is built into the Communication Manager R2.0 software as a licensed feature. As a result, software ordering and installation follow normal processes for all Communication Manager platforms.

The MLPP feature must be activated in the product's license file. Whether you are installing a new system or upgrading an old system, you must also apply a new license file. License files can be obtained from the following Web site:

<http://rfa.avaya.com>

To obtain a license file, you must be a registered user of the Avaya support Web site.

Checking that the MLPP feature is enabled

After a system has been installed or upgraded, you can check that the MLPP feature has been enabled with the following command:

change system-parameters customer-options

Go to page 4 of the screen.

```
display system-parameters customer-options (page 4)
                                OPTIONAL FEATURES

Emergency Access to Attendant?                ISDN Feature Plus?
Enable 'dadmin' login?                        ISDN Network Call Redirection?
Enhanced Conferencing?                        ISDN-BRI Trunks?
Enhanced EC500?                               ISDN-PRI?
Extended Cvg/Fwd Admin?                      Local/Enterprise Survivable Server? y
External Device Alarm Admin?                 Malicious Call Trace?
Five Port Networks Max Per MCC?             Media Encryption Over IP?
Flexible Billing?                             Mode Code for Centralized Voice Mail?
Forced Entry of Account Codes?
Global Call Classification?                  Multifrequency Signaling?
Hospitality (Basic)?                         Multimedia Appl.Server Interface(MASI)?
Hospitality (G3V3 Enhancements)?           Multimedia Call Handling (Basic)?
IP Trunks?                                  Multinational Locations? n
Multiple Level Presence and Preemption? y
IP Attendant Consoles?                      Multiple Locations?
IP Stations?                                Personal Station Access (PSA)?
Internet Protocol (IP) PNC?

(NOTE: You must logoff and login to effect the permission changes.)
```

The Multiple Level Presence and Preemption field should be set to **y** (yes).

Installing or Upgrading MLPP software

You can install Communication Manager R2.0 software with MLPP on the following Communication Manager platforms. These include:

- S8100 Media Server
- S8300 Media Server
- S8500 Media Server
- S8700 Media Server
- DEFINITY Server SI
- DEFINITY Server CSI



CAUTION:

While the media servers and media gateways referenced in this document support MLPP, only the following servers have been certified by the Joint Interoperability Test Command (JITC):

- DEFINITY Server CSI
- DEFINITY Server SI
- Avaya S8100 Media Server
- Avaya S8700 Media Server supporting an MCC1 or SCC1 Media Gateway

For an up-to-date listing of JITC-certified servers, go to <http://jitc.fhu.disa.mil/tssi> and select **TSSI Certifications** or **Intent to Certify**.

To install the MLPP software, use appropriate procedures in one of the following documents:

- *Installation of the Avaya G350 Media Gateway Controlled by an Avaya S8300, S8500, or S8700 Media Server*, 555-245-104.
- *Installation and Upgrades for the Avaya G700 Media Gateway and Avaya S8300 Media Server*, 555-234-100.
- *Installing the Avaya S8500 Media Server with Avaya G650 Media Gateway*, 555-245-107.
- *Installation and Upgrades for the Avaya S8100 Media Server with the Avaya G600 and the Avaya CMC1 Media Gateways*, 555-233-146.
- *Installation, Upgrades and Additions for Avaya CMC1 Media Administration Gateways*, 555-233-118.
- *Installing the Avaya S8700 Media Server with Avaya G650 Media Gateway*, 555-245-109.
- *Made-Easy Tool for DEFINITY Server SI Upgrades and MCC1 or SCC1 Gateway Installations on the Avaya Communication Manager, Avaya DEFINITY Servers and Avaya S8100 Media Server Library*, 555-245-801.

The license file that you use in the installation must have MLPP enabled.

For installation and upgrade support, contact your Tier 3 support personnel. You may also contact the Rapid Response team or download MLPP information at:

http://rr-db1.dr.avaya.com/rapid_response/MLPPins2.html

You can also access information starting at the Avaya Business Partner website at:

<https://www.avaya.com/bp/pro/index.jhtml>

Then select **Selling and Marketing>Sales Tools>Special Development>MLPP**.

Notice on DEFINITY® Server R

The UN331C processor server circuit pack used in the DEFINITY Server R will not be sold after November 3, 2003. The UN331C processor server circuit pack cannot be upgraded to Avaya Communication Manager 2.0, but upgrades to Avaya Communication Manager 1.3.x will be sold until November, 2004. Please consult "Upgrades and Additions for Avaya DEFINITY Server R," 555-233-115, for information about upgrading to Communication Manager 1.3.

Upgrading an existing MLPP system

Software upgrades can be one of the following:

- An existing system with MultiVantage R1.1.3 with MLPP starting from load R011X.7585.7.0.2, where X represents one of the following platforms:
 - c = DEFINITY Server CSI
 - i = DEFINITY Server SI
 - x = S8300 or S8700 Media Serverupgraded to Communication Manager R2.0 with MLPP.
- An existing system without MLPP that has DEFINITY R6.3 or later software., MultiVantage R1.1 or R1.2, or Communication Manager R1.3, upgraded to Communication Manager R2.0 with MLPP.

These systems can include:

- IP600 Internet Protocol Communications Server (becomes an S8100 Media Server if upgraded)
- DEFINITY One Communications System
- S8100 Media Server
- S8300 Media Server
- S8500 Media Server
- S8700 Media Server
- DEFINITY Server SI
- DEFINITY Server CSI

To upgrade MLPP software, use standard procedures for Communication Manager R2.0 in one of the following documents:

- *Installation & Upgrades for DEFINITY ONE R9 & Avaya IP600 Internet Protocol CS*, 555-233-109
- *Installation and Upgrades for the Avaya G700 Media Gateway and Avaya S8300 Media Server*, 555-234-100.
- *Installation and Upgrades for the Avaya S8100 Media Server with the Avaya G600 and the Avaya CMC1 Media Gateways*, 555-233-146.
- *Installation, Upgrades and Additions for Avaya CMC1 Media Administration Gateways*, 555-233-118.
- *Upgrading Software and Firmware — Avaya S8700 Media Server*, 555-245-115.
- *Made-Easy Tool for DEFINITY Server SI Upgrades and MCC1 or SCC1 Gateway Installations on the Avaya Communication Manager, Avaya DEFINITY Servers and Avaya S8100 Media Server Library*, 555-245-801.

See [Upgrade paths](#) on page 21 for more information.

Updating trunk translations

After upgrading the system software, you must update the Flash Length timing for any analog or digital DSN tie trunks that are using DTMF signaling for MLPP traffic. This change does not apply to MF2/6 trunks.

- 1 Check Page 2 of the Trunk Group form to see if the **Precedence Incoming** or **Precedence Outgoing** fields are set to **dtmf(a-d)**.
- 2 If the trunk group is using DTMF signaling, go to Page 3 of the Trunk Group form, and change the **Flash Length** field to **800**. Increase this value as needed if trunk preemption is not working.

Upgrade paths

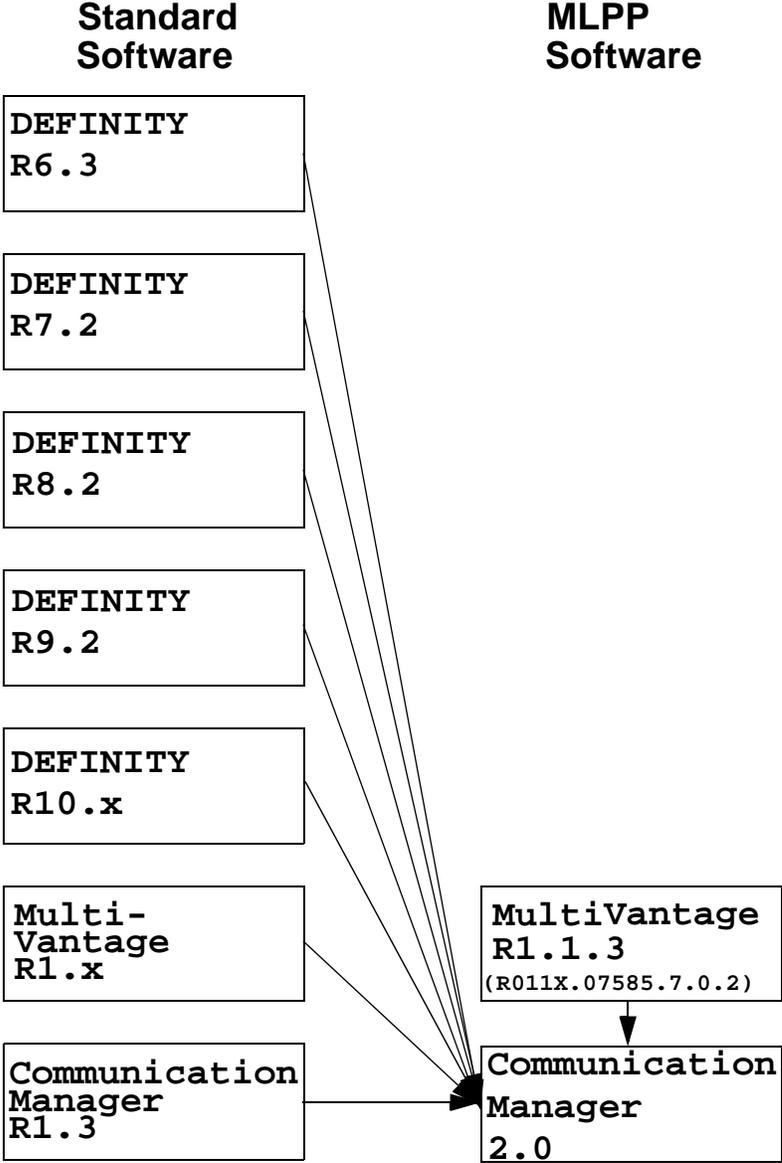
The following diagram shows the valid upgrade paths for MLPP software. Only the paths shown in this diagram may be followed. For any upgrade path not shown, contact your Tier 3 support personnel or the Rapid Response team at:

http://rr-db1.dr.avaya.com/rapid_response/MLPPins2.html

You can also access information starting at the Avaya Business Partner website at:

<https://www.avaya.com/bp/pro/index.jhtml>

Then select **Selling and Marketing>Sales Tools>Special Development>MLPP**.



Feature descriptions and administration

This section contains information about the following MLPP features:

- [Announcements for Precedence Calling](#) on page 23
- [Dual Homing](#) on page 27
- [End Office Access Line Hunting](#) on page 28
- [Line Load Control](#) on page 29
- [Precedence Calling](#) on page 32
- [Precedence Call Waiting](#) on page 45
- [Precedence Routing](#) on page 49
- [Preemption](#) on page 54
- [Worldwide Numbering and Dialing Plan](#) on page 58

The following information is provided for each feature:

- Detailed description - A detailed description of the feature and its attributes, including examples where you can use the feature.
- Considerations - Software and hardware constraints.
- Interactions - Conflicts with other features.
- Administration - How to administer each feature.

NOTE:

The administration screens for MLPP are part of the system administration terminal (SAT) command line interface, which you can access using the Avaya Site Administration terminal emulator, the Avaya Native Configuration Manager, or the ProVision terminal emulator.

Announcements for Precedence Calling

The Announcements for Precedence Calling feature has five announcement types to notify users when Precedence Calling has been denied or services are not available:

- Blocked precedence call
- Unauthorized precedence level attempted
- Service interruption prevented call completion
- Busy, not equipped for Preemption or Precedence Call Waiting
- Vacant code.

Detailed description

The MLPP feature requires special announcements to notify users when Precedence Calling (for calls higher than Routine precedence) has been denied or services are not available. These announcements include the following:

Blocked precedence call This announcement is heard when the system attempts to preempt an existing call with a call that has a precedence level higher than Routine precedence that is also equal to or lower than the precedence level of the current call. If an announcement extension is not assigned, the caller hears reorder tone (fast busy).

Unauthorized precedence level attempted This announcement is heard when a caller attempts to place a precedence call using a precedence level that is higher than authorized by their Class of Restriction (COR). If an announcement extension is not assigned, the caller hears intercept tone (siren tone).

Service interruption prevented call completion This announcement is heard when a service interruption prevents a precedence call from being completed. If an announcement extension is not assigned, the caller hears reorder tone (fast busy).

Busy, not equipped for Preemption or Precedence Call Waiting This announcement is heard when a precedence call is placed to a busy line and the line does not have Precedence Call Waiting or is not preemptable. If an announcement extension is not assigned, the caller hears reorder tone (fast busy).

Vacant code This announcement is heard when a precedence call is placed to an unassigned extension number. If an announcement extension is not assigned, the caller hears reorder tone (fast busy).

NOTE:

If a caller is using Routine precedence and the call cannot be completed for any of the above reasons, the caller hears busy tone.

Considerations

For recorded announcements on a DEFINITY server, S8100 Media Server, S8500 Media Server, or S8700 Media Server when using the announcement capabilities on a G650, SCC1 or MCC1 Media Gateway, the TN2501AP or TN750 circuit packs are the recommended method for recording announcements, but you can use existing analog announcement equipment with the new MLPP features. If you have multiple integrated announcement circuit packs, only one of those can be a TN750 or TN750B. Any additional circuit packs must be the TN2501AP or TN750C.

Interactions

There are no interactions associated with this feature.

Administration

This feature uses the standard Recorded Announcements feature. For additional information about administering Recorded Announcements, see *Administrator's Guide for Avaya Communication Manager Software* (555-233-506).

