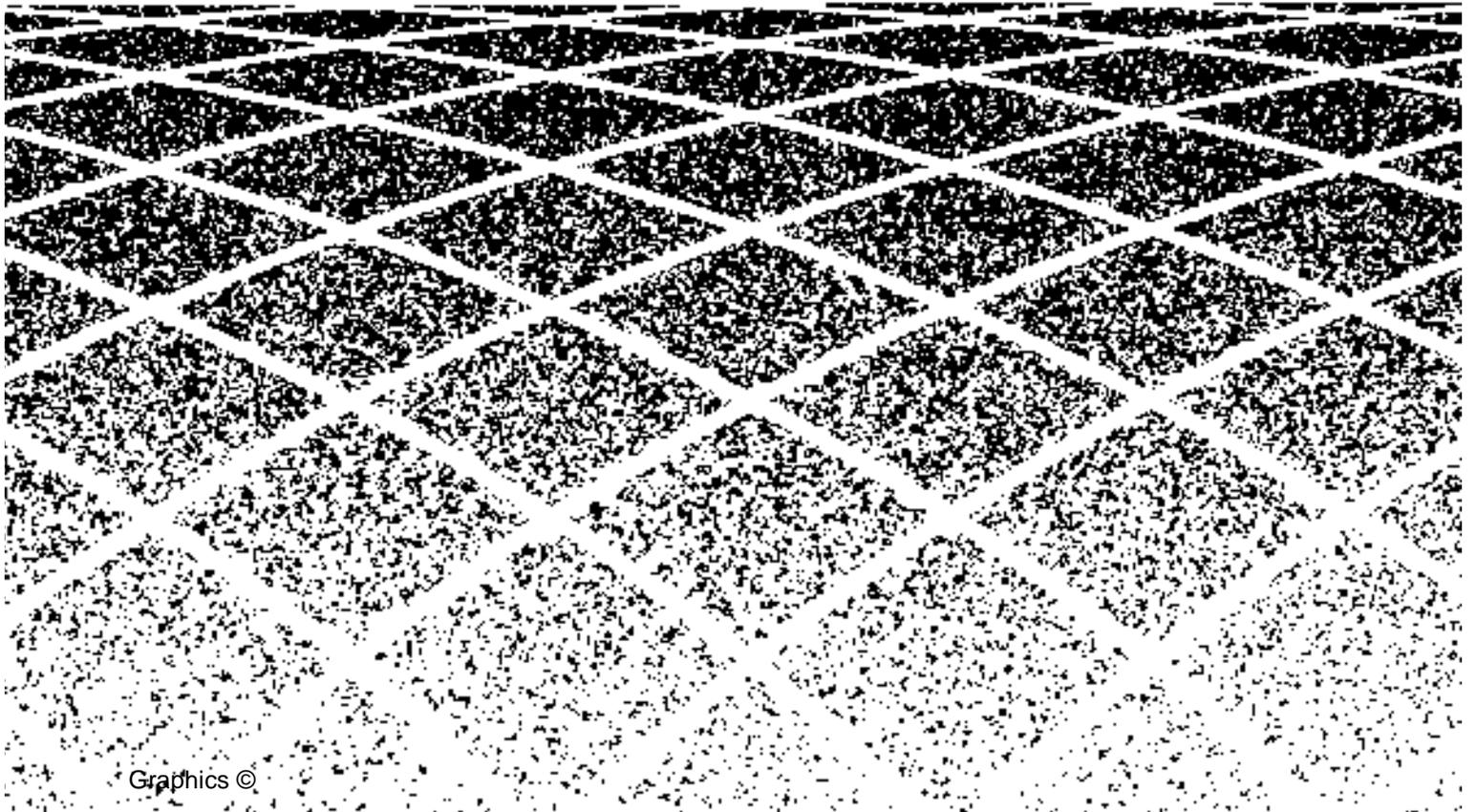




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# MultiPoint Control Unit System Administration and Reports





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## MCU Technology Overview

The AT&T MultiPoint Control Unit (MCU) Release 1.0 bridges multiple remote video endpoints onto a single video conference call. It is a multimedia product since it combines audio, data, and video.

Until recently, video endpoints, like the original fax machines, could only make contact with other video endpoints developed by the same manufacturer. This was due to the fact that the technology, both video telephony and video conferencing, was built upon a manufacturer's private protocol, known as proprietary algorithms.

