
Access Restrictions

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Feature description

Access Restrictions limit terminal access to the exchange network, private network, and certain services and features.

Access Restrictions can be temporarily overridden by the use of other features, if equipped, including Forced Charge Account, Authorization Code, and System Speed Call.

During the call origination process, access checks are made by the system on the following:

- the Class of Service (CLS) of the individual terminal
- the Trunk Group Access Restriction (TGAR) code of the terminal if a direct trunk access code is dialed or as an optional feature when a Basic Alternate Route Selection (BARS) or Network Alternate Route Selection (NARS) access code is dialed
- the area and exchange codes dialed by terminals with Toll Denied or Conditionally Toll Denied Class of Service using direct trunk access codes and Code Restriction tables, and
- the Network Class of Service (NCOS) of the terminal if BARS/NARS or Coordinated Dialing Plan (CDP) access codes are dialed or if direct

trunk access codes are dialed and New Flexible Code Restriction tables are programmed.

If any restrictions are detected when a call is placed, the call is given intercept treatment as defined in the Customer Data Block.

Class of Service restrictions

The Class of Service restrictions assigned to telephones and TIE trunks control the degree of access to and from external networks and certain features within the system. The eight possible Class of Service Access Restrictions are described in this feature module. These restrictions are applied by service change overlay programs to terminals. [Table 1 "Type of terminal and the corresponding overlay program for configuring Class of Service restrictions" \(page 154\)](#) lists the type of terminals and the corresponding overlay program.

Table 1
Type of terminal and the corresponding overlay program for configuring Class of Service restrictions.

Terminal Type	Overlay
Analog (500/2500 type) telephone	10
Meridian 1 proprietary telephones, Meridian Mail channels	11
Incoming TIE trunks	14
Authorization Codes	88
DISA ports	24

Descriptions of the eight Class of Service Access Restrictions follow, from the most restricted to the least restricted.

Fully Restricted Service

There are three levels of Fully Restricted Service:

- FR2
 - allowed to originate and receive internal calls
 - denied access to TIE and Common Controlled Switching Arrangement networks
 - denied access to and from the exchange network, either by dialing, through an attendant, or using call modification from an unrestricted telephone

Call modification takes place when certain features are activated while a call is in progress (for example, Call Park, Call Pickup, Call Transfer, Conference, or Night Answer).

- FR1
 - allowed to originate and receive internal calls
 - allowed access to TIE and CCSA networks
 - denied access to and from the exchange network, either by dialing through an attendant or by using call modification from an unrestricted telephone

Note: In a networking environment, incoming and outgoing calls can be extended, through call modification, to a telephone with CLS = FR1.

If a telephone with CLS = FR1 is in a Multiple Appearance DN (MADN) arrangement, the call may be presented if at least one of the telephones has CLS = UNR. Once the call is presented, it will ring all telephones in the MADN group. However, only UNR telephones can answer the call.

- FRE
 - FRE
 - allowed to originate and receive internal calls
 - allowed access to TIE and CCSA networks
 - allowed access to and from the exchange network using call modification from an unrestricted telephone
 - denied access (either by dialing or through an attendant) to and from the exchange network

Note: The FRPT prompt in LD 17 allows or denies access to incoming calls for FRE CLS telephones. It allows FRE calls to Call Pickup, Night Answer, and to receive modified calls.

- allowed to originate and receive internal calls
 - allowed access to TIE and CCSA networks
 - allowed access to and from the exchange network using call modification from an unrestricted telephone
- denied access (either by dialing or through an attendant) to and from the exchange network

Note: The FRPT prompt in LD 17 allows or denies access to incoming calls for FRE CLS telephones. It allows FRE calls to Call Pickup, Night Answer, and to receive modified calls.

The assignment of Incoming Call Indicator (ICI) keys allows the attendant to recognize which calls are fully restricted:

- DF0 = calls from FRE, FR1, and FR2 CLS, and
- DL0 = calls from CUN, CTD, TLD, SRE, and UNR CLS.