Adding extension numbers

change announcements

Use the following form to assign extension numbers for the different MLPP recorded announcements. The extensions used for recorded announcements must already be administered in the dialing plan but cannot be used for any other purpose (such as stations or directory numbers). The data shown in the form below is an example of how this can be done.

```
change announcements
```

Page 1 of 16

ANNOUNCEMENTS/AUDIO SOURCES									
Ext.	Type	COR	TN	Name	Q	QLen	Pr	Rt	Port
1:	6801	integrated	1	1	Call blocked announcement	n	N/A	n	16 01A14
2:	6802	integrated	1	1	Unauthorized level annnc	n	N/A	n	16 01A14
3:	6803	integrated	1	1	Service interrupt annnc	n	N/A	n	16 01A14
4:	6804	integrated	1	1	Busy, not equipped annnc	n	N/A	n	16 01A14
5:	6805	integrated	1	1	Vacant code announcement	n	N/A	n	16 01A14
6:			1	1		n			
7:			1	1		n			
8:			1	1		n			
9:			1	1		n			
10:			1	1		n			
11:			1	1		n			
12:			1	1		n			
13:			1	1		n			
14:			1	1		n			
15:			1	1		n			
16:			1	1		n			

Assigning announcement types

change system-parameters mlpp

After you add the announcement extensions, you must designate what extensions are used for each of the announcement types. This administration is unique to the Announcements for Precedence Calling feature. The following example matches what is shown on the change announcements form (see [Adding extension numbers](#) on page 25).

```
change system-parameters mlpp
```

Page 1 of 1

MLPP SYSTEM PARAMETERS

MULTIPLE LEVEL PRECEDENCE PREEMPTION PARAMETERS

ANNOUNCEMENTS

Blocked Precedence Level: 6801	Service Interruption: 6803
Unauthorized Precedence Level: 6802	Busy, Not Equipped: 6804
Vacant Code: 6805	

PRECEDENCE CALLING-DIALED DIGIT ASSIGNMENT

Flash Override: 0 Flash: 1 Immediate: 2 Priority: 3 Routine: 4

Attendant Diversion Timing (sec): 60

Remote Attendant Route String:

Worldwide Numbering Dial Plan Active? y Default Route Digit: 0

Precedence Call Timeout (sec): 30

Line Load Control Restriction Level: 0

W NDP Emergency 911 Route String:

Default Service Domain: 0

ISDN Precedence Call Timeout (sec): 30

Recording announcements

Once you have designated the extensions that will be used for recorded announcements, use the following procedures to record and test the announcements. You must record the announcements from the attendant console or from a station that has console permissions.

To record each of the announcements, do the following:

- 1 Go off-hook and dial the Announcement FAC ____.
- 2 Dial the extension number of the announcement you want to record.
If an announcement session is already in progress, or if a save or restore command is in progress, you will hear reorder tone. Try again later.
- 3 Press **1** and record after the tone.
If the announcement already exists and is marked "protected" in the announcements form, you will hear intercept tone.
- 4 Hang up when finished recording the message.

NOTE:

The system records the sound of the receiver returning to the station. Hang up gently, press **Drop**, or press the switchhook with your finger.

- 5 After waiting 15 seconds, dial the extension number of the announcement you just recorded.
- 6 Listen to the recording. If you need to record the message again, repeat this procedure. If the message is satisfactory, hang up and repeat this procedure to record the other announcements.

The following is suggested wording for each of the announcements.

Blocked precedence call "Equal or higher precedence calls have prevented completion of your call. Please hang up and try again."

Unauthorized precedence level attempted "The precedence level requested is not authorized for your line. Please use an authorized precedence level or ask your operator for assistance."

Service interruption prevented call completion "A service interruption has prevented the completion of your call. Please wait 30 seconds and try again. In case of emergency, call your operator."

Busy, not equipped for Preemption or Precedence Call Waiting "The number you have dialed is busy and not equipped for Preemption or Precedence Call Waiting."

Vacant code announcement "Your call cannot be completed as dialed. Please consult your directory and call again or ask your operator for assistance. This is a recording."

To delete a recorded announcement, do the following:

- 1 Go off-hook at a station and dial the Announcement FAC ____.
- 2 Dial the extension number of the announcement you want to delete.
- 3 Press **3**.
The announcement is deleted.
- 4 Hang up.
- 5 Enter **change announcements** to delete the announcement extension.

Saving announcements

save announcements

If your system uses the TN750 or TN750B circuit packs, you must manually save the announcements recorded on those circuit packs. If you do not save the announcements, all announcements recorded since the last save will be lost if the system loses power or if the TN750 or TN750B circuit packs are removed from the system.

If your system uses only the TN750C circuit pack, saving the announcements is not required. The TN750C has on-board memory for all announcements.

NOTE:

The announcements on a TN2501AP circuit pack and virtual VAL announcements on the S8300 are not saved using system administration. You can back up the announcement to a PC. For procedures to back up the announcements, see *Administrator's Guide for Avaya Communication Manager Software*, 555-233-506.

Dual Homing

Dual Homing allows a user to dial a telephone number and have the call route to its destination over alternate facilities if the initial route is unavailable. This operation is transparent to the user and no special dialing is required.

Detailed description

Dual Homing uses the Precedence Routing feature to provide alternate routing to nodes on a DSN. If a call destined for a dual-homed subscriber or an end office fails to complete over the first trunk access line, the call is rerouted over a different trunk access line. This process may continue for any number of alternate routes. If the call fails to complete by the time it gets to the last trunk access line in the route, the call is routed to busy tone or to the "Blocked precedence call" recorded announcement (see [Announcements for Precedence Calling](#) on page 23).

For example, a user dials a DSN number, such as 345-8854. Using Precedence Routing, you administer all calls beginning with the digits "345" to route over trunk group 20 first, followed by trunk group 21, and finally trunk group 22. If all trunks in trunk group 20 are busy, the system checks for idle trunks in trunk group 21 next, and finally in trunk group 22. If all trunks in all three trunk groups are busy, the call routes to fast busy tone or a recorded announcement. For a more detailed description of the available routing options, see [Precedence Routing](#) on page 49.

Considerations

There are no considerations associated with this feature.

Interactions

There are no interactions associated with this feature.

Administration

The administration of Dual Homing is done when you administer the Precedence Routing feature (see [Precedence Routing](#) on page 49).

End Office Access Line Hunting

The End Office Access Line Hunting feature automatically hunts for an idle trunk over End Office access lines based on the precedence level of the call. The search will occur over a preemptable trunk group or a nonpreemptable trunk group.

Detailed description

For calls higher than Routine precedence, the system hunts for an idle trunk in a preemptable trunk group. If an idle trunk is found, the system provides precedence ringing. The following steps detail the hunting algorithm:

- 1 If an idle trunk is found, the system provides precedence ringing.
- 2 If an idle trunk is not found, the system reexamines a preemptable trunk group on a preemptive search, and will preempt an active call of the lowest precedence level available.
- 3 The system hunts for an idle trunk in a nonpreemptable trunk group. If an idle trunk is found, the system provides precedence ringing.
- 4 If the system is unable to find a trunk, the call is routed to the "Blocked precedence call" recorded announcement (see [Announcements for Precedence Calling](#) on page 23). If announcements are not recorded or administered, the caller hears reorder tone.

For Routine precedence calls, the system hunts for an idle trunk in a nonpreemptable trunk group and attempts to connect the call. If no trunks are available, the caller hears busy tone.

For more information about preemptable and nonpreemptable trunks, see [Preemption](#) on page 54.

Considerations

There are no considerations associated with this feature.

Interactions

There are no interactions associated with this feature.

Administration

The administration of End Office Access Line Hunting is done when you administer the Precedence Routing feature (see [Precedence Routing](#) on page 49).

Line Load Control

The Line Load Control (LLC) feature invokes origination restriction for a group of stations to control DSN access from the communication server. This is done by systematically reducing the number of stations that can originate calls during high-traffic periods. This situation is sometimes called a "lockdown." When the lockdown situation passes, the LLC restriction levels can be reduced or removed completely.

Detailed description

The LLC feature is controlled by the system administrator. There are four levels at which this feature may be controlled. These system levels determine what stations, based on their COR, will be restricted from originating calls.

NOTE:

This feature does not restrict incoming calls or calls originating from an attendant console or a night station.

The system levels are as follows:

- 0 - Feature not active (no restrictions) (default)
- 2 - Restrict stations with a COR assigned to LLC levels 2, 3, and 4
- 3 - Restrict stations with a COR assigned to LLC levels 3 and 4
- 4 - Restrict stations with a COR assigned to LLC level 4.

NOTE:

System level 1 is not a valid value.

When LLC is activated at a given level, the feature restricts all stations with a COR at that LLC level and below from originating any calls. For example, activating the LLC feature at system level 3 restricts stations with a COR at LLC levels 3 and 4. Activating the feature at system level 2 restricts stations with a COR at LLC levels 2, 3, and 4. If a restricted station is already active on a call when the restriction is activated, the call is not interrupted or disconnected. The station becomes restricted only after hanging up from the active call. Stations with a COR assigned to LLC level 1 cannot be restricted from originating calls by the LLC feature. When the need for LLC has passed, the administrator can change the LLC to a less-restrictive level or deactivate it completely.

Using the information from this table, the following example shows how the LLC feature can be used:

Station	COR	COR LLC Level
5300	11	1
5350	12	2
2540	13	3
3300	14	4
2635	14	4

- 1** The system LLC is at Level 0 (no restrictions) and station 2635 is active on a call.
- 2** The system administrator changes the system LLC to Level 3.
Stations 2635, 2540 and 3300 cannot originate calls because their assigned COR LLC level is equal to or less than the system LLC level.
The active call on station 2635 is not disturbed, but as soon as station 2635 hangs up, that station cannot originate calls.
Stations 5300 and 5350 can originate calls because their assigned COR LLC level is higher than the system LLC level.
- 3** Call traffic is still too high, so the system administrator changes the system LLC to Level 2.
Station 5350, in addition to stations 2635, 2540, and 3300, cannot originate new calls.
Station 5300 can still originate new calls.
- 4** Call traffic subsides. The system administrator changes the system LLC to Level 0 (no restrictions).
All stations in this example can now originate calls.

Considerations

When a system reload occurs, the LLC system-level settings revert to the default factory setting, which is LLC level 0 (no restrictions). This ensures that normal telecommunications service will be restored after a system reload.

The LLC COR settings, however, are saved in translations. The settings do not revert to the factory defaults if the settings have been saved in translations.

Interactions

General Feature Interactions Since the LLC feature restricts stations from originating calls, features that require dial tone or a new call appearance for activation are not available when the station is restricted by LLC. Some of those features include:

- Call Forwarding
- Call Pickup
- Conference
- Transfer

Feature activation using buttons where dial tone is not required is still allowed (such as Send All Calls, Inspect, or Integrated Directory).

Bridged Call Appearance The LLC feature restricts originating new calls from all call appearances on a station, including bridged appearances. A station restricted by the LLC feature that has a bridged appearance of an extension whose station is *not* restricted can bridge on to an active call but cannot originate a new call using that bridged extension.

A station *not* restricted by the LLC feature that has a bridged appearance of an extension whose station is restricted can originate a new call using that bridged extension.

Call Park A user on a call becomes restricted by the LLC feature. The user can park the call, but cannot retrieve the call until the LLC restriction is removed. Another user that is not currently restricted by the LLC feature can retrieve the call.

Call Waiting A user restricted by the LLC feature must hang up to answer a Call Waiting call. The LLC feature does not restrict incoming calls.

Hold Stations restricted by the LLC feature that are on an active call can place a call on hold, and later retrieve the call on hold.

Precedence Call Waiting A user whose station is restricted by the LLC feature must hang up to answer a Precedence Call Waiting call.

Administration

Line Load Control is assigned on a system-wide basis and on a COR basis.

Assigning the LLC level for the system

```
change system-parameters mlpp
```

Use the following form to set the LLC level for the system. The options are as follows:

- **0** - Feature not active (no restrictions) (default)
- **2** - Restrict stations with a COR assigned to LLC level 2, 3, or 4
- **3** - Restrict stations with a COR assigned to LLC level 3 or 4
- **4** - Restrict stations with a COR assigned to LLC level 4

```
change system-parameters mlpp                                     Page 1 of 1
                        MLPP SYSTEM PARAMETERS

                        MULTIPLE LEVEL PRECEDENCE PREEMPTION PARAMETERS
ANNOUNCEMENTS
  Blocked Precedence Level: 2801                               Service Interruption: 2803
  Unauthorized Precedence Level: 2802                         Busy, Not Equipped: 2804
  Vacant Code: 2805
PRECEDENCE CALLING-DIALED DIGIT ASSIGNMENT
  Flash Override: 0 Flash: 1 Immediate: 2 Priority: 3 Routine: 4

  Attendant Diversion Timing (sec): 60
  Remote Attendant Route String:
Worldwide Numbering Dial Plan Active? y                       Default Route Digit: 0
  Precedence Call Timeout (sec): 30
Line Load Control Restriction Level: 3
  WNDP Emergency 911 Route String:
  Default Service Domain: 0
  ISDN Precedence Call Timeout (sec): 30
```

Assigning the LLC to a COR

change cor X (where X is 0-95)

Use the following form to set the Line Load Control level for each COR. The options are as follows:

- 1 - LLC Level 1 (cannot be restricted by LLC) (default)
- 2 - LLC Level 2
- 3 - LLC Level 3
- 4 - LLC Level 4

change cor 1	CLASS OF RESTRICTION	Page 2 of 4
	MF Incoming Call Trace? n	
	Brazil Collect Call Blocking? n	
	Block Transfer Display? n	
Block Enhanced Conference/Transfer Displays? y	Remote Logout of Agent? y	
	Station Lock COR: 1	
Outgoing Disconnect Trunk Timer (Minutes):		
	Line Load Control: 4	
Maximum Precedence Level: fo	Preemptable? y	
MLPP Service Domain:		

Precedence Calling

The Precedence Calling feature allows users to place calls using five different precedence (priority) levels.

Detailed description

Calls made within the DSN often require priority processing. The Precedence Calling feature allows users to select a level of priority for each call based on their need and importance.

The precedence levels are as follows (from highest priority to lowest):

- Flash Override
- Flash
- Immediate
- Priority
- Routine (the default precedence level).

Calls dialed without specifying a precedence level are treated as Routine level precedence calls.

For example, General Davis, a commanding officer, has a maximum precedence level of Flash assigned to her station. Without intervention, everyday calls are treated at the Routine level. One day, a crisis occurs at a military installation and she must make an emergency call to her subordinates over the DSN. General Davis can use Precedence Calling to raise the level of her call to Priority, Immediate, or Flash.