In 1990, an international group, ITU-T (formerly CCITT), adopted a set of standards or rules that allow video product manufacturers to develop products with the ability to communicate with each other. This internetworking standard, known as H-series or Px64, will have the same interconnection effect for video as the Group 3 standard did for fax machines in the late 1980s.

## Multipoint Conferencing Standards

Multipoint video conferencing takes Px64 standards a step beyond two video endpoints communicating with each other (known as point-to-point). Multipoint video conferencing brings together multiple video endpoints at geographically dispersed locations into a single conference call. This requires tracking of video images, sound, and data from multiple sites for a simultaneous multimedia presentation.

## **Meet-Me Numbers and Extensions**

---

As with any endpoint on a network (such as a telephone, computer, and video codec), the MCU is assigned network numbers, known as Meet-Me numbers. These numbers are used by video endpoints to dial into the MCU to participate in a multipoint conference. Each MCU is assigned multiple Meet-Me numbers, thus allowing multiple video endpoints to connect to the MCU simultaneously.

**⇒ NOTE:**

See *AT&T MultiPoint Control Unit (MCU) System Description* for details on ordering Meet-Me numbers.

Administration of Meet-Me numbers on the MCU requires coordination between you and your network service provider. There are two primary steps in administering Meet-Me numbers. First, obtain the Meet-Me numbers from the network service provider and ensure the network DS1 trunks are properly administered to route the Meet-Me numbers to the MCU. As each call arrives at the MCU, the network signals the Meet-Me numbers dialed by the video endpoint to reach the MCU. The MCU uses these digits to determine which conference, and ultimately which MCU port, will receive the incoming call.

Typically, the network service provider is instructed to signal only the last four digits of the Meet-Me number to the MCU. MCU extensions must be administered within the MCU to correspond to these digits signaled to the MCU by the network.

Secondly, you must administer the MCU dial plan to create MCU extensions, known as Meet-Me extensions. Meet-Me extensions are used to label MCU ports for a particular conference. The MCU offers a pool of MCU video ports. For each conference the MCU dynamically allocates the appropriate number of video ports and assigns a Meet-Me extension to each video port.

When a reservation agent reserves a conference, a Meet-Me extension is added for each conferee. This process tells the MCU to reserve a video port for the duration of the conference and label it with a given MCU extension. Once the conference is over, the video port is put back into the pool and the MCU extension is again available for use.

## **Joining a Conference**

---

Conferees join a multipoint video conference by dialing into the MCU using Meet-Me numbers. Meet-Me numbers are usually a standard 10-digit phone number (often with 700 as the area code), a 7-digit PBX number or a 4- to 5-digit extension number that is part of a private dial plan.

**⇒ NOTE:**

Meet-Me numbers may be longer than 10 digits for international calls or for other configurations and access codes.

When a conference is scheduled to begin (and any time before the conference ends), conferees simply dial their Meet-Me number from their video endpoint to join in to the multipoint conference. Conferees do not need to join the conference in any particular order.

## **MCU Features**

---

To assist conference conveners in configuring multipoint video conferences that maximize their conference experience, it is important to know how many MCU ports are available for conference calls and the features and capabilities offered to conferees. The following section describes the available choices.

**⇒ NOTE:**

The MCU is offered in different models with various options (see the *AT&T MultiPoint Control Unit System Description* for details). Described here is the full-featured EX model. Feature sets vary depending on the MCU model, options selected and capabilities of the participating endpoint.

## **Number of MCU Ports**

---

An MCU port is a collection of MCU resources that allow a video endpoint using a supported transfer rate (bandwidth) to connect to the MCU and participate in a multipoint conference. It includes trunking resources (trunks), conferencing resources, and Px64 protocol termination resources.

Each MCU port can dynamically support various transfer rates. Transfer rate refers to the number of B (bearer) channels connected to a conference multiplied by the bandwidth of the B-channel. B-channel refers to a full-duplex, switched digital 56k/64k data channel provided by the network from a source (the video endpoint) to a destination (the MCU). A 2B-channel doubles the data channel bandwidth of the conference call from 56k/64k to 112k and 128k respectively. H0 refers to a transfer rate of one B-channel with a 384k bandwidth. The MCU supports video calls comprised of 2B-channel 112k, or 128k, and 384k (H0).

The MCU is offered in configurations based on MCU port resources and MCU model. The first number in the configuration is the total number of MCU ports; all can be used for 2B conferences. The second number (always equal to or less than the first number) represents the number of MCU ports that can be used for H0 conferences.