Semi-Restricted Service (SRE)

- allowed to receive calls from the exchange network
- restricted from all dial access to the exchange network
- allowed to access the exchange network through an attendant or an unrestricted telephone only

Toll Denied Service (TLD)

- allowed to receive calls from the exchange network
- allowed access to WATS trunks for toll calls using direct trunk access codes, unless New Flexible Code Restriction (NFCR) is programmed to deny certain digits
- denied from calls on Central Office/Foreign Exchange (CO/FX) trunks where 0 or 1 is dialed as a first or second digit following a direct trunk access code. Special numbers, such as 411, 611, and 911, are allowed by default unless restricted specifically by NFCR.
- denied from toll calls on CO/FX trunks when BARS or NARS access codes are dialed, unless NFCR tables allow the call
- allowed toll calls on WATS trunks using BARS or NARS access codes, unless NFCR tables deny digits
- allowed access to the toll exchange network through an attendant or an unrestricted telephone
- allowed toll calls and special number calls on TIE trunks, unless NFCR tables specifically deny certain digits. Direct trunk access to toll calls on TIE trunks is permitted, as well as BARS or NARS access.

Conditionally Toll Denied Service (CTD)

- allowed to receive calls from the exchange network
- allowed access to WATS trunks for toll calls using direct trunk access codes, unless New Flexible Code Restriction (NFCR) is programmed to deny certain digits
- denied from calls on CO/FX trunks where 0 or 1 is dialed as a first or second digit following a direct trunk access code (special numbers excepted). New Flexible Code Restriction tables can be used to deny or allow certain calls on these routes.

- allowed access to toll calls on CO/FX/WATS trunks placed using BARS or NARS or CDP access codes. NFCR tables, if programmed on the routes, are ignored for CTD users dialing Electronic Switched Network (ESN) access codes.
- allowed toll calls and special number calls on TIE trunks, unless NFCR tables specifically deny certain digits. Direct trunk access is permitted as well as BARS or NARS access. NFCR tables deny calls for these users only if direct TIE trunk access codes are used.

Conditionally Unrestricted Service (CUN)

- allowed access for calls placed through Automatic Number Identification (ANI) trunks
- denied access for all other types of outgoing calls

Unrestricted Service (UNR)

- allowed to originate and receive calls from the exchange network

The eight possible Class of Service Access Restrictions are described in Table [Table 2 "Class of Service Access Restrictions chart"](#) (page 157).

Table 2
Class of Service Access Restrictions chart

	UNR	CTD/CUN	TLD	SRE	FRE	FR1	FR2
Incoming trunk calls	Yes	Yes	Yes	Yes	No Yes, if using call modification. (See FRE)	No	No
Outgoing non-toll trunk calls	Yes	Yes	Yes	No direct access Yes, if using attendant or UNR telephone	No direct access Yes, if using UNR telephone	No	No

	UNR	CTD/CUN	TLD	SRE	FRE	FR1	FR2
Outgoing toll trunk calls (0 or 1+ on COT or FX)	Yes	No direct access Yes, if using BARS/NARS	No direct access Yes, if using attendant or UNR telephone	No direct access Yes, if using attendant or UNR telephone	No direct access Yes, if using UNR telephone	No	No
To/From TIE trunk	Yes	Yes	Yes	Yes	Yes	Yes	No
To/From internal	Yes	Yes	Yes	Yes	Yes	Yes	Yes
BARS/NARS calls TGAR = No	Uses NCOS only	Uses NCOS only	Uses NCOS and CLS	Uses NCOS and CLS	Uses NCOS and CLS	Uses NCOS and CLS	Uses NCOS and CLS
BARS/NARS calls TGAR = Yes	Uses NCOS and TGAR	Uses NCOS and TGAR	Uses NCOS, CLS, and TGAR	Uses NCOS, CLS, and TGAR	Uses NCOS, CLS, and TGAR	Uses NCOS, CLS, and TGAR	Uses CLS only

Code Restriction

Code Restriction allows limited access to the toll exchange network to stations and TIE trunks with a Toll Denied Class of Service (TLD). A Code Restriction Block that specifies the allowed area and exchange codes (200 through 999) is built for each trunk route. This block restricts access to specific area and exchange codes by monitoring the digits dialed.