When she places this call, the call is given priority handling by the communication server and is sent over the DSN access line.

The format for Precedence Calling dialed digits is as follows:

Access digits		Address digits		
FAC	Precedence digit	Area code	Office code	Extension number
A	P	[NXX]	NXX	XXXX

Where:

A is the Precedence Calling FAC

P is any digit 0-4 (digits 5-9 can be used, but are not recommended)

X is any digit 0-9

N is any digit 2-9

[] denotes optional digits

- Access Digits - The Access Digits are comprised of the Precedence Calling FAC followed by a Precedence Digit. The single-digit code used for the Precedence Digit is administered as shown on [Assigning Precedence Calling system parameters](#) on page 38. The default precedence level digits are:
 - 0 - Flash Override
 - 1 - Flash
 - 2 - Immediate
 - 3 - Priority
 - 4 - Routine
- Address Digits - The Address Digits are the seven-digit or ten-digit DSN number.

Precedence calls above the Routine level use special precedence ringback tones for the calling party and special ringing pattern for the called party. On a G650, SCC1, CMC1, or MCC1 Media Gateway supported by a DEFINITY server, S8500 Media Server, or S8700 Media Server, precedence calling tones are generated by the TN2182B or TN2182C Tone Clock circuit pack. On a G350 or G700 Media Gateway supported by an S8300, S8500, or S8700 Media Server, precedence calling tones are generated by the G350/G700 Media Gateway processor itself. The S8100 Media Server processor also generates tones.

- The ringback tone is a 1.65 second burst of mixed 440 Hz and 480 Hz tone followed by 0.35 seconds of silence. This tone repeats until the call is answered, the caller hangs up, or until the Precedence Call Timeout occurs (see [Assigning Precedence Calling system parameters](#) for more information).
- The ringing pattern for precedence calls is the same pattern used with Priority Calling, which is a 3-burst ring.

Precedence Calling diversion scenarios

When a precedence call to a station goes unanswered, the communication server attempts to connect the caller to a backup answering position using the following scenario:

- 1 The call is diverted to the attendant console.
- 2 If the console is in Night Service or there is no console administered, the call is diverted to a night station.
- 3 If there is no console or night station administered, the call can be diverted to a user-defined endpoint (the Remote Attendant Route String).

The Attendant Diversion Timing controls how long this type of call rings before the call is routed to the Remote Attendant Route String (any valid telephone number on the network; it is usually a backup answering position for the remote attendant console). The Remote Attendant Route String does not raise the precedence level of the call.

- 4 If the Remote Attendant Route String is not defined and there is no attendant console or night station, the call will ring until answered or abandoned.

This call diversion scenario has variations for DSN calls, non-DSN calls, and local calls:

- DSN Calls - If an outgoing precedence call over a DSN trunk is not answered after an administrable period of time (the Precedence Call Timeout on the remote communication server), the call routes to the attendant console or night station on the remote communication server, or optionally, to a user-defined endpoint (the Remote Attendant Route String).
- Non-DSN Calls - If an outgoing precedence call over a non-DSN trunk is not answered after an administrable period of time (the Attendant Diversion Timing on the local communication server), the call routes to a local attendant console, to a night station, or optionally, to a user-defined endpoint (the Remote Attendant Route String).
- If a local, intraswitch precedence call is not answered after an administrable period of time (the Precedence Call Timeout), the call routes to a local attendant console, to a night station, or optionally, to a user-defined endpoint.

NOTE:

For a precedence call that diverts to a night station or a Remote Attendant Route String (see [Assigning Precedence Calling system parameters](#) on page 38), the night station LDN or the Remote Attendant Route String number must be administered in the Precedence Routing digit-conversion tables (see [Assigning digit conversion](#) on page 53).

When calls are redirected, a Call Purpose indicator is displayed on the attendant console and display telephone sets to indicate the precedence level of the call. The following indicators are provided:

- FO - Flash Override
- FL - Flash
- IM - Immediate
- PR - Priority

NOTE:

Routine precedence calls do not have a call purpose indicator.

When callers attempt to use a precedence level higher than authorized, the caller will hear the "Unauthorized precedence level attempted" recording or intercept tone if an announcement is not assigned. The following table shows how precedence calls are processed depending on the precedence level and the administered maximum precedence level of the caller:

Caller's maximum precedence level	Precedence level of call	Call treatment
Flash Override	Flash Override	Call completes normally
Flash Override	Flash	Call completes normally
Flash Override	Immediate	Call completes normally
Flash Override	Priority	Call completes normally
Flash Override	Routine	Call completes normally
Flash	Flash Override	Recorded announcement or intercept tone
Flash	Flash	Call completes normally
Flash	Immediate	Call completes normally
Flash	Priority	Call completes normally
Flash	Routine	Call completes normally
Immediate	Flash Override	Recorded announcement or intercept tone
Immediate	Flash	Recorded announcement or intercept tone
Immediate	Immediate	Call completes normally
Immediate	Priority	Call completes normally
Immediate	Routine	Call completes normally
Priority	Flash Override	Recorded announcement or intercept tone
Priority	Flash	Recorded announcement or intercept tone
Priority	Immediate	Recorded announcement or intercept tone
Priority	Priority	Call completes normally
Priority	Routine	Call completes normally
Routine	Flash Override	Recorded announcement or intercept tone
Routine	Flash	Recorded announcement or intercept tone
Routine	Immediate	Recorded announcement or intercept tone
Routine	Priority	Recorded announcement or intercept tone
Routine	Routine	Call completes normally

Considerations

Except for a G350 or G700 Media Gateway supported by an S8300, S8500, or S8700 Media Server, a Tone Clock circuit pack is required for this feature. On the DEFINITY server, all tone clocks must be TN2182B or later, except when using MF 2/6 trunks, which require the TN2182C, Vintage 2 or later.

Interactions

Call Coverage Calls above Routine precedence will not follow administered coverage paths. The calls will ring until the Timeout for Precedence Calls expires, and the call will go to a console or night station. If the called party is on an active call and Preemption has been enabled, the call is preempted.

Call Detail Recording (CDR) No separate CDR field will be supplied for the precedence level of a call. This would create an incompatibility between current call accounting software and the new call record format. Using the current call record format, the precedence level of a call may be determined by examining the call record for the Precedence Calling FAC. If the call is a precedence call, the first digit of the address dialed indicates the precedence level of the call. If WNDP is active, only the FAC needs to be examined as the precedence is implied from the FAC. The precedence level for a station-to-station call is not recorded by CDR.

CDR can be administered to record either the dialed digits or the outpulsed digits. In the case of Precedence Routing, the outpulsed digits may appear dramatically different than the dialed digits, and the precedence level digit may or may not be recorded. Keep this in mind when viewing CDR records.

Conference The precedence level of a call will be set to the highest active precedence level when two calls are merged during a conference.

Hunting When administering a hunt group with preemption, set the **Maximum Preemption Level and Preemptable** fields in the COR form. The hunt group **Group Type** must use circular or ucd-mia queuing, and the **ACD, Queue, and Vector** fields must be set to **n**.

Night Service When the attendant console goes into night mode, precedence calls can be answered using a night station, a night or day/night console, or Trunk Answer Any Station (TAAS). If there are calls in queue when the attendant console goes into Night Service, those queued calls are diverted to a night or day/night console or TAAS based on the attendant queue priorities (see [Assigning attendant queue priorities](#) on page 41).

Preemption When a precedence call attempts to preempt an existing call, call progress tones or the "blocked precedence call" announcement indicates why the call did not complete. The following table shows how precedence calls are processed depending on the precedence level of the call and the precedence level of the preempted trunk.

Precedence level of call	Precedence level of the DSN trunk call being preempted	Call treatment
Flash Override	Flash Override	Recorded announcement or busy tone
Flash	Flash Override	Recorded announcement or busy tone
Immediate	Flash Override	Recorded announcement or busy tone
Priority	Flash Override	Recorded announcement or busy tone
Routine	Flash Override	Busy tone

Precedence level of call	Precedence level of the DSN trunk call being preempted	Call treatment
Flash Override	Flash	Call completes normally
Flash	Flash	Recorded announcement or busy tone
Immediate	Flash	Recorded announcement or busy tone
Priority	Flash	Recorded announcement or busy tone
Routine	Flash	Busy tone
Flash Override	Immediate	Call completes normally
Flash	Immediate	Call completes normally
Immediate	Immediate	Recorded announcement or busy tone
Priority	Immediate	Recorded announcement or busy tone
Routine	Immediate	Busy tone
Flash Override	Priority	Call completes normally
Flash	Priority	Call completes normally
Immediate	Priority	Call completes normally
Priority	Priority	Recorded announcement or busy tone
Routine	Priority	Busy tone
Flash Override	Routine	Call completes normally
Flash	Routine	Call completes normally
Immediate	Routine	Call completes normally
Priority	Routine	Call completes normally
Routine	Routine	Busy tone

Restrict Last Appearance If the Restrict Last Appearance station option is enabled and there is only one idle call appearance available on the station when a precedence call is made to that station, callers using Routine precedence hear busy tone. Callers using any other precedence level will ring the restricted last call appearance.

If the Restrict Last Appearance station option is not enabled and there is only one idle call appearance available on the station when a precedence call is made to that station, callers using any precedence level will ring that last call appearance.

Send All Calls Calls above Routine precedence will not follow administered coverage paths. The calls will ring until the Timeout for Precedence Calls expires, and the call will go to a console or night station.

Transfer The precedence level of a call will be set to the highest active precedence level when two calls are merged during a transfer.

Worldwide Numbering and Dialing Plan (W NDP) When W NDP is enabled, users must dial a FAC for the precedence level they want to use. Users cannot use the Precedence Calling FAC. In addition, the route code function and implied precedence level are provided.

When WNDP is disabled, users must dial the Precedence Calling FAC, followed by the precedence level (0-4). The WNDP FACs can be administered, but cannot be used.

Administration

Adding feature access codes

```
change feature-access-codes
```

Use the following form to add the Precedence Calling FAC. Administer this FAC when using Precedence Calling.

```
change feature-access-codes                                     Page 6 of 6
                                                                FEATURE ACCESS CODE (FAC)
                                                                MLPP Features

                                                                Precedence Calling Access Code: 8

WNDP PRECEDENCE ACCESS CODES:
    Flash Override Access Code:
    Flash Access Code:
    Immediate Access Code:
    Priority Access Code:
    Routine Access Code:
```

Assigning Precedence Calling system parameters

```
change system-parameters mlpp
```

Use this form to assign the Precedence Calling system parameters. The fields you can administer include:

 **CAUTION:**

It is highly recommended that you do not change the default Precedence Calling dialed digits unless you are coordinating this change with other companion networks in your system. If the Precedence Calling digits do not match across networks, the calls will not be processed properly. Each of the Precedence Calling digits must be different. You cannot use the same digit for two different precedence levels.

- **Flash Override** - 0-9 or blank (default is 0)
- **Flash** - 0-9 or blank (default is 1)
- **Immediate** - 0-9 or blank (default is 2)
- **Priority** - 0-9 or blank (default is 3)
- **Routine** - 0-9 or blank (default is 4)
- **Attendant Diversion Timing** - 10 to 99 seconds or blank (default is blank)
- **Remote Attendant Route String** - 1 to 24 numeric digits or blank (default is blank). When administering this string, use address digits only, not FACs. For more information, see [Precedence Calling diversion scenarios](#) on page 34.
- **Precedence Call Timeout** - 10 to 60 seconds (default is 30)

- **Default Service Domain - 0 to 16777215.** This number defines the system service domain, and should be unique within a switching network. The system service domain is used to determine eligibility for precedence calling when interswitch precedence calls over non-ISDN trunks occur.

```
change system-parameters mlpp                               Page 1 of 1
                                MLPP SYSTEM PARAMETERS
                                MULTIPLE LEVEL PRECEDENCE PREEMPTION PARAMETERS
ANNOUNCEMENTS
    Blocked Precedence Level: 2801                Service Interruption: 2803
    Unauthorized Precedence Level: 2802           Busy, Not Equipped: 2804
    Vacant Code: 2805
PRECEDENCE CALLING-DIALED DIGIT ASSIGNMENT
    Flash Override: 0  Flash: 1  Immediate: 2  Priority: 3  Routine: 4

    Attendant Diversion Timing (sec): 60
    Remote Attendant Route String:
Worldwide Numbering Dial Plan Active? y           Default Route Digit: 0
    Precedence Call Timeout (sec): 30
Line Load Control Restriction Level: 0
WNDP Emergency 911 Route String:
    Default Service Domain: 1
ISDN Precedence Call Timeout (sec): 30
```

Assigning a maximum precedence level to a COR

change cor X (where X is 0-95)

Use the COR form to assign a Maximum Precedence Level for extensions. The fields you can administer as as follows:

- **Maximum Precedence Level** - one of the following:
 - **fo** - Flash Override
 - **fl** - Flash,
 - **im** - Immediate
 - **pr** - Priority
 - **ro** - Routine (default)
- **MLPP Service Domain - 0 to 16777215.** This number defines the service domain for users and trunks to which this particular COR is assigned. The service domain is used to create a group of MLPP users or facilities within which precedence calls may be made.

```
change cor 1                                               Page 2 of 4
                                CLASS OF RESTRICTION
                                MF Incoming Call Trace? n
                                Brazil Collect Call Blocking? n
                                Block Transfer Display? n
Block Enhanced Conference/Transfer Displays? y
                                Remote Logout of Agent? y

                                Station Lock COR: 1
                                Outgoing Disconnect Trunk Timer (Minutes):
                                Line Load Control: 3
Maximum Precedence Level: ro                Preemptable? y
MLPP Service Domain: 1
```

Assigning trunks

add trunk-group X (where **X** is the trunk group number)

Use the trunk group form to identify a trunk group as a DSN termination endpoint (the default is **n**). If you enter **y** in this field, the **Precedence Incoming** and **Precedence Outgoing** fields display for DTMF or MF2/6 trunks. These fields define whether the precedence level is received or sent as digits (rotary pulses) or as DTMF signals (touch-tone).

```
add trunk-group 10                                     Page 2 of X
                                     TRUNK FEATURES
      ACA Assignment? n                               Measured: none
                                     Internal Alert? n   Maintenance Tests? y
      Data Restriction? n                             Glare Handling: none
      Used for DCS? n
      Suppress # Outpulsing? n
      Seize When Maintenance Busy: neither-end

Incoming Tone (DTMF) ANI: no                          Per Call CPN Blocking Code:
      Connected to CO? n                               Per Call CPN Unblocking Code:

                                     US NI Delayed Calling Name Update? y
DSN Term? y   Precedence Incoming? dtmf(a-d)   Precedence Outgoing? dtmf(a-d)
```

Assigning a Hot Line number

add station XXXX (where **XXXX** is the station number)

Use the station form to assign a Hot Line number. On a single-line telephone, you would assign a hot line destination using a system, group, or personal list assigned to the Hot Line Destination. On a multiappearance telephone, you would assign the hot line destination to an Abbreviated Dialing button on the telephone.