In Release 1.0, the smallest configuration is 4/4 with four MCU ports available for 2B or H0 conferences. A four port system accepts a maximum of one four-party conference. The largest configuration is a 24/12 port system. With a maximum single 2B conference size of 12, the 24/12 port configuration can handle many combinations of 2B conferences (such as three 8-party conferences, six 4-party conferences or two 12-party conferences).

With a 24/12 configuration, you can use up to 12 MCU ports for H0 conferences. However, there is a five party per conference limit for H0 conferences. With 12 H0 ports you can reserve up to four 3-party conferences, three 4-party conferences, or two 5-party conferences.

## **Conference Modes**

---

Meetings are conducted in a variety of ways. Some meetings require interaction among all conferees; others focus on one speaker who provides information to other conferees. Conference modes allow you to adjust the MCU to operate according to the type of meeting being held. A conference mode controls who is being seen at a given moment in a conference. The following conference modes are available:

### **Voice-Activated (Automatic Mode)**

With voice-activated conference mode, the video image of the person speaking is seen by all other conferees except the speaker, who continues to see the previous speaker. There is a minimal length of time between when a speaker stops talking and the video switches to the new speaker. When a new speaker becomes a video source, the MCU waits a moment before switching again to prevent a "ping-pong" appearance. A ping-pong appearance is caused by switching the video source too rapidly during a conversation that involves frequent changes of speaker. This conference mode is ideal for meetings where all participants share information. This automatic mode is a part of the MCU functionality and requires no special features from the video endpoint.

### **Presentation Mode (Advanced Mode)**

Presentation mode allows one location to be viewed constantly and unchanged by all conferees. All conferees, including the presenter, have audio from all sites. When anyone at the participating locations asks a question or makes a comment, the presenter hears and views that location. The other conferees hear the question or comment but continue to view the presenter. This conference mode is ideal for classroom training and instructional meetings where there is one primary

speaker and limited interaction from the conferees. If the conferees join the conference before the presenter, they are added to the conference but view nothing until the presenter joins the conference. If applicable, conferees will hear entry tones as other conferees join the conference. This advanced mode is part of the MCU functionality and requires no special features from the video endpoint.

### **Broadcast Mode with Auto Scan (Advanced Mode)**

In this mode, everyone in the video conference sees and hears one location continuously and unchanging. The location being viewed (the broadcaster) does not receive audio from any viewing location. The broadcaster does see video from each of the conferees on a continuous rotating basis (the rotation scan time can be adjusted when the conference is reserved). If the conferees join the conference before the broadcaster, they are added to the conference but view nothing until the broadcaster joins the conference. If applicable, conferees will hear entry tones as other conferees join. The advanced mode is part of the MCU functionality and requires no special features from the video endpoint.

## **Video Quality**

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You can adjust the video quality according to the capabilities of the participating endpoints and the network interfaces used by both the endpoints and the MCU. Video quality is controlled by the amount of transfer rate and bandwidth allocated to video and the absolute amount of transfer rate selected for a given conference. As mentioned earlier, the transfer rate is based on the number of B-channels associated with a conference call.

The bandwidth for a video call is factored by the number of B-channels selected for a conference. The broader the bandwidth, the better the video quality. Therefore, for 2B transfer rates, 112k (two 56k channels) is the basic video quality; 128k (two 64k channels) provides better video quality. H0 (384k) provides the maximum bandwidth and thus, the finest video image available with the MCU.

The MCU will not allow an endpoint to participate fully (audio and video) in a conference if it does not support the selected (or higher) bandwidth of the conference (112k, 128k or 384k). An endpoint calling with a 112k bandwidth cannot join a conference arranged with a 128k bandwidth. However, an endpoint calling with a 1B 56k bandwidth can join a 2B 112k conference as audio-only.

The best video available for a 112k/128k video conference is achieved using a method of speech compression known as G.728 (LD-CELP). G.728 uses 16k audio. Basically, the MCU and the video endpoints take the total amount of bandwidth on a conference call (regardless of whether it is 112k or 128k) and use a larger percentage of the bandwidth for video. The reduction in the audio bandwidth is indiscernible to most people. With maximum bandwidth for video, video quality is enhanced.

The highest quality audio you can arrange for a video conference is known as G.711 (PCM). G.711 is 56k/64k audio. Essentially, this selection maximizes the bandwidth allocated to audio. Therefore, the video quality is not as good as that which is offered with G.728.