There can be only one Code Restriction Block per route. The only routes that use Code Restriction Blocks are Central Office Trunk (COT) and FX, since they are toll routes. Code Restriction Blocks are ignored for all other types of routes.

When a telephone or TIE trunk with a CTD, CUN, or TLD Class of Service directly access a COT or FX route, the system examines the Code Restriction Block to determine the call eligibility.

Special numbers 01, 011, 411, 611, 800, and 911 are allowed by default. These special numbers, however, can be restricted in the Code Restriction Block so that they cannot be dialed successfully.

Code Restriction Blocks only perform three-digit screening. For 1+ dialing areas, the system can ignore the 1 when examining the TLD telephone dialed number. The 1 is later outpulsed with the dialed number to complete the call successfully.

Trunk Group Access Restriction

Trunk Group Access Restriction (TGAR) controls access to the exchange network, TIE trunks, CCSA trunks, and paging and dictation services.

Telephones (LD 10, LD 11), TIE trunks (LD 14), Direct Inward System Access (DISA) trunks (LD 24), Meridian Mail channels (LD 11), and Authorization Codes (LD 88) are assigned a TGAR code, which is used to block access to certain trunk groups entirely.

There can be up to 32 TGAR codes in use on a system (0-31).

When a telephone or TIE trunk dials the access code to a trunk route, the system first checks the Class of Service of the terminal. If access is allowed, the TGAR is checked next. If the TGAR of the originating terminal matches one of the listed Trunk Access Restriction Group (TARG) codes programmed against the trunk group, access is denied. Intercept treatment is given to denied calls. A list of TARG codes can be programmed in LD 16 against each route, where applicable, to block access by certain terminals.

Optionally, the TGAR can be used to block access to certain routes even when a BARS or NARS access code is dialed and the route is being seized. To enable/disable the TGAR option, the TGAR prompt must be defined in the Electronic Switched Network (ESN) data block in LD 86.

When denied access because of TGAR, a user may still gain access to a route through the attendant console or an unrestricted terminal.

If the attendant uses the Trunk Group Busy (TGB) keys on the console to make trunk groups busy, terminals with TGAR code 0-7 are intercepted to the attendant when they access the route by dialing or try to gain access using ESN access codes. Terminals with TGAR code 8-31 continue to have access to the route, unaffected by the activation of the TGB keys.

The default, TGAR code 1, means the terminal is Conditionally Toll Denied (CTD).

The following example further explains Trunk Group Access Restrictions. Assume a customer has seven trunk routes:

Trunk Group	Access denied to routes
Route 0	COT
1	WATS
2	FX 1
3	FX 2
4	TIE 1
5	TIE 2
6	Paging

Assume the following seven TGAR codes are required:

TGAR	Access denied to routes
0	No restrictions
1	0, 1, 2, 3, 4, 5, 6 (default)
2	2, 3, 4, 5
3	3, 4, 5
4	2, 6
5	3, 4, 5, 6
6	5, 6

The TGAR/TARG matrix summary is as follows:

Trunk Type	Route number	TARG Code
		0 1 2 3 4 5 6 7-31
COT	0	1
WATS	1	1
FX 1	2	1 2 4
FX 2	3	1 2 3 5
TIE 1	4	1 2 3 5
TIE 2	5	1 2 3 5 6
Paging	6	1 4 5 6

It follows from the matrix summary that a telephone or TIE trunk was assigned one of the following TGAR codes:

- 0 (has no restrictions)

- 1 (cannot access trunk routes 0 through 6)
- 2 (cannot access trunk routes 2 through 5)
- 3 (cannot access trunk routes 3 through 5)
- 4 (cannot access trunk routes 2 and 6)
- 5 (cannot access trunk routes 3 through 6)
- 6 (cannot access trunk routes 5 and 6)

Trunk signaling arrangements

Trunk-to-trunk connections are further controlled by the signaling and supervision arrangements assigned to each trunk. [Table 3 "Trunk signaling arrangements" \(page 161\)](#) summarizes the trunk signaling arrangements.