The Hot Line number must include the Precedence Calling feature access code, the precedence level (0-4), plus the destination digits. For example, **807208451111** would be a Flash Override (0) voice call to 7208451111.

Assigning attendant queue priorities

change console-parameters

Use the console-parameters form, page 4, to assign attendant queue priorities for precedence calls and non-precedence calls. This determines how calls are queued to the attendant console. The following example shows the defaults for the system. You may want to change some of the defaults depending on the priority you want for processing calls.

```

change console-parameters                               Page 4 of 5 SPE A
                CONSOLE PARAMETERS

QUEUE PRIORITIES

      MLPP Precedence Call
      Flash Override: 2
                Flash: 3
      Immediate: 4
      Priority: 5
  
```



CAUTION:

By default, emergency access calls receive higher priority processing than MLPP Precedence Calls. You can change the order of priority, but be careful when designating emergency calls to equal or lower priority. Call types with equal priority enter the queue on a first-in, first-out basis.

NOTE:

Routine precedence calls are treated as normal calls and will use the same queue priorities as non-emergency and non-MLPP calls.

How service domains affect preemption and precedence

You define MLPP service domains at two levels: in a Class of Restriction (COR) which you then assign to a user's station, and in the System Parameters MLPP screen, which applies to all resources on the server. The system uses the service domain to determine whether a call's preemption/precedence level may be applied to potentially preempt a routine call or another call of lower precedence. If an existing call has a different service domain than the service domain of the call attempting a preemption, preemption is not allowed, regardless of the preemption levels of the two calls.

The two levels of service domain affect preemption/precedence capabilities in different ways, depending on which of the following resources the server recognizes as carrying the call:

- Intraswitch routing to another station on the same server
- Incoming ISDN-PRI trunks for a call originating from another server on the network
- Incoming non-ISDN-PRI trunks for a call originating from another server on the network

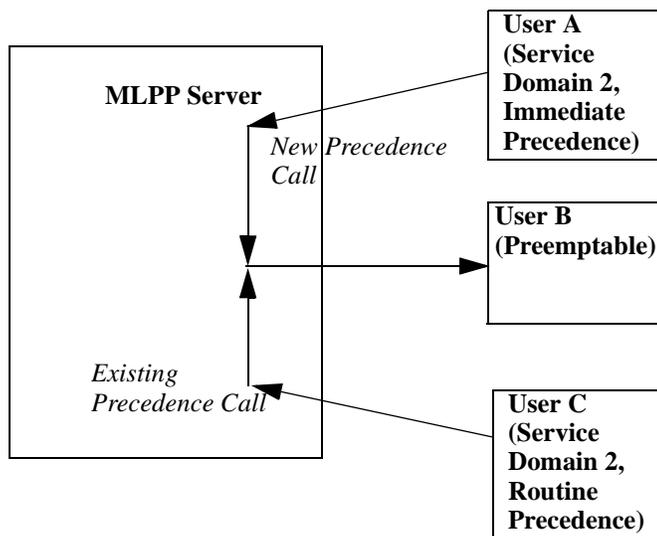
Station-to-station calls on the same server

If a user makes an MLPP call to another user whose station resides on the same server, and the called user's phone is busy with an existing call, the server uses the following process to determine whether to grant precedence to the new call:

- 1 The server assigns the existing call to the service domain defined in the caller's COR.
- 2 The server checks the COR of the new caller to define the service domain of the new call.
- 3 The server matches the service domain of the new call with the service domain of the existing call.
- 4 If the service domains match, then the server matches the precedence level of the existing call with the precedence level of the new call. If the new call has a higher level, the new call preempts the existing call.

If the service domains do not match, then the server gives the new call an announcement that says the MLPP call cannot be completed.

See the following figure.



In the preceding figure, the server uses the service domains and precedence levels to treat calls as follows:

- 1 User C has made a routine call to User B and is still connected. The server has checked the service domain of User C's COR and assigned service domain 2 to the call.
- 2 User A makes an immediate precedence call to User B. The server checks the service domain of User A's COR and assigns service domain 2 to the call.
- 3 The server matches the service domain of User C's call with the service domain of User A's call.
- 4 Because the calls are in the same service domain and because User A has used a higher precedence level than that used by User C, the server allows User A to preempt User C's call.

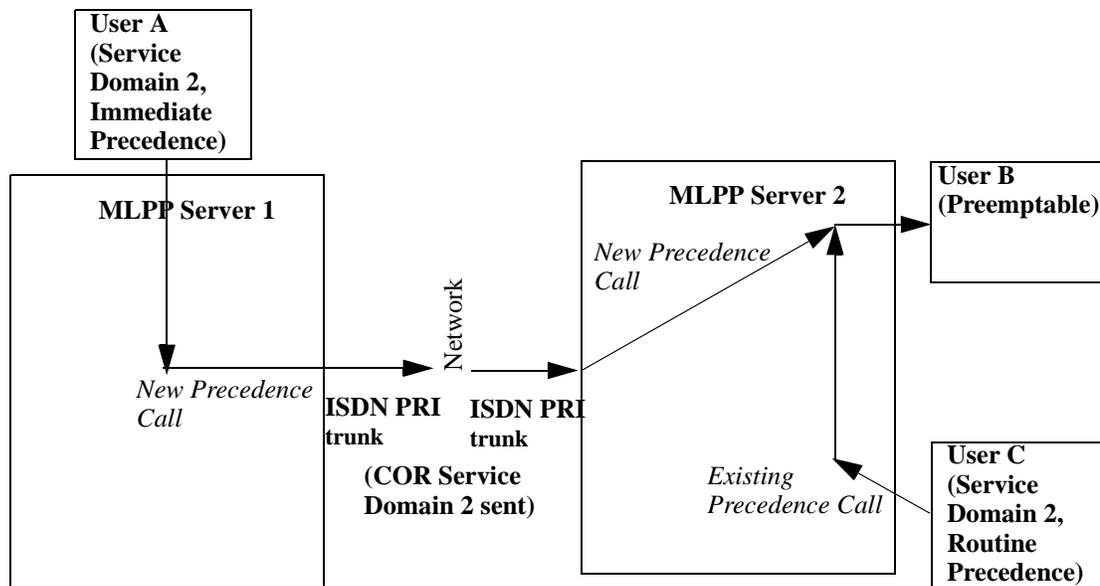
Precedence calls to destinations over ISDN-PRI trunks

If a user makes an MLPP call to another user whose station resides on a different MLPP server, and the call *arrives* at the called user's server over an ISDN-PRI trunk, and the called user's phone is busy with an existing call, the destination MLPP server uses the following process to determine whether to grant precedence to the new call:

- 1 The server assigns the existing call to the service domain defined either in the caller's COR or by its own system service domain.
- 2 The server checks the COR of the new caller to define the service domain of the new call.
- 3 The server matches the service domain of the new call with the service domain of the existing call.
- 4 If the service domains match, then the server matches the precedence level of the existing call with the precedence level of the new call. If the new call has a higher level, the new call preempts the existing call.

If the service domains do not match, then the server gives the new call an announcement that says the MLPP call cannot be completed.

See the following figure.



In the preceding figure, the destination server, Server 2, uses the service domains and precedence levels to treat calls as follows:

- 1 User C has made a routine call to User B and is still connected. The server has checked the service domain of User C's COR and assigned service domain 2 to the call.
- 2 User A, who is on Server 1, makes a precedence call to User B. Server 2 checks the service domain on the incoming ISDN call and finds service domain 2 (defined in User A's COR on Server 1). Server 2 assigns service domain 2 to the call.
- 3 The server matches the service domain of User C's call with the service domain of User A's call.
- 4 Because the calls are in the same service domain and because User A has used a higher precedence level than that used by User C, the server allows User A to preempt User C's call.

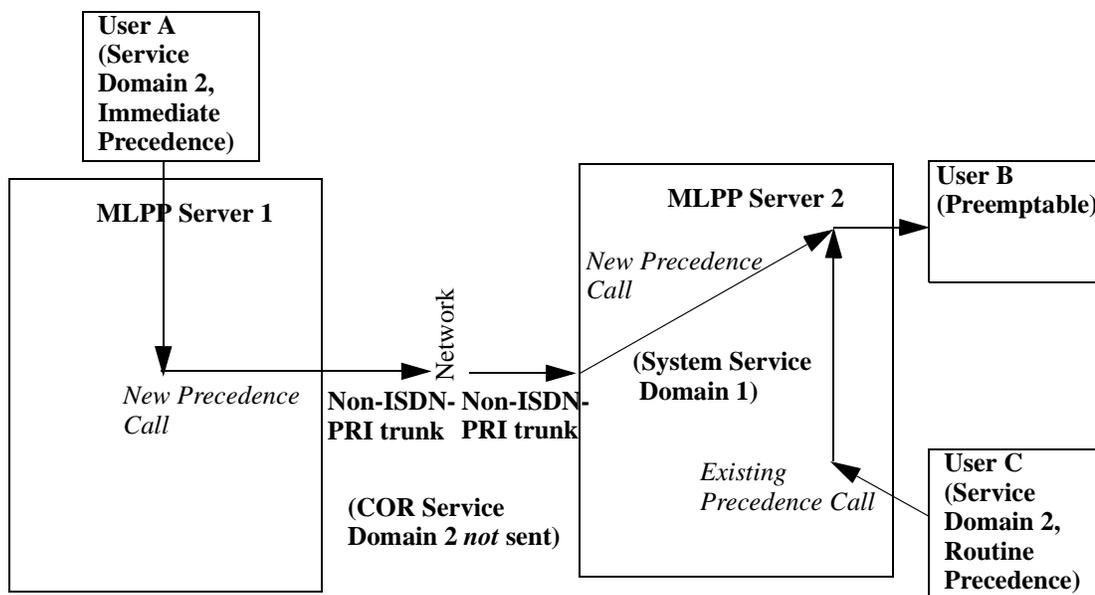
Precedence calls to destinations over non-ISDN-PRI trunks

If a user makes an MLPP call to another user whose station resides on a different MLPP server, and the call *arrives* at the called user's server over a non-ISDN-PRI trunk, and the called user's phone is busy with an existing call, the destination server uses the following process to determine whether to grant precedence to the new call:

- 1 The server assigns the existing call to the service domain defined either in the caller's COR or by its own system service domain.
- 2 The server checks its own system service domain to define the service domain of the new call.
- 3 The server matches the service domain of the new call with the service domain of the existing call.
- 4 If the service domains match, then the server matches the precedence level of the existing call with the precedence level of the new call. If the new call has a higher level, the new call preempts the existing call.

If the service domains do not match, then the server gives the new call an announcement that says the MLPP call cannot be completed.

See the following figure.



In the preceding figure, the system uses the service domains and precedence levels to treat calls as follows:

- 1 User C has made a routine call to User B and is still connected. The server has checked the service domain of User C's COR and assigned service domain 2 to the call.
- 2 User A, who is on Server 1, makes a precedence call to User B. Because User A's call arrives at Server 2 on a non-ISDN-PRI trunk, Server 2 does not receive User A's service domain identifier. Server 2 assigns the system service domain 1 to the call.
- 3 The server matches the service domain of User C's call with the service domain of User A's call.
- 4 Because the calls of Users A and C are *not* in the same service domain, User A's call receives an announcement that says the MLPP call cannot be completed.

Precedence Call Waiting

The Precedence Call Waiting feature allows incoming precedence calls to "camp on" to a busy line. If Precedence Call Waiting is not enabled, the call is redirected to busy tone or to a recorded announcement.

Detailed description

When incoming calls have the correct precedence level and Precedence Call Waiting is assigned, an incoming call "camps on" to the busy line, the called party hears the Precedence Call Waiting tone to indicate that a call of equal or lower precedence is waiting, and the calling party hears Precedence Calling ringback.

The called party can end the current call to answer the new call, place the current call on hold to answer the new call (analog single-line sets only), or not answer the new call. Users on all other types of telephones must hang up their active call to receive the Precedence Call Waiting call. Calls not answered within an administrable timeout are redirected to an attendant, a night station, or to another station by way of the Call Forwarding feature.

The following table describes the different scenarios that can occur with Precedence Call Waiting and Standard Call Waiting:

If the assigned Call Waiting is...	...and the calling party uses...	...and the active call is using...	...the Call Waiting treatment applied is...
Standard	Routine precedence	Any precedence level	Standard Call Waiting
Standard	Any precedence level above Routine	Any precedence level	None. A recorded announcement is heard
Precedence	Routine precedence	Any precedence level	None ¹
Precedence	Any precedence level above Routine	Any level of precedence and Preemption is disabled	Precedence Call Waiting

¹ If a station has the Restrict Last Appearance option enabled, which is the default setting, calls with Routine precedence will not camp on with Precedence Call Waiting. The caller hears busy tone.

For example, station 2100 has Precedence Call Waiting enabled. If that station is active on a Flash level call and a Priority level call comes in, Precedence Call Waiting is applied to the call. The user can place the existing call on hold, drop the existing call, or let the new call redirect to coverage.

In another example, station 4200 has Precedence Call Waiting and Standard Call Waiting enabled. If that station is active on a precedence call of any level and a Routine precedence call comes in, Standard Call Waiting is applied to the call.