**⇒ NOTE:**

Not all supported video endpoints offer G.728. For a multipoint conference to operate using G.728, all participating endpoints must support G.728. If one does not, the MCU automatically adjusts the conference to G.711.

### **Notification Tones**

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Notification tones are used during a conference to alert conferees about the status of a conference. Each tone has a different length and frequency so it can be distinguished from the others. Tones are selected on a per conference basis at the time a conference is reserved.

#### **Entry and Exit Tones**

When a conferee joins a conference, an entry tone alerts other conferees already on the conference that another endpoint has joined. Similarly, when a conferee disconnects from a conference, an exit tone notifies the other conferees that an endpoint has dropped.

#### **Warning Tone**

This tone sounds when only 10 minutes remain in a conference. This tone gives advance notice to conferees to either conclude the conference or request to extend the conference.

### **Billing Information**

---

In cases where the conference convener wants to track the reason for a conference and its duration for billing purposes, you can assign a billing identification number (up to 15 characters). The billing number associates the conference with a particular client, project, or whatever is necessary for proper accounting. The billing number becomes a part of the Call Detail Record (CDR). See *AT&T Multi-Point Control Unit System Description* for more information about CDR.

## **Conference Scheduling Methods**

---

There are two ways to schedule and reserve conferences on the MCU:

- **PC-Based Reservation System**

The AT&T Conference Reservation System is an optional PC-based reservation system that automates the scheduling tasks, performs conflict resolution and ensures that selected endpoints have the ability to participate in a conference. It also allows a reservation agent to reserve time on the MCU in advance of the scheduled conference date and automatically reserves the conference on the day it is scheduled to begin.

- **Paper-Based Scheduling System**

A reservation agent can reserve conferences from the MCU-ST on an as-needed basis or within a 24-hour window using the internal reservation system. On-demand conferencing can be used to dedicate resources of the MCU around-the-clock. A paper-based scheduling system can help track the number of MCU ports available and reserve MCU time in advance (more than 24 hours ahead of the planned start time) of the conference date.



## Overview

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This chapter describes the ongoing administration tasks performed by a telecommunications or video manager or an on-site PBX system administrator. The tasks include:

- Changing passwords
- Setting the system clock
- Performing video endpoint inventories
- Administering trunks
- Administering maintenance alarm terminals
- Administering Meet-Me numbers and Meet-Me extensions
- Performing system backups

 **NOTE:**

Diagnostic and maintenance procedures are described in the *AT&T MultiPoint Control Unit Maintenance Manual*. Conference troubleshooting procedures are provided in the *AT&T MultiPoint Control Unit Reservation Agent Manual*.

## **Using the MCU-MT**

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The MCU-MT is a 715 Business Communications Terminal (BCT) that is primarily used to perform administration and report functions, but can also be used to reserve conferences and to help diagnose problems reported about conferences.

### **Keys and Functions**

---

The keyboard of the MCU-MT is equipped with cursor keys, transaction keys and editing keys to enable you to send and receive data from the MCU. These keys and their functionality are described below:

- **Cursor Keys**

Used to move the cursor between fields and pages on a screen form. The cursor must be positioned in a field on a form before you add or change information in that field.

- **Editing Keys**

BACKSPACE key and CLEAR are used to edit data in a field. BACKSPACE erases the character at the current cursor position. CLEAR must be used in combination with SHIFT to clear all data in a field. The cursor must be in the field you want to clear before CLEAR and SHIFT are pressed. You can use TAB to advance from field to field or use SHIFT and TAB together to reverse the direction.

- **Transaction Keys**

CANCEL, ENTER, and HELP perform special functions. CANCEL erases a form or command. ENTER stores data from the screen into the system's memory. HELP displays more information about the values or commands that can be entered for a particular field or form.

PAGE UP and PAGE DOWN display the previous page and the next page of screens that have more than one page.

## Logins and Permissions

The MCU-MT and MCU-ST use the following logins (shown in hierarchical order).

**Table 2-1. MCU Logins and Default Passwords**

User	Login	Permissions
System administrator using MCU-MT	cust	Display administration and maintenance data Request system measurements Administer maintenance alarm terminals Administer trunks Administer Meet-Me extensions Administer features Administer conference records Perform maintenance commands on trunks, circuit packs, and maintenance alarm terminals Perform system resets
System administrator using remote MCU-ST	rcust	Same as cust login
Reservation agent using remote MCU-ST	agent	Display administration data Administer Meet-Me numbers Administer conference records
Display only (using either MCU-MT or remote MCU-ST)	browse	Display administration and maintenance data

---

## Logging In from the MCU-MT

Perform the following procedure to log in on the MCU-MT:

1. Verify the MCU-MT displays: *Login:*
2. Enter **cust**.
3. Verify the screen displays: *password:*
4. Enter your password.