Table 3
Trunk signaling arrangements

From	To		
	Trunk with/ without disconnect supervision	Paging dictation trunk	Telephone (non-trunk)
Trunk with disconnect supervision	Yes	No	Yes
Trunk without disconnect supervision	No	No	Yes
RAN/Paging dictation trunk	No	No	No
Telephone	Yes	Yes	Yes
Note: Yes = connection allowed No = connection disallowed			

Two outgoing trunks cannot be connected unless a supervising party, local to the system, is conferenced in the call. This is true regardless of the supervisions.

Transfer from a supervised trunk to a non-supervised loop start trunk is not permitted.

Operating parameters

If a conflict exists between the Class of Service (CLS) and Trunk Group Access Restrictions (TGAR), the access denied restriction takes precedence.

Access Restrictions are applied through service change overlay programs. Access to telephone and trunk features is denied in the respective data block by allowing the system to default to a denial, by not entering the appropriate feature code, or by not assigning the feature to a key/lamp pair. You must enable the features and Access Restrictions you want, on a customer and telephone level.

Services such as paging and dictation can be restricted through TGAR codes, because the auxiliary equipment is linked to the system by way of trunks.

Feature interactions

AC15 Recall: Timed Reminder Recall

With call modification, a trunk-to-trunk connection is controlled by signaling, recall capability and the supervision assigned to each trunk. For example, an established call from an unsupervised trunk cannot be transferred over another trunk.

When the AC15 Timed Reminder Recall feature is to be activated, an established call with an unsupervised trunk may be extended over an AC15 trunk because the connection is controlled before the called party answers by the AC15 recall timer.

Call Park

A call can be parked on any DN, regardless of its Class of Service. Access to a parked call is governed by the same Class of Service restrictions for normal trunk-to-telephone call processing. [Table 4 "Parked call Access Restrictions." \(page 162\)](#) details the restrictions. These restrictions can be overridden with the Authorization Code.

Table 4
Parked call Access Restrictions.

Parked call type	Accessing telephone Class of Service		
	FRE	FR1	FR2
Telephone	allowed	allowed	allowed
CO/FX/WATS	denied	denied	denied
DID Trunk	denied	denied	denied
TIE trunk	allowed	allowed	denied

Call Pickup Network Wide

All Access Restrictions applicable to Network Alternate Route Selection (NARS)/Basic Alternate Route Selection (BARS) calls (including Class of Service, Network Class of Service, Trunk Barring (TBAR), and New Flexible Code Restriction (NFCR) restrictions based on digit manipulation) apply to a

redirected call from the receiving node to the requesting node. This means that there are no limitations added to the access restriction checks for calls being redirected by the Call Pickup Network Wide feature.

If the call is blocked because of any of these Access Restrictions on either the receiving, tandeming, or requesting node, the originally called party is re-rung and the party attempting to pick up the call receives overflow tone.

Digital Private Network Signaling System (DPNSS1)/Digital Access Signaling System (DASS2) Uniform Dialing Plan (UDP) Interworking

The connection between the network user (extension or trunk) and the DPNSS1 UDP trunk can be barred based on the Class of Service Restrictions of the parties involved. The connection between the network user (extension or trunk) and the DPNSS1 trunk can also be barred based on the Trunk Group Access Restrictions feature. It is possible to bar the connection between originator and terminator through a DPNSS1 UDP trunk based on the DPNSS1 signaling information.

The Code Restriction sub-feature is not supported.

Direct Inward System Access

Access Restrictions are assigned to the Direct Inward System Access (DISA) DN as they are to any station within the system. Separate Access Restrictions are also assigned to authorization codes used by DISA callers.

Group Hunt

If a routing-associated DN is programmed in a group hunt list, the Access Restrictions based on the Class of Service and/or TGAR of the calling station/route apply.