Precedence Call Waiting tones have three 100ms bursts, at 404Hz, separated by two 50ms periods of silence. This tone repeats every 10 seconds until the call is answered or the timeout occurs. The timeout is administrable from 10 to 60 seconds, with a default of 30 seconds.

When calls are redirected to an attendant console user that is active on a call, the Call Waiting lamp lights and the call is placed in the attendant queue based on the priority levels administered with the Precedence Calling feature. When the call is answered, a Call Purpose indicator displays to indicate the precedence level of the call. The following indicators are provided:

- FO - Flash Override
- FL - Flash
- IM - Immediate
- PR - Priority

NOTE:

Routine precedence calls do not have a call purpose indicator.

Considerations

Except for an S8300 Media Server, a Tone Clock circuit pack is required for this feature. On the DEFINITY server and IP600 IP Server, all tone clocks must be TN2182B or later, except when using MF 2/6 trunks, which require the TN2182C, Vintage 2 or later.

Precedence Call Waiting can be assigned to all models of telephones including IP hardphones and softphones.

Interactions

Attendant Console Precedence Call Waiting calls from attendant consoles or stations with console permissions are not allowed. Calls from an attendant console cannot camp on to a call with Precedence Call Waiting. The attendant console user hears a recorded announcement.

Automatic Callback If the Automatic Callback feature is activated and Precedence Call Waiting is attempted, the caller hears a recorded announcement.

Call Forwarding An extension can have Precedence Call Waiting and Call Forwarding active at the same time. If the user is active on a call and another call comes in, the called party will hear Precedence Call Waiting tone and the call is forwarded after the timeout. Any other calls that arrive during the timeout period go immediately to the forwarded station.

Call Pickup If a member of a pickup group active on a call receives Precedence Call Waiting, other members of the pickup group cannot pick up the call.

Call Waiting For a Routine Precedence Call, a user on an active call will hear the standard Call Waiting tone.

Precedence Call Waiting is denied if the called party already has one call currently waiting in queue (either Standard Call Waiting or Precedence Call Waiting).

Data Privacy Precedence Call Waiting cannot be applied to a line with Data Privacy.

Data Restriction Precedence Call Waiting cannot be applied to a line with Data Restriction.

Line Load Control A user whose station is restricted by the LLC feature must hang up to answer a Precedence Call Waiting call.

Preemption Higher level precedence calls will always preempt lower precedence calls regardless of how Precedence Call Waiting is administered.

Tenant Service Partitioning This feature operates as described except that timeout redirection will not occur. The call will continue to ring at the called extension.

Administration

Enabling Precedence Call Waiting for a station

change station **XXXX** (where **XXXX** is an extension number)

Use the following form to enable or disable Precedence Call Waiting for each station. The default assignment for each station is **y** (enabled). Please note that this example is for a digital station. Forms for other stations have the Precedence Call Waiting field but are arranged differently.

```

change station 6001                                     Page 2 of 4 SPE A
                                                    STATION
FEATURE OPTIONS
  LWC Reception: msa-spe          Auto Select Any Idle Appearance? n
  LWC Activation? y              Coverage Msg Retrieval? y
  LWC Log External Calls? n      Auto Answer: none
  CDR Privacy? n                Data Restriction? n
  Redirect Notification? y       Idle Appearance Preference? n
  Per Button Ring Control? n
  Bridged Call Alerting? n       Restrict Last Appearance? n
  Active Station Ringing: single
                                     H.320 Conversion? n
                                     Per Station CPN - Send Calling Number?
  Service Link Mode: as-needed
  Multimedia Mode: basic
                                     Display Client Redirection? n
                                     Select Last Used Appearance? n
                                     Coverage After Forwarding? s
                                     Direct IP-IP Audio Connections? y
                                     IP Audio Hairpinning? y
Emergency Location Ext: 6001
Precedence Call Waiting? y

```

Setting the Precedence Call Waiting timeout

```
change system-parameters mlpp
```

Use the following form to set the Precedence Call Timeout. The valid values are **10** to **60** seconds, with a default of **30** seconds.

```
change system-parameters mlpp                                     Page 1 of 1
                                MLPP SYSTEM PARAMETERS

                                MULTIPLE LEVEL PRECEDENCE PREEMPTION PARAMETERS
ANNOUNCEMENTS
    Blocked Precedence Level: 2801                               Service Interruption: 2803
    Unauthorized Precedence Level: 2802                         Busy, Not Equipped: 2804
    Vacant Code: 2805
PRECEDENCE CALLING-DIALED DIGIT ASSIGNMENT
    Flash Override: 0 Flash: 1 Immediate: 2 Priority: 3 Routine: 4

    Attendant Diversion Timing (sec): 60
    Remote Attendant Route String:
Worldwide Numbering Dial Plan Active? y           Default Route Digit: 0
    Precedence Call Timeout (sec): 30
    Line Load Control Restriction Level: 0
    WNDP Emergency 911 Route String:
    Default Service Domain: 0
    ISDN Precedence Call Timeout (sec): 30
```

Assigning feature access codes

```
change feature-access-codes
```

For users on single-line analog telephones to answer a Precedence Call Waiting call, you must assign the CAS Remote Hold/Answer Hold-Unhold feature access code.

```
change feature-access-codes                                     Page 1 of 8
                                FEATURE ACCESS CODE (FAC)
    Abbreviated Dialing List1 Access Code: #01
    Abbreviated Dialing List2 Access Code: #02
    Abbreviated Dialing List3 Access Code: #03
    Abbreviated Dial - Prgm Group List Access Code: #04
    Announcement Access Code: #05
    Answer Back Access Code: #14
    Attendant Access Code:
    Auto Alternate Routing (AAR) Access Code: 8
    Auto Route Selection (ARS) - Access Code 1: *9             Access Code 2: *33
    Automatic Callback Activation: #55                         Deactivation: *55
    Call Forwarding Activation: #44                           Deactivation: *44
    Call Park Access Code: #76
    Call Pickup Access Code: #33
CAS Remote Hold/Answer Hold-Unhold Access Code: #57
    CDR Account Code Access Code:
    Change COR Access Code:
    Change Coverage Access Code:
    Contact Closure Open Code:                               Close Code:
    Contact Closure Pulse Code:
```

Precedence Routing

Precedence Routing routes Precedence Calls to a trunk group based on the dialed digits. Calls of lower precedence may be preempted if all facilities are busy (see [Preemption](#) on page 54).

Detailed description

Precedence Routing routes precedence calls based on several criteria:

- Calls may be routed using a particular trunk group based on the destination (dialed) number. A route is selected based on the digits specified on the Precedence Digit Analysis administration form. The precedence digit is included as part of the analyzed digits to allow routing based on different precedence levels.
- Calls may be routed based on a precedence level digit dialed as part of the telephone number. The digits are administrable and include the following levels (from highest priority to lowest):
 - Flash Override
 - Flash
 - Immediate
 - Priority
 - Routine
- Calls may be routed based on the time of day. The system provides eight different time-of-day routing plans. Each plan allows up to six time-of-day route changes. Time-of-day routing is an optional feature that must be purchased by the customer.

Precedence Routing also allows modification of digits based on the trunk group selected within a routing pattern. This allows the outpulsed digits to be changed (if necessary) for different trunk groups.

NOTE:

Precedence Routing is similar to the Automatic Route Selection (ARS) feature, both in functionality and in administration. A working knowledge of ARS will help to understand and administer Precedence Routing.

A call scenario for Precedence Routing is as follows:

- 1** A user dials the Precedence Calling FAC followed by a precedence level digit (0-4).
The system checks the COR for this caller to determine if they are allowed to place a call of this precedence level. If the user is not allowed to use the precedence level requested, intercept tone or an announcement is heard. If the call is allowed, continue with [Step 2](#).
- 2** The user dials the DSN telephone number.
The telephone number (also known as the address digits) is checked against the precedence routing translations to determine what route is best suited for the call. If a trunk is available, the call is routed to its destination.

If no trunks are available, the system checks to see if there is a call of lower precedence that can be preempted. If a lower-precedence call is found, that call is preempted (dropped) and the new call is routed to its destination over the preempted access line. See [Preemption](#) on page 54.

If an idle trunk or preemptable trunk are not found, the caller hears a recorded announcement or reorder tone.

NOTE:

Calls with Routine precedence cannot preempt any other calls. If a call with Routine precedence fails to find an idle trunk, the caller hears busy tone.

Considerations

The routing administered with Precedence Routing uses the same capacity tables as the ARS feature (patterns, analysis tables, and so on). You can view the real-time capacity usage with the **change precedence-routing analysis** command. The **Percent Full** field displays how much of the available capacity is being used for routing information.

H.323 IP trunks do not support data calls using any type of modem or data module. Do not administer H.323 IP trunks for users that make data calls over trunk facilities. H.323 IP trunks can be used for voice calls.

Interactions

General Precedence Routing allows calls with precedence higher than Routine to terminate to trunks, stations, attendant consoles, hunt groups, and recorded announcements. Precedence Routing calls cannot terminate at Vector Directory Numbers (VDNs) and Terminating Extension Groups (TEGs).

Call Detail Recording (CDR) No separate CDR field will be supplied for the precedence level of a call. This would create an incompatibility between current call accounting software and the new call record format. Using the current call record format, the precedence level of a call may be determined by examining the call record for the Precedence Calling FAC. If the call is a precedence call, the first digit of the address dialed indicates the precedence level of the call. If WNDP is active, only the FAC needs to be examined as the precedence is implied from the FAC. The precedence level for a station-to-station call is not recorded by CDR.

CDR can be administered to record either the dialed digits or the outpulsed digits. In the case of Precedence Routing, the outpulsed digits may appear dramatically different than the dialed digits. With outpulsed digits, the precedence level digit may or may not be recorded based on the characteristics of the trunk group. With dialed digits, the precedence level digit will be recorded. Keep this in mind when viewing CDR records.

Shortcut Dialing When using the Shortcut Dialing feature over DSN trunks, the incoming Shortcut Dialing digit analysis is administered using the Precedence Routing analysis tables instead of the ARS analysis tables. See [Assigning digit analysis](#) on page 51 for more information.

Traveling Class Marks Precedence Routing will pass all Traveling Class Mark (TCM) information over DSN and non-DSN trunks.

Administration

This section contains procedures for administering Precedence Routing when the local and remote DSN nodes are both Avaya communication servers. The following appendixes contain additional routing administration:

- For trunk administration when connecting local DS1 trunks to a DSN node that is using an Avaya communication server, see [Administration when connecting between Avaya communication servers](#) on page 67.
- For administration procedures when connecting local DS1 trunks to a DSN node that is using a Nortel switch, call your service representative.
- For administration procedures when connecting local DS1 trunks to a DSN node that is using a Siemens switch, call your service representative.

Assigning digit analysis

change precedence-routing analysis **X**, where **X** is the digit (or digits) being analyzed

Use the following form to assign Precedence Routing digit analysis. Digit analysis determines what routes are used for outgoing calls based on the digits dialed.

NOTE:

Except for the Preempt Method, the digit analysis administration is the same as ARS/AAR digit analysis.

```

change precedence-routing analysis 0                               Page 1 of 2   SPE A
PRECEDENCE ROUTING DIGIT ANALYSIS TABLE
                                Percent Full:    22

```

Dialed String	Total		Route	Preempt
	Min	Max	Pattern	Method
002383	9	9	36	group
002385	9	9	35	group
002388	9	9	86	group
003032383	12	12	36	group
003032388	12	12	86	group
003033383	12	12	34	group
003033388	12	12	84	group
003034383	12	12	32	group
003034388	12	12	82	group
003035383	12	12	30	group
003035388	12	12	80	group
003383	9	9	34	group
003385	9	9	33	group
003388	9	9	84	group
004383	9	9	32	group

The **Dialed String** field requires the following format for routing DSN numbers:

- For precedence dialing (non-WNDP dialing), enter the precedence digit (typically 0-4) and the address digits.
- For WNDP dialing, enter the precedence digit (typically 0-4), the route code, and the address digits.
- An **x** in the digit string is a wildcard that matches on any single digit.

The **Preempt Method** field has two possible values: **group** and **route**. The default preemption is **group**.

Group preemption

For example, trunk groups 1, 2, and 3 are set up as follows:

- Trunk group 1 has two trunk members active with Flash and Flash Override precedence calls.
- Trunk group 2 has two trunk members active with Immediate and Priority precedence calls.
- Trunk group 3 has two trunk members, both idle.

A new call is made with the Flash precedence level. The call is processed as follows:

- Trunk group 1 is checked for an idle trunk and one is not found. Trunk group 1 is then checked for a preemptable active call and one is not found.
- Trunk group 2 is checked for an idle trunk and one is not found. Trunk group 2 is then checked for a preemptable active call. Both calls are preemptable. The new Flash call will preempt the first trunk member it finds with a lower precedence level in trunk group 2. In this example, the new Flash call will preempt the Immediate call.
- Trunk group 3 is never checked even though it has idle trunks.

Route preemption

For example, trunk groups 1, 2, and 3 are set up as follows:

- Trunk group 1 has two trunk members active with Flash and Flash Override precedence calls.
- Trunk group 2 has two trunk members active with Immediate and Priority precedence calls.
- Trunk group 3 has two trunk members, both idle.

A new call is made with the Flash precedence level. The call is processed as follows:

- Trunk group 1 is checked for an idle trunk and one is not found.
- Trunk group 2 is checked for an idle trunk and one is not found.
- Trunk group 3 is checked for an idle trunk and one is found. The new Flash call is completed using the first idle trunk.

Assigning route patterns

change route-pattern *XX* (where *XX* is a route pattern from the digit analysis form)

Use the following form to assign routing patterns for the digit analysis tables. These routing patterns are used for outgoing calls.