**NOTE:**

For security purposes, your password is not displayed as you enter it. The MCU verifies the login and password. If an invalid login or

incorrect password name is entered, the screen displays: *login incorrect:*

5. The software version is displayed.
6. When the screen displays: *Terminal Type (Enter 715, 513, 4410, or 4425): [715]* press RETURN.
7. The screen should now display: *command:*

### **Logging In Remotely from the MCU-ST**

You can perform administration and report functions from the remote MCU-ST. Perform the following procedure to log in to the MCU-ST:

1. Enter **at**.
2. When the *OK* prompt appears, enter **atdtcode** where **code** is the access code provided by the AT&T Video Technical Center (VTC) when the MCU is installed.
3. Verify the MCU-ST displays: *Login:*
4. Enter **rcust**.
5. Verify the screen displays: *password:*
6. Enter your password.

**⇒ NOTE:**

For security purposes, your password is not displayed as you enter it. The MCU verifies the login and password. If an invalid login or incorrect password name is entered, the screen displays: *login incorrect:*

7. The software version is displayed.
8. When the screen displays: *Terminal Type (Enter 715, 513, 4410, or 4425): [715]* press RETURN.
9. The screen should now display: *command:*

## Changing Passwords

---

Perform the following procedure to log in to the MCU and to change the associated passwords:

1. Login as **cust** on the MCU-MT.
2. The screen should now display: *command:*
3. To change the password, enter **change password login** where *login* is **cust**, **rcust**, **agent**, or **browse**.

 **NOTE:**

If it is necessary to void or deny access to a particular login, the login may be voided by changing the password of the login to **VOID**. After the login's password is **VOID**, the login is denied access to the MCU. The **VOID** password can then be changed or reinstated by a higher level login (the order given in Table 2-1).

4. The Password Change form is displayed.
5. At the *Your Current Password* field, enter the current password you used to log in and press RETURN.
6. In the *New Password For Login Name* field, enter the new password (see **NOTE**) and press RETURN.

 **NOTE:**

Valid passwords have four to seven alpha or numeric characters or a combination of both.

7. Reenter the new password in the *New Password (enter again)* field and press ENTER.
8. Verify the screen displays: *command successfully completed* followed by *command:*
9. To change the passwords for the other logins, repeat these steps.

## Setting the System Clock

---

The time set on the MCU is critical for reserving conferences. In areas of the country that change to daylight savings time, the system clock will need to be adjusted by one hour twice a year (advance one hour for daylight savings time; back one hour for standard time).

The 24-hour conference scheduling system uses the MCU system clock to know when to begin and end conferences. If the MCU is set for the wrong time, it may restore conference records from backup memory that are incorrectly scheduled. If the optional CRS is installed, the date and time on the MCU and CRS must be synchronized.

The system clock is only affected when power is interrupted for more than two minutes. The optional Uninterrupted Power Supply (UPS) may be used to protect against power outages to the MCU.

## Set Date and Time Form

---

The date and time are set using the Set Date and Time Form. Use the following procedure to set the date and time:

 **NOTE:**

Be sure to obtain the accurate time by calling the National Bureau of Standard Time at **202 844-1234**.

1. At the *command:* prompt, enter **set time**.
2. At the *Day of the Week* field, enter the day of the week.
3. At the *Month* field, enter the current month.
4. In the *Day of the Month* field, enter the current day (1 through 31).
5. In the *Year* field, enter the current year.
6. In the *Hour* field, enter the current hour in military time. (00 is midnight, noon is 12, and 23 is 11 p.m. The p.m. time is hour plus 12.)
7. In the *Minute* field, enter the current minute (0 through 59).

 **NOTE:**

Seconds are reset to 00 for the minute selected.

8. Press ENTER.
9. When the screen displays: *command successfully completed* followed by *command:*, enter **display time** to verify the setting.

## Performing Endpoint Inventories

Performing an inventory of features and functionality for video endpoints that will participate in multipoint conferences helps to provide the optimum MCU video conference experience. Currently, video endpoints support different features offered in the Px64 (H.320) standards. In some cases, such as with the AT&T Group Video System 4000, additional Px64 (H.320) functionality has been added with each new software release of the same model. For example, the model 4000 software version 3.0P.03 does not support all the Px64 (H.320) features supported in version 4.1P.