ISDN QSIG/EuroISDN Call Completion

ISDN QSIG/EuroISDN Call Completion does not override Access, Call Restriction or Trunk Group Access Restrictions. When Call Completion is activated, the second call has the same restrictions as the initial call that received either no answer or a busy indication.

New Flexible Code Restriction

The Code Restriction feature and New Flexible Code Restriction cannot be implemented simultaneously for the same customer.

Scheduled Access Restrictions

The Trunk Access Restriction Group (TARG) defined for each route is not altered by Scheduled Access Restrictions. Access to the route is denied to any telephone or trunk assigned a Trunk Group Access Restriction code that is part of the TARG.

Trunk Barring

Trunk Barring is at the top of the hierarchy for Access Restrictions.

Virtual Network Services

Any VNS call is subject to the same Class of Service restrictions as if the call was performed on a TIE trunk, regardless of the type of Bearer trunk used.

Trunk Group Access Restrictions (TGARs) do not apply to VNS, and therefore they never restrict a VNS call from being made.

Feature packaging

This feature is included in base system software.

Feature implementation**Task summary list**

The following is a summary of the tasks in this section:

1. "LD 10 – Define a Class of Service and TGAR code for analog (500/2500 type) telephones." (page 164)
2. "LD 11 – Define a Class of Service and TGAR code for proprietary telephones." (page 165)
3. "LD 14 – Define a Class of Service and TGAR code for trunks." (page 165)
4. "LD 88 – Assign a Class of Service to the Authorization Code classcode." (page 166)
5. "LD 86 – Enable or disable the Trunk Group Access Restriction (TGAR) option." (page 167)
6. "LD 24 – Assign a Class of Service to Direct Inward System Access (DISA) numbers." (page 167)
7. "LD 17 – Allow or deny incoming calls to telephones with the FRE Class of Service for all customers." (page 167)
8. "LD 16 – Add or change the TARG code for a trunk route." (page 168)
9. "LD 19 – Implement Code Restriction on trunk routes." (page 168)
10. "LD 16 – Define toll access digits that are to be ignored for Code Restriction." (page 169)

LD 10 - Define a Class of Service and TGAR code for analog (500/2500 type) telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	500	Telephone type.

Prompt	Response	Description
TN		Terminal Number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
TGAR	0-(1)-31	Trunk Group Access Restriction. The default of 1 automatically blocks direct access.
CLS	(CTD) UNR CUN TLD SRE FRE FR1 FR2	Conditionally Toll Denied (default). Unrestricted. Conditionally Unrestricted. Toll Denied. Semi-Restricted. Fully Restricted. Fully Restricted 1. Fully Restricted 2.

LD 11 - Define a Class of Service and TGAR code for proprietary telephones.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	a...a	Telephone type. Type ? for a list of possible responses.
TN		Terminal Number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
	c u	Format for Small System, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
TGAR	0-(1)-31	Trunk Group Access Restriction. The default of 1 automatically blocks direct access.
CLS	(CTD) UNR CUN TLD SRE FRE FR1 FR2	Conditionally Toll Denied (default). Unrestricted. Conditionally Unrestricted. Toll Denied. Semi-Restricted. Fully Restricted. Fully Restricted 1. Fully Restricted 2.

LD 14 - Define a Class of Service and TGAR code for trunks.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	TIE	TIE trunk.

Prompt	Response	Description
TN	ISA	Integrated Services Access trunk.
	CSA	Common Control Management Access Line.
		Terminal Number
	l s c u	Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit.
TGAR	c u	Format for Small System, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit.
	0-(1)-31	Trunk Group Access Restriction The default of 1 automatically blocks direct access.
CLS	X	Precede with X to remove
	(CTD)	Conditionally Toll Denied (default).
	UNR	Unrestricted.
	CUN	Conditionally Unrestricted.
	TLD	Toll Denied.
	SRE	Semi-Restricted.
	FRE	Fully Restricted.
	FR1	Fully Restricted 1.
	FR2	Fully Restricted 2.