For DSN trunks that have the **Precedence Mode Outgoing** field set for DTMF, you must delete one digit or the precedence level digit will be sent twice.

```
change route-pattern 36
```

Page 1 of 1

Pattern Number: 36

Grp. No.	FRL	NPA	Pfx Mrk	Hop Lmt	Toll List	No. Del	Inserted Digits	DCS/ QSIG Intw	IXC
1:	15	0					1	n	user
2:	12	1					1	n	user
3:	7	0					1	n	user
4:	22	0					1	n	user
5:								n	user
6:								n	user

BCC	VALUE	TSC	CA-TSC	ITC	BCIE	Service/Feature	BAND	No. Dgts	Numbering Format	LAR	
0	1	2	3	4	W	Request					
1:	y	y	y	y	y	n	n		rest	Subaddress	none
2:	y	y	y	y	y	n	n		rest		none
3:	y	y	y	y	y	n	n		rest		none
4:	y	y	y	y	y	n	n		rest		none
5:	y	y	y	y	y	n	n		rest		none
6:	y	y	y	y	y	n	n		rest		none

Assigning digit conversion

```
change precedence-routing digit-conversion
```

Use the following form to assign the Precedence Routing digit conversion. Digit conversion takes digits dialed on incoming calls and converts the digits to local telephone numbers, usually extension numbers.

```
change precedence-routing digit-conversion 0
```

Page 1 of 2

PRECEDENCE ROUTING DIGIT CONVERSION TABLE

Percent Full: 11

Matching Pattern	Min	Max	Del	Replacement String	Net	Conv
x2386	8	8	4		ext	n
x3032386	11	11	7		ext	n
x3033386	11	11	7		ext	n
x3034386	11	11	7		ext	n
x3035386	11	11	7		ext	n
x3386	8	8	4		ext	n
x4386	8	8	4		ext	n
x5386	8	8	4		ext	n
x6	5	5	1		ext	n
xx2386	9	9	5		ext	n
xx3032386	12	12	8		ext	n
xx3033386	12	12	8		ext	n
xx3034386	12	12	8		ext	n
xx3035386	12	12	8		ext	n

The **Matching Pattern** field requires the following format for routing DSN numbers:

- For precedence dialing (non-WNDP dialing), enter the precedence digit (typically 0-4) and the address digits
- For WNDP dialing, enter the precedence digit (typically 0-4), the route code, and the address digits.
- An **x** in the digit string is a wildcard that matches on any single digit.

Preemption

Preemption allows higher-precedence calls to preempt lower-precedence calls when all DSN facilities are busy. After the preempted call is disconnected, that same facility is reused for the preempting call. Even non-MLPP calls are treated as Routine level precedence calls and can be preempted. However, callers using the Routine precedence level cannot preempt any other calls since Routine is the lowest precedence level.

Detailed description

Preemption will preempt (disconnect) calls of lower precedence in order to complete a higher precedence call. Facilities (stations and trunks) can be administered as nonpreemptable or preemptable. The called party must be preemptable as defined by their COR. If the called party is not preemptable, the call cannot be preempted.

Stations are preempted based on just the assigned COR. Trunks are preempted based on the assigned COR and the type of preempt method administered in the Precedence Routing Digit Analysis Table as described on [Assigning digit analysis](#) on page 51.

When preemption occurs, all parties will be notified of the impending preemption with a tone (a loud 440 Hz and 620 Hz mixed tone for 3 seconds). If the preemption is being done to obtain a trunk, the preempt-for-reuse signal is sent over the signalling leads to inform the distant end that a preemption is in progress and the circuit (trunk) will be used for the new call.

If the preemption is being done to alert a user of a higher-precedence incoming call, the callers on the active call hear the preemption tone and are disconnected from the call. Though the call disconnects, the circuit is reserved for the preempting call. After the call disconnects, the called party is alerted to the new call with priority ringing.

Considerations

A Tone Clock circuit pack is required for this feature. All tone clocks must be TN2182B or later, except when using MF 2/6 trunks, which require the TN2182C, Vintage 2 or later.

The call progress tones used for Preemption are a fixed tone and pattern. The tones cannot be changed using the **change system-parameters country-options** command.

Interactions

General Calls that terminate at trunks, stations, attendant consoles, non-queued hunt groups, and Vector Directory Numbers (VDNs) can be preempted. Since Precedence Routing does not allow precedence calls to terminate at queued hunt groups or Terminating Extension Groups (TEGs), other calls to these facilities cannot be preempted.

Adjunct Switch Applications Interface (ASAI) ASAI is notified if a call is preempted and disconnected from the current call.

AUDIX system The AUDIX system is notified if a call is preempted and disconnected from the current call.

Call Detail Recording (CDR) CDR will have two records for a preempted call: the original call, and the new call after the preemption.

Call Management System (CMS) CMS is notified if a call is preempted and disconnected from the current call.

Call Coverage A call being redirected to a coverage point cannot be preempted.

Call Pickup A call using Call Pickup cannot be preempted.

Code Calling Access A call using Code Calling Access cannot be preempted.

CONVERSANT® system A CONVERSANT system is notified if a call is preempted and disconnected from the current call.

Group Paging A call that is part of a group page cannot be preempted.

Loudspeaker Paging A call using Loudspeaker Paging cannot be preempted.

Malicious Call Trace A call using Malicious Call Trace cannot be preempted.

Modem Pooling A call using a modem pool cannot be preempted.

Personal CO Line A call using a personal CO line cannot be preempted.

Precedence Calling When a precedence call attempts to preempt an existing call, call progress tones or the "blocked precedence call" announcement indicates why the call did not complete. The following table shows how precedence calls are processed depending on the precedence level of the call and the precedence level of the preempted trunk:

Precedence level of call	Precedence level of the DSN trunk call being preempted	Call treatment
Flash Override	Flash Override	Recorded announcement or busy tone
Flash	Flash Override	Recorded announcement or busy tone
Immediate	Flash Override	Recorded announcement or busy tone
Priority	Flash Override	Recorded announcement or busy tone
Routine	Flash Override	Busy tone
Flash Override	Flash	Call completes normally
Flash	Flash	Recorded announcement or busy tone
Immediate	Flash	Recorded announcement or busy tone
Priority	Flash	Recorded announcement or busy tone
Routine	Flash	Busy tone
Flash Override	Immediate	Call completes normally
Flash	Immediate	Call completes normally
Immediate	Immediate	Recorded announcement or busy tone
Priority	Immediate	Recorded announcement or busy tone
Routine	Immediate	Busy tone

Precedence level of call	Precedence level of the DSN trunk call being preempted	Call treatment
Flash Override	Priority	Call completes normally
Flash	Priority	Call completes normally
Immediate	Priority	Call completes normally
Priority	Priority	Recorded announcement or busy tone
Routine	Priority	Busy tone
Flash Override	Routine	Call completes normally
Flash	Routine	Call completes normally
Immediate	Routine	Call completes normally
Priority	Routine	Call completes normally
Routine	Routine	Busy tone

Precedence Call Waiting Higher level precedence calls will always preempt lower precedence calls regardless of how Precedence Call Waiting is administered.

Radio Paging A call using Radio Paging cannot be preempted.

Recorded Announcements A call connected to a recorded announcement cannot be preempted.

Secondary Extension A call using a secondary extension cannot be preempted.

Transient calls Calls in a transient mode (ringing, on hold) cannot be preempted.

Administration

Assigning Preemption to a COR

change cor X (where X is 0-95)

Use the COR form to define whether extensions or trunks assigned to a COR can be preempted from their current calls (the default is set to **y**).

```

change cor 1
                                     Page 2 of 4
                                CLASS OF RESTRICTION

                                MF Incoming Call Trace? n
                                Brazil Collect Call Blocking? n
                                Block Transfer Display? n
Block Enhanced Conference/Transfer Displays? y
                                Remote Logout of Agent? y

                                Station Lock COR: 1

                                Line Load Control: 3
Maximum Precedence Level: fo          Preemptable? y
MLPP Service Domain:
    
```

Assigning trunks for Preemption

add trunk-group **X** (where **X** is the trunk group number)

Use the trunk group form to identify a trunk group as a DSN termination endpoint (the default is **n**). For the Preemption feature, enabling a trunk as a DSN termination endpoint guarantees that the trunk is able to accept the Preemption signaling over the DSN.

```

change trunk-group 9                                     Page 2 of 10
                                     TRUNK FEATURES
      ACA Assignment? n                               Measured: none
      Internal Alert? n                               Maintenance Tests? y
      Data Restriction? n                             Glare Handling: none
      Used for DCS? n
      Suppress # Outpulsing? n
      Seize When Maintenance Busy: neither-end

Incoming Tone (DTMF) ANI: no                           Per Call CPN Blocking Code:
      Connected to CO? n                               Per Call CPN Unblocking Code:

DSN Term? y   Precedence Incoming? dtmf(a-d)   Precedence Outgoing? digit
  
```

Setting the Precedence Call timeout

change system-parameters mlpp

Use the following form to set the Precedence Call Timeout (**10 to 60** seconds; default is **30**).

```

change system-parameters mlpp                           Page 1 of 1
                                     MLPP SYSTEM PARAMETERS

                                     MULTIPLE LEVEL PRECEDENCE PREEMPTION PARAMETERS
ANNOUNCEMENTS
      Blocked Precedence Level: 2801                   Service Interruption: 2803
      Unauthorized Precedence Level: 2802               Busy, Not Equipped: 2804
      Vacant Code: 2805
PRECEDENCE CALLING-DIALED DIGIT ASSIGNMENT
      Flash Override: 0  Flash: 1  Immediate: 2  Priority: 3  Routine: 4

      Attendant Diversion Timing (sec): 60
      Remote Attendant Route String:
      Worldwide Numbering Dial Plan Active? y           Default Route Digit: 0
      Precedence Call Timeout (sec): 30
      Line Load Control Restriction Level: 0
      WNDP Emergency 911 Route String:
      Default Service Domain: 0
      ISDN Precedence Call Timeout (sec): 30
  
```

Worldwide Numbering and Dialing Plan

The Worldwide Numbering and Dialing Plan (WNDP) feature is compatible with the standard numbering system established by the Defense Communications Agency (DCA).

Detailed description

WNDP is a dialing system used in a DSN. WNDP is similar to Precedence Calling, but the pattern of digits that users dial is different. The format of the dialed digits is as follows:

FAC	Route code	Address digits		
		Area code	Office code	Extension number
A	[1X]	[NXX]	NXX	XXXX

Where:

A is a WNDP FAC for the precedence level

1 is the Route Code setup digit

X is any digit 0-9

N is any digit 2-9

[] denotes optional digits

- FAC - The FAC is the set of WNDP FACs. Each precedence level uses a distinct FAC.

_____ Flash Override

_____ Flash

_____ Immediate

_____ Priority

_____ Routine

- **Route Code** - After dialing the FAC, the user has the option of dialing a Route Code. The Route Code is a special purpose DSN code that permits the user to inform the communication server of special routing or termination requirements. For this release, the Route Code is limited to the DSN where it is used to determine whether a call will use data- or voice-grade trunking, or to indicate that the number dialed is either a Federal Telephone System (FTS) or a Continental U.S. (CONUS) commercial number. It is not necessary to dial the Route Code for voice calls if no special features are required.
 - The first digit of the Route Code (1) indicates that the next digit gives network instructions for specialized routing. If a Route Code is dialed, the "1" is deleted and the second digit is saved.
 - The second digit of the Route Code is called the Route Digit. The valid entries include the following:
 - 0=Voice call
 - 1=Data call
 - 5=Voice hot line call
 - 6=Data hot line call

This route digit becomes part of the dialed number and may be used for route selection using the Precedence Routing translations. Precedence Routing allows digit strings to be modified before outpulsing. This capability is used to modify the route code as needed by the terminating trunk group. If a Route Digit is not dialed, a default route digit is inserted as defined on the System Parameters MLPP form. The default route digit usually routes the calls over the voice network, not the data network.
- **Address Digits** - The Address Digits are the seven-digit or ten-digit DSN number.

The format of the outpulsed digits is as follows:

Precedence digit	Route code	Address digits		
		Area code	Office code	Extension number
P	[[1]X]	[NXX]	NXX	XXXX

The digit outpulsing is administrable using the Precedence Routing functionality (see [Precedence Routing](#) on page 49). This allows flexible routing of dialed numbers and the ability to modify the digits outpulsed as needed (for example, outpulsing no Route Digit, only the Route Digit, or "1" and the Route Digit). The digits sent to Precedence Routing will be of the form:

PRXXX...

where:

P is the Precedence Digit

R is the Route Code (if WNDP is active)

XXX... are the Address Digits

If a particular route requires the Route Code of the form 1X, the digit modification translations for the route can be used to insert the "1." If the route does not require the Route Digit, the digit modification can be translated to delete the Route Digit. The digit modification translations insert a default Route Digit if none is dialed.

Considerations

The Route Control Digit of WNDP is not available as part of the MLPP feature set. This is not the same as the Route Code digit.

Any destination telephone number that starts with a 1 (such as the extension 1500) must be dialed as follows: 1, Route Code digit, destination number. For example, this could be **1x1500**, where **x** is the Route Code digit.

H.323 IP trunks do not support data calls. Do not administer H.323 IP trunks for users that make data calls over trunk facilities. H.323 IP trunks can be used for voice calls.

Interactions

Emergency 911 Calling If WNDP dialing is administered to use the digits "91" as a FAC, this FAC conflicts with dialing 911 to reach an emergency service agency. That is, if a user dials 911 thinking the call will be connected to an emergency service agency, the call will not go through because the system is waiting for more digits after dialing 911. To work around this interaction, you can do any or all of the following:

- Instruct users to dial emergency calls by first dialing the ARS FAC followed by 911. For example, if the ARS FAC is 8, a user would dial 8911. This option works for any emergency numbers (for example, 999 in the United Kingdom).
- Instruct users to dial emergency calls by first dialing their assigned WNDP FAC followed by 911. For example, if one of the WNDP dialing FACs they use is 92, a user would dial 92911. This option works for any emergency numbers (for example, 999 in the United Kingdom).
- Administer a WNDP Emergency 911 Route String (see [Assigning WNDP system parameters](#) on page 61 for an example). This route string is outputted when a user dials either 911 and waits for the interdigit timeout, or dials 911 followed by #. This dialing option only works when the WNDP Flash FAC is 91.

NOTE:

If the station used for an emergency call does not have adequate calling permissions, the emergency call will not go through. This could happen in the following conditions:

- The Facility Restriction Level (FRL) of the station is not high enough.
- The precedence calling level of the station is not high enough.
- The station is not allowed to use a higher precedence level for the call.
- There are no available trunk facilities and the precedence level of the call is not high enough to preempt another call.
- The hop limit has been exceeded when call is routed over tandem trunks.

Hunting When administering a hunt group with preemption, set the **Maximum Preemption Level and Preemptable** fields in the COR form. The hunt group **Group Type** must use circular or ucd-mia queuing, and the **ACD**, **Queue**, and **Vector** fields must be set to **n**.

Precedence Calling When WNDP is enabled, users must dial a FAC for the precedence level they want to use. Users cannot use the Precedence Calling FAC. In addition, the route code function and implied precedence level are provided.

When WNDP is disabled, users must dial the Precedence Calling FAC, followed by the precedence level (0-4). The WNDP FACs can be administered, but cannot be used.

Administration

Assigning WNDP system parameters

```
change system-parameters mlpp
```

Use this form to assign the WNDP system parameters. The fields you can administer include:

- **Worldwide Numbering Dial Plan Active** - **y** or **n** (default is **n**)
- **Default Route Digit** - This field displays when the **Worldwide Numbering Dial Plan Active** field is enabled. A valid digit must be entered in this field. The valid entries include the following:
 - 0**=Voice call
 - 1**=Data call
 - 5**=Voice hot line call
 - 6**=Data hot line call
- **WNDP Emergency 911 Route String** - 1 to 24 numeric digits or blank (default is blank). See [Interactions](#) on page 60 for more information. Valid entries for this field can be a trunk access code, the AAR or ARS access code, a WNDP access code, or an extension (for example, the firehouse at a base that handles emergency calls). If a WNDP access code is used, it should be the access code for the lowest precedence calling level in the system.

```
change system-parameters mlpp                                     Page 1 of 1
                        MLPP SYSTEM PARAMETERS
                        MULTIPLE LEVEL PRECEDENCE PREEMPTION PARAMETERS
ANNOUNCEMENTS
  Blocked Precedence Level: 2801                               Service Interruption: 2803
  Unauthorized Precedence Level: 2802                         Busy, Not Equipped: 2804
  Vacant Code: 2805
PRECEDENCE CALLING-DIALED DIGIT ASSIGNMENT
  Flash Override: 0 Flash: 1 Immediate: 2 Priority: 3 Routine: 4
  Attendant Diversion Timing (sec): 60
  Remote Attendant Route String:
Worldwide Numbering Dial Plan Active? y           Default Route Digit: 0
  Precedence Call Timeout (sec): 30
  Line Load Control Restriction Level: 0
  WNDP Emergency 911 Route String: 94911
  Default Service Domain: 0
  ISDN Precedence Call Timeout (sec): 30
```

Assigning feature access codes

change feature-access-codes

Use the following form to add the WNDP Precedence FACs. Administer these FACs only when using WNDP dialing and not precedence dialing.

change feature-access-codes	Page 6 of 6
FEATURE ACCESS CODE (FAC)	
MLPP Features	
Precedence Calling Access Code: 8	
WNDP PRECEDENCE ACCESS CODES:	
Flash Override Access Code: 90	
Flash Access Code: 91	
Immediate Access Code: 92	
Priority Access Code: 93	
Routine Access Code: 94	

NOTE:

A Precedence Calling FAC must also be defined even when using WNDP Dialing. The Precedence Calling FAC is used when administering Precedence Routing trunks.

Assigning a Hot Line number

add station XXXX (where XXXX is the station number)

Use the station form to assign a Hot Line number. On a single-line telephone, you would assign a hot line destination using a system, group, or personal list assigned to the Hot Line Destination. On a multiappearance telephone, you would assign the hot line destination to an Abbreviated Dialing button on the telephone.

The Hot Line number must include the WNDP Dialing feature access code for the precedence level you want, 15 (for a Hot Line voice call) or 16 (for a Hot Line data call), plus the destination digits. For example, **90157208451111** would be a Flash Override (0) voice call (15) to 7208451111.

Assigning attendant queue priorities

change console-parameters

Use the console-parameters form, page 4, to assign attendant queue priorities for precedence calls and non-precedence calls. This determines how calls are queued to the attendant console. The following example shows the defaults for the system. You may want to change some of the defaults depending on the priority you want for processing calls.

```
change console-parameters                               Page 4 of 5  SPE A
                CONSOLE PARAMETERS

QUEUE PRIORITIES

      MLPP Precedence Call
      Flash Override: 2
                Flash: 3
      Immediate: 4
      Priority: 5
```



CAUTION:

By default, emergency access calls receive higher priority processing than MLPP Precedence Calls. You can change the order of priority, but be careful when designating emergency calls to equal or lower priority. Call types with equal priority enter the queue on a first-in, first-out basis.

NOTE:

Routine precedence calls are treated as normal calls and will use the same queue priorities as non-emergency and non-MLPP calls.

A Sample Telephone Service Request

A Telephone Service Request (TSR) is often used to convey configurations for DSN installations. The following table contains sample items found on TSRs.

TSR item number	Description	Typical settings
101/102	TSR Number	Variable
107/108	CCSD	Variable
110	Duplex Mode	Full duplex
111	Bit Rate	1.544 Mbps
115/116	Signaling Mode	2-way MF DTMF No signaling
126	Switch/Equipment Type	Avaya G3si
128/129	Line Interface/Framing Mode	ESF or D4
130	Site Point of Contact	Local contact person
212/404A	Maximum Calling Area Indicator	01=Global 02A=CONUS plus Pacific Area 02B=CONUS plus European Area 02C=CONUS plus Caribbean Area 03=CONUS only 05=Global with preset conferencing 06A=CONUS plus Pacific Area with preset conferencing 06B=CONUS plus European Area with preset conferencing 06C=CONUS plus Caribbean Area with preset conferencing 07=CONUS with preset conferencing
213/404A	Maximum Calling Area Precedence	0=Flash Override 1=Flash 2=Immediate 3=Priority 4=Routine 9=In Only
223/404A	Outpulse Digits	Variable

Sample Telephone Service Request

TSR item number	Description	Typical settings
225/404A	Incoming Precedence	Yes or No
404A	DSN Service Configuration	1=Access line signaling 2=DSN Prefix/NNX 3=Thousands Levels (1st digit of each level) 4=Outpulsed Digits (3, 4, 5, or 7 digits to PBX) 5=In Hunt (yes or no) 6=Operator Assistance Number 7=Access Code for DSN trunks 8=T-1 assignments

B Administration when connecting between Avaya communication servers

An Avaya communication server requires special trunk administration when communicating with another Avaya communication server. In addition, an Avaya communication server requires special administration when communicating to a non-Avaya switch, such as a Nortel SL100 or newer switch or a Siemens KNS or EWSD switch.

This section describes the trunk administration when communicating with another Avaya communication server.

NOTE:

Avaya recommends that you use consistent routing administration throughout your network, including trunk administration between Avaya communication servers and non-Avaya switches such as those of Nortel and Siemens. For more information, contact your services representative.

Information in this section includes:

- [Tie trunk groups](#) on page 67
- [DS1 circuit pack administration](#) on page 71

Tie trunk groups

change trunk-group XX (where **XX** is a trunk group number)

Administer the trunk groups with the following options:

Field	Value	
	Precedence Dialing	W NDP Dialing
Page 1		
Group Type	tie	tie
Trunk Type (in/out)	wink/wink	wink/wink
Outgoing Dial Type	"tone" or "mf2/6"	"tone" or "mf2/6"
Incoming Dial Type	"tone" or "mf2/6"	"tone" or "mf2/6"
Wink Timer (msec)	For land lines, use the default value (300). For satellite links, use a value from 1500 to 5000 msec. Satellite links must use TN464D or later DS1 circuit packs.	For land lines, use the default value (300). For satellite links, use a value from 1500 to 5000 msec. Satellite links must use TN464D or later DS1 circuit packs.
Digit Treatment	insertion	insertion

Administration when connecting between Avaya communication servers

Tie trunk groups

Field	Value	
	Precedence Dialing	WNDP Dialing
Digits	Enter the Precedence Calling FAC, even when using WNDP dialing	Enter the Precedence Calling FAC, even when using WNDP dialing
Page 2		
DSN Term	y	y
Precedence Mode Incoming	dtmf(a-d) ¹	dtmf(a-d) ¹
Precedence Mode Outgoing	dtmf(a-d) ¹	dtmf(a-d) ¹
Page 3		
Flash Length (msec)	Start with a value of 800. Increase this value as needed if trunk preemption is not working.	Start with a value of 800. Increase this value as needed if trunk preemption is not working.

1 If optioned for "dtmf(a-d)," a DTMF tone (touch-tone) is sent to represent the different precedence levels (a=Flash Override, b=Flash, c=Immediate, d=Priority). Routine calls do not send a DTMF tone.

The following is an example for Page 1 using Precedence Dialing.

```

change trunk-group 9                                     Page 1 of 20
                                     TRUNK GROUP
Group Number: 9                Group Type: tie                CDR Reports: y
Group Name: DSN DS1 TIE TO SD0    COR: 1                TN: 1                TAC: 709
Direction: two-way                Outgoing Display? y    Trunk Signaling Type:
Dial Access? y                    Busy Threshold: 99    Night Service:
Queue Length: 0                    Incoming Destination:
Comm Type: voice                    Auth Code? n
                                     Trunk Flash? n

TRUNK PARAMETERS
Trunk Type (in/out): wink/wink    Incoming Rotary Timeout(sec): 5
Outgoing Dial Type: tone            Incoming Dial Type: tone
Wink Timer(msec): 300                Disconnect Timing(msec): 500
Digit Treatment: insertion            Digits: 8
                                     Sig Bit Inversion: none
Connected to Toll? n                STT Loss: normal        DTT to DCO Loss: normal
Incoming Dial Tone? y

Disconnect Supervision - In? y    Out? n
Answer Supervision Timeout: 0        Receive Answer Supervision? y
    
```

The following is an example for Page 2 using Precedence Dialing.

```

change trunk-group 9                                     Page 2 of 20
                TRUNK FEATURES
          ACA Assignment? n          Measured: none
                Internal Alert? n      Maintenance Tests? y
          Data Restriction? n
                Glare Handling: none
          Used for DCS? n
          Suppress # Outpulsing? n
                Seize When Maintenance Busy: neither-end

Incoming Tone (DTMF) ANI: no          Per Call CPN Blocking Code:
          Connected to CO? n          Per Call CPN Unblocking Code:

DSN Term? y  Precedence Incoming? dtmf(a-d)  Precedence Outgoing? dtmf(a-d)

```

The following is an example for Page 3 using Precedence Dialing.

```

change trunk-group 9                                     Page 3 of 20
ADMINISTRABLE TIMERS

Incoming Disconnect(msec): 500          Outgoing Disconnect(msec): 500
Incoming Dial Guard(msec): 70          Outgoing Dial Guard(msec): 1600
Incoming Glare Guard(msec): 1500       Outgoing Glare Guard(msec): 1500

                                Outgoing Seizure Response(sec): 5
Programmed Dial Pause(msec): 1500     Disconnect Signal Error(sec): 240
Flash Length(msec): 800  Incoming Incomplete Dial Alarm(sec): 255

END TO END SIGNALING
          Tone(msec): 350          Pause(msec): 150

OUTPULSING INFORMATION
          PPS: 10          Make(msec): 40          Break(msec): 60

```

Administration when connecting between Avaya communication servers

Tie trunk groups

The following is an example for Page 1 using WNDP Dialing.

```
change trunk-group 9                                     Page 1 of 20
                                                    TRUNK GROUP

Group Number: 9                Group Type: tie                CDR Reports: y
Group Name: DSN DS1 TIE TO SD0  COR: 1                TN: 1                TAC: 709
Direction: two-way            Outgoing Display? y        Trunk Signaling Type:
Dial Access? y                Busy Threshold: 99            Night Service:
Queue Length: 0                Auth Code? n                Incoming Destination:
Comm Type: voice                Trunk Flash? n

TRUNK PARAMETERS
Trunk Type (in/out): wink/wink    Incoming Rotary Timeout(sec): 5
Outgoing Dial Type: tone          Incoming Dial Type: tone
Wink Timer(msec): 300            Disconnect Timing(msec): 500
Digit Treatment: insertion      Digits: 8
                                   Sig Bit Inversion: none
Connected to Toll? n          STT Loss: normal            DTT to DCO Loss: normal
Incoming Dial Tone? y

Disconnect Supervision - In? y Out? n
Answer Supervision Timeout: 0    Receive Answer Supervision? y
```

The following is an example for Page 2 using WNDP Dialing.

```
change trunk-group 9                                     Page 2 of 20
                                                    TRUNK FEATURES
ACA Assignment? n                Measured: none
                                   Internal Alert? n          Maintenance Tests? y
                                   Data Restriction? n
                                   Glare Handling: none
Used for DCS? n
Suppress # Outpulsing? n
Seize When Maintenance Busy: neither-end

Incoming Tone (DTMF) ANI: no      Per Call CPN Blocking Code:
Connected to CO? n                Per Call CPN Unblocking Code:

DSN Term? y  Precedence Incoming? dtmf(a-d)  Precedence Outgoing? dtmf(a-d)
```

The following is an example for Page 3 using WNDP Dialing.

```

change trunk-group 9                                     Page 3 of 20
ADMINISTRABLE TIMERS

    Incoming Disconnect(msec): 500                      Outgoing Disconnect(msec): 500
    Incoming Dial Guard(msec): 70                      Outgoing Dial Guard(msec): 1600
    Incoming Glare Guard(msec): 1500                   Outgoing Glare Guard(msec): 1500

                                                Outgoing Seizure Response(sec): 5
    Programmed Dial Pause(msec): 1500                   Disconnect Signal Error(sec): 240
    Flash Length(msec): 800    Incoming Incomplete Dial Alarm(sec): 255

END TO END SIGNALING
    Tone(msec): 350          Pause(msec): 150

OUTPULSING INFORMATION
    PPS: 10    Make(msec): 40    Break(msec): 60
    
```

DS1 circuit pack administration

change ds1 C_{ss} (where **C** is cabinet number and **ss** is slot number on CMC1, SCC1, or MCC1 port network supported by a DEFINITY Server, an S8100 Media Server, an S8500 Media Server or S8700 Media Server. For a G350 or G700 Media Gateway supported by an S8300, S8500, or S8700 Media Server, enter **change ds1 vx** (where **x** is slot 1 through 9).