LD 88 - Assign a Class of Service to the Authorization Code classcode.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	AUB	Authcode Data Block.
CUST	xx	Customer number, as defined in LD 15
SPWD	xxxx	Secure data password (see LD 15 for description).
CLAS	0-115	Classcode number.
CLS	(CTD)	Conditionally Toll Denied (default).
	UNR	Unrestricted.
	CUN	Conditionally Unrestricted.
	TLD	Toll Denied.
	SRE	Semi-Restricted.
	FRE	Fully Restricted.
	FR1	Fully Restricted 1.
	FR2	Fully Restricted 2.

Prompt	Response	Description
TGAR	0-(1)-31	Trunk Group Access Restriction. The default of 1 automatically blocks direct access.
NCOS	(0)-99	Toll Restricted.

LD 86 - Enable or disable the Trunk Group Access Restriction (TGAR) option.

Prompt	Response	Description
REQ	CHG	Change.
CUST	xx	Customer number, as defined in LD 15
FEAT	ESN	Electronic Switched Network.
...		
TGAR	(NO) YES	Do not check for Trunk Group Access Restrictions when a call is placed through BARS. Check for Trunk Group Access Restrictions when a call is placed through BARS.

LD 24 - Assign a Class of Service to Direct Inward System Access (DISA) numbers.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	DIS	Direct Inward System data block.
CUST	xx	Customer number, as defined in LD 15
SPWD	xxxx	Secure data password (see LD 15 for description).
DN	xxx...x	DISA Directory Number.
TGAR	0-(1)-31	Trunk Group Access Restriction. The default of 1 automatically blocks direct access.
NCOS	(0)-99	Network Class of Service.
CLS	(CTD) UNR CUN TLD SRE FRE FR1 FR2	Conditionally Toll Denied (default). Unrestricted. Conditionally Unrestricted. Toll Denied. Semi-Restricted. Fully Restricted. Fully Restricted 1. Fully Restricted 2.

LD 17 - Allow or deny incoming calls to telephones with the FRE Class of Service for all customers.

Prompt	Response	Description
REQ	CHG	Change.

Prompt	Response	Description
TYPE	PARM	System Parameters.
...		
FRPT	(NEFR) OLFR	(Deny) allow incoming trunk calls to telephones with FRE CLS, using call modification.

LD 16 - Add or change the TARG code for a trunk route.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	RDB	Route data block.
CUST	xx	Customer number, as defined in LD 15
ROUT		Route number of COT or FX
	0-511	Range for Large System and CS 1000E system.
	0-127	Range for Small System, Media Gateway 1000B, and Media Gateway 1000T.
		There can be only one Code Restriction Block for each COT or FX route.
CLR	ALLOW	Allow all NPA/NXX codes except those entered in response to the prompt DENY.
	DENY	Deny all NPA/NXX codes except those entered in response to the prompt ALLOW.
	<CR>	Used when REQ = CHG.
ALLOW	xxx xxx...	If CLR = DENY, enter the NPA/NXX codes (200-999) allowed.
DENY	xxx xxx...	If CLR = ALLOW, enter the NPA/NXX codes (200-999) denied.

LD 19 - Implement Code Restriction on trunk routes.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	CRB	Code Restriction Block.
CUST	xx	Customer number, as defined in LD 15
ROUT		Route number
	0-511	Range for Large System and CS 1000E system.

Prompt	Response	Description
	0-127	Range for Small System, Media Gateway 1000B, and Media Gateway 1000T.
OABS	x x x	Outgoing digits (0-9) to be ignored.

LD 16 - Define toll access digits that are to be ignored for Code Restriction.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	RDB	Route Data Block.
CUST	xx	Customer number, as defined in LD 15
ROUT		Route number
	0-511	Range for Large System and CS 1000E system.
	0-127	Range for Small System, Media Gateway 1000B, and Media Gateway 1000T.
OABS	x x x	Outgoing digits (0-9) to be ignored.

Feature operation

No specific operating procedures are required to use this feature.