Administer the DS1, E1, or ISDN circuits with the following options:

Field	Value		
	DS1	E1	ISDN
Page 1			
Name	Enter a name that describes the trunk		
Bit Rate	1.544	2.048	1.544
Line Coding	b8zs	hdb3	b8zs
Line Compensation	1	N/A	1
Framing Mode	esf	N/A	esf
Signaling Mode	"robbed-bit" or "common-chan"	CAS	isdn-pri
Connect	N/A	N/A	pbx
Interface	N/A	N/A	network
TN-C7 Long Timer	N/A	N/A	n
Interconnect	N/A	pbx	N/A
Country Protocol	N/A	Depends on country	Depends on country

Administration when connecting between Avaya communication servers

DS1 circuit pack administration

Field	Value		
	DS1	E1	ISDN
Interworking Message	N/A	N/A	PROGress
Protocol Version	N/A	N/A	a=AT&T b=Bellcore c=Nortel d=Nortel
Interface Companding	mulaw	alaw	mulaw
CRC	N/A	Varies (y, n)	Varies (y, n)
Idle Code	11111111	11111111	11111111
DMI-BOS	y (when Signaling Mode is common channel)	N/A	N/A
DCP/Analog Bearer Capability	N/A	N/A	speech
Slip Detection	n	n	y
Near-end CSU Type	"other" for external CSU or "integrated" for attached CSU	other	"other" for external CSU or "integrated" for attached CSU

Page 2 (DS1 and ISDN only)

All Leave at system defaults

The following form shows an example of Page 1 on a DS1 circuit.

```

change ds1 c19                                     Page 1 of 2   SPE A
                                     DS1 CIRCUIT PACK

      Location: 01C19                               Name: t1 com
      Bit Rate: 1.544                               Line Coding: b8zs
Line Compensation: 1                               Framing Mode: esf
      Signaling Mode: common-chan

Interface Companding: mulaw
      Idle Code: 11111111
      DMI-BOS? y

Slip Detection? n                               Near-end CSU Type: other
  
```

The following form shows an example of Page 2 on a DS1 circuit.

```
change ds1 c19                               Page 2 of 2   SPE A
                                         DS1 CIRCUIT PACK

ESF DATA LINK OPTIONS

Network Management Protocol: tabs
Send ANSI-T1.403 One-Second Performance Reports? n
Far-end CSU Address: b
```

The following form shows an example of Page 1 on an E1 circuit.

```
change ds1 c15                               Page 1 of 1   SPE A
                                         DS1 CIRCUIT PACK

Location: 01C15                               Name: E1 to Jester
Bit Rate: 2.048                               Line Coding: hdb3

Signaling Mode: CAS

Interconnect: pbx                             Country Protocol: 1

Interface Companding: alaw                     CRC? n
Idle Code: 11111111

Slip Detection? n                             Near-end CSU Type: other
```

The following form shows an example of Page 1 on an ISDN circuit.

```
change ds1 c17                               Page 1 of 2   SPE A
                                         DS1 CIRCUIT PACK

Location: 01C17                               Name: ISDN to FT. PIERCE
Bit Rate: 1.544                               Line Coding: b8zs
Line Compensation: 1                           Framing Mode: esf
Signaling Mode: isdn-pri
Connect: pbx                                   Interface: network
TN-C7 Long Timers? n                           Country Protocol: 1
Interworking Message: PROGRESS                 Protocol Version: a
Interface Companding: mulaw                     CRC? n
Idle Code: 11111111
                                         DCP/Analog Bearer Capability: speech

Slip Detection? y                             Near-end CSU Type: integrated
```

Administration when connecting between Avaya communication servers

Administration when connecting to Nortel and Siemens switches

The following form shows an example of Page 2 on an ISDN circuit.

```
change ds1 c17                                     Page 2 of 2 SPE A
                                         DS1 CIRCUIT PACK

ESF DATA LINK OPTIONS

      Network Management Protocol: tabs
Send ANSI-T1.403 One-Second Performance Reports? n
      Far-end CSU Address: b

INTEGRATED CSU OPTIONS

      Transmit LBO: 0db
      Receive ALBO: 26db
      Upon DTE LOS: loopback

CPE LOOPBACK JACK OPTIONS
      Supply CPE Loopback Jack Power? n
```

Administration when connecting to Nortel and Siemens switches

An Avaya communication server requires special administration when communicating to a non-Avaya switch, such as a Nortel SL100 or newer switch or a Siemens KNS switch.

NOTE:

Avaya recommends that you use consistent routing administration throughout your network, including trunk administration between Avaya communication servers and non-Avaya switches such as those of Nortel and Siemens. For more information, contact your services representative.

C Call progress tones

Call progress tones are sounds that you hear when placing calls. The following table describes the call progress tones.

Tone	Description	Pattern
Busy	The tone heard when the person you are calling is busy.	0.5 sec on, 0.5 sec off; repeated
Call Waiting	The tone heard when you are on a call on a single-line set, someone else calls you, and standard Call Waiting is applied to the call.	0.2 sec on, silence or 0.2 sec on, 0.2 sec off, 0.2 sec on, silence
Call Waiting ringback	The tone heard when you are calling someone that is active on a call, and standard Call Waiting is applied.	0.9 sec on, 0.2 sec off, 2.9 sec off; repeated
Confirmation	The three-burst tone heard after successfully using a FAC.	0.1 sec on, 0.1 sec off; repeated three times followed by silence
Dial	The tone heard when you go off-hook.	Continuous
Intercept	The two-level tone heard when a call or FAC is not accepted. This is also known as siren tone.	0.25 sec on (440 Hz), 0.25 sec off (620 Hz); repeated
Precedence Call Waiting	The tone heard when you are on a call, someone else calls you, and Precedence Call Waiting is applied to the call.	0.1 sec on, 0.05 sec off, 0.1 sec on, 0.05 sec off, 0.1 sec on; repeated every 10 seconds or until timeout occurs
Precedence Call Waiting ringback <i>and</i> Precedence Calling ringback	The tone heard when you are calling someone that is active on a call, and Precedence Call Waiting is applied, <i>and</i> the special ringing tone heard after placing a precedence call.	1.65 sec on, 0.35 sec off; repeated
Preemption Warning	The tone heard by all parties on a call that is about to be preempted.	Mixed 440 Hz and 620 Hz tone for 3 seconds
Reorder	The fast busy tone heard when calling facilities are not available or are out of order.	0.25 sec on, 0.25 sec off; repeated
Ringback	The normal ringing tone heard after you dial a telephone number not using Precedence Calling.	1 sec on, 3 sec off; repeated

D Ringing patterns

Different ringing patterns are used to represent different features. The following table describes the ringing patterns you will hear on your station.

Ringing	Description	Pattern
Normal	The ringing heard for an incoming call.	Single-burst for internal calls; two-burst for external calls
Precedence	The ringing heard for incoming calls with a special precedence level.	Three-burst
Priority	The ringing heard when the caller uses Priority Calling.	Three-burst

Glossary

A

AAR
Automatic Alternate Routing

ARS
Automatic Route Selection

C

CCSA
Common Control Switching Arrangement

CO
Central Office

CONUS
Continental US

COR
Class of Restriction

COS
Class of Service

D

DS1
Digital Signaling One

DSN
Defense Switched Network

DTMF
Dual-tone multifrequency (equivalent to touch-tone)

Dual Homing
Allows a user to dial a telephone number and have the call route to its destination over alternate facilities if the initial route is unavailable. This operation is transparent to the user and no special dialing is required.

E

ECS
Enterprise Communications Server

EO
End Office

E&M
Ear and Mouth

F

FAC

Feature access code

FTS

Federal Telephone System

G

G3csi or DEFINITY Server CSI

Software image used with the compact modular cabinet (CMC).

G3r or DEFINITY Server R

Software image used with either the multi-carrier cabinet (MCC) or single-carrier cabinet (SCC).

G3si or DEFINITY Server SI

Software image used with the SCC.

L

Line

For an Avaya communication server, a line is defined as the port used to connect stations to the communication server. On a CO system, lines connect stations to the communication server, but lines also connect communication servers to other communication servers.

Line Hunting

Automatically hunts for an idle trunk over End Office access lines based on the precedence level of the call.

Line Load Control (LLC)

Invokes origination restriction for a group of stations to help control traffic levels and increase performance on the communication server.

Local Attendant

The attendant console that is physically located with the local communication server. If a local attendant is not administered, attendant-seeking calls may be directed to a remote attendant.

M

MF 2/6

Inband multifrequency pulse signaling used for transmission of address information using an encoding of 2 out of 6 frequencies to convey digit information. This is not a compelled protocol.

MLPP

Multiple Level Precedence and Preemption

N

NANP

North American Numbering Plan

Nonpreemptable Group

A trunk group that cannot be preempted by a precedence call.

P

PCOL

Personal Central Office Line

Precedence Calling

Allows users to place calls using five different precedence (priority) levels.

Precedence Routing

Allows the system to route Precedence Calls to a trunk group based on the dialed telephone number or a precedence level digit, or both.

Preemption

Allows higher-precedence calls to preempt lower-precedence calls when all facilities on the DSN are busy.

PBX

Private Branch Exchange

R

Reuse

Allows trunks that have been preempted to be reused for a new call.

Remote Attendant

The attendant console that is physically located on a remote communication server. Calls from one communication server can be administered to redirect to a remote attendant if a local attendant is not administered.

S

SAT

System Administration Terminal

T

TAC

Trunk access code

Trunk

For an Avaya communication server, the ports that connect the system to a CO communication server or to other communication servers.

W

WNDP

Worldwide Numbering and Dialing Plan

Index

A

Administration

- Announcements, [24](#), [25](#)
 - Attendant Diversion Timing, [38](#)
 - Console Queue Priority, [41](#), [63](#)
 - COR Service Domain, [39](#)
 - Default Route Digit, [61](#)
 - Digit Analysis, [51](#)
 - Digit Conversion, [53](#)
 - DS1 Circuit Packs, [71](#)
 - DSN Termination, [40](#), [57](#), [62](#), [67](#)
 - Feature Access Codes, [38](#), [48](#), [62](#)
 - Line Load Control, [31](#)
 - LLC COR Level, [32](#)
 - LLC System Level, [31](#)
 - Maximum Precedence Level, [39](#)
 - Precedence Call, [38](#)
 - Precedence Call Timeout, [48](#), [57](#)
 - Precedence Call Waiting, [47](#)
 - Precedence Calling, [38](#)
 - Precedence Mode Incoming, [40](#), [67](#)
 - Precedence Mode Outgoing, [40](#), [67](#)
 - Precedence Routing, [51](#)
 - Preemption, [56](#)
 - Remote Attendant Route String, [38](#)
 - Route Patterns, [52](#)
 - System Service Domain, [38](#)
 - Trunk Groups, [67](#)
 - WNDP, [61](#)
 - WNDP Plan Active, [61](#)
 - WNDP Route String, [61](#)
- Announcements for Precedence Calling, [23](#)
- Administer, [25](#)
 - Recording, [26](#)
 - Saving, [27](#)
 - Suggested Wording, [26](#)
- Attendant Diversion Timing, [34](#), [38](#)
- Audience, [9](#)
-

C

- Call Progress Tones, [75](#)
 - Call Purpose Indicators, [34](#)
 - Circuit Packs
 - DS1 Trunk, [71](#)
 - Console Queue Priority, [41](#), [63](#)
 - Conventions, [10](#)
-

D

- Default Route Digit, [59](#), [61](#)
 - Dialing Pattern
 - Precedence Calling, [33](#)
 - WNDP, [58](#)
 - Digit Analysis, [51](#)
 - Digit Conversion, [53](#)
 - DS1 Circuit Packs, [71](#)
 - DSN Termination, [40](#), [67](#)
 - Dual Homing, [27](#)
-

E

- Emergency 911 Calling, [60](#)
 - End Office Access Line Hunting, [28](#)
-

I

- Introduction, [13](#)
-

L

- Line Load Control, [15](#), [29](#)
 - COR Level, [32](#)
 - System Level, [31](#)
 - Lockdown. See Line Load Control
-

M

- Maximum Precedence Level, [39](#)
-

O

- Organization, [10](#)
 - Overview, [13](#)
-

P

Precedence Call Timeout, [38](#), [45](#), [48](#)
Precedence Call Waiting, [45](#)
Precedence Calling, [13](#), [32](#)
Precedence Mode Incoming, [40](#), [67](#)
Precedence Mode Outgoing, [40](#), [67](#)
Precedence Routing, [49](#)
Preemption, [14](#), [54](#)

Q

Quick-Reference Card, [11](#)

R

Recorded Announcements, [23](#)
Recording Announcements, [26](#)
Related Documents, [11](#)
Remote Attendant Route String, [34](#), [38](#)
Ringing Patterns, [77](#)
Route Patterns, [52](#)

S

Service domain
 effect on precedence and preemption, [41](#)
Service Domain, COR, [39](#)
Service Domain, System, [38](#)
Service domains, [41](#)
Shortcut Dialing, [50](#)

T

Telephone Service Request, [65](#)
Timeout for Precedence Call Waiting, [45](#)
Traveling Class Marks, [50](#)
Trunk Groups, [67](#)
 Tie, [67](#)
TSR, [65](#)

U

Update Circuit Packs, [17](#)
Upgrade paths, [21](#)
Upgrading software, [20](#)
User Operation, [11](#)

W

W NDP, [58](#)
 Address Digits, [59](#)
 Route Code, [59](#)
 Route Control Digit, [60](#)
W NDP Emergency 911 Route String, [60](#)
W NDP Route String, [61](#)
Worldwide Numbering and Dialing Plan, [58](#)