The following data should be collected for all video endpoints that will be joining conferences on the MCU:

**⇒ NOTE:**

See Appendix A, "P x 64 Interoperability", for a list of video endpoints supported by the MCU. There is no official ITU-T conformance testing body, nor is there a guide to arbitrate different interoperations of the standards by manufacturers of video products. Thus, as manufacturers implement the standards or add features and options, their products may change. AT&T will have no knowledge or control over any such changes made by other manufacturers in their Px64 (H.320) implementation. As such, AT&T cannot guarantee the interoperability of our ITU-T implementation with untested versions of ITU-T compliant endpoints.

See the "Collecting Endpoint Data" on page 2-9 for a list of information you should obtain about each participating endpoint. If your reservation agent is using the paper-based scheduling system, you should provide some information on a Site Profile (blank form available in Appendix B, "Paper-Based Scheduling Forms") for the reservation agent to use.

**Table 2-2. Sample Site Profile**

Site Profile					
Location Name	Time Zone	Bandwidths Available	Network Type	Room Location	Contact Name/Phone
Allentown	EST	56k	private	G123	J. Gibson/215 555-1200
Andover	EST	56k 64k	private	1B-24	T. Lee/301 555-3231
Denver	MST	56k 64k 384k	private	457	C. Charles/303 555-9872
Holmdel	EST	56k 64k 384k	private	3G-104	D. Gilberg/908 555-7777
Chicago	CST	56k	public	28A	R. Prasad/312 555-1818

**Table 2-2. Sample Site Profile**

San Diego	PST	56k 64k	private	1150	A. Snowdon/619 555-2222
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## **Collecting Endpoint Data**

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To prequalify an endpoint to participate in a multipoint video conference, you need the following information:

- the type of video endpoint (such as, AT&T Group Video System, AT&T TeleMedia Personal Video System, PictureTel™ Group Video System)
- the model name or number (such as Model 4000, Model 70)
- the options installed
- the time zone where the video endpoint is located
- the encoding algorithms supported (Px64, proprietary)
- the specific software version (such as, 3.11, 1.0)
- the bandwidths supported (56k, 64k and/or 384k)
- the network access (public through direct connection or private through a PBX)
- the network services supported (such as, AT&T SDDN, ACCUNET SDS)

### **⇒ NOTE:**

The MCU and video endpoints joining a conference must be subscribers to the same network services. The MCU can be a subscriber to multiple services.

- the name of the location or person associated with the video endpoint
- the name and number of the person responsible for setup and maintenance
- the name by which the video endpoint will be identified (such as Chicago office, Sales Department)

Currently, most video endpoints have the ability to select between originating a 2B-channel 56k call or a 2B-channel 64k call. However, it is unlikely that the typical conferee will have the knowledge required to change the endpoint's bandwidth setting.

In general, video endpoints with ISDN-PRI access to the network are not constrained on the types of calls they can make (56k, 64k, or 384k). However, endpoints with RBS network access trunks are restricted to originating and receiving only 56k calls. Endpoints originating 64k calls are blocked if the MCU only has access to 56k facilities or when all 64k facilities are in use when the call arrives. Currently, 384k calls to the MCU require ISDN-PRI H0 capacity by both the MCU and each participating video endpoint.

**Recording Meet-Me Numbers and Extensions**

The Meet-Me Extensions and Numbers to Dial Form (blank form available in Appendix B, "Paper-Based Scheduling Forms") should be completed after you order the trunks and network numbers for the MCU. The form should show all Meet-Me extensions assigned to the MCU and their corresponding Meet-Me numbers (the phone number the conferee dials to join a conference).

The Meet-Me Extensions and Numbers to Dial Form should also include the bandwidth per channel available with each Meet-Me extension and the Meet-Me numbers categorized by network type, either private or public. It should be updated whenever a Meet-Me number is added or removed (see "Administering Meet-Me Numbers and Extensions" on page 2-37 for more information). Table 2-3 shows a sample Meet-Me Extensions and Numbers to Dial form.

**Table 2-3. Sample Meet-Me Extensions and Numbers to Dial**

Meet-Me Extensions and Numbers to Dial							
Number to Dial				Number to Dial			
Ext.	Bandwidth	Public	Private	Ext.	Bandwidth	Public	Private
6000	56/64/384k	(700)7376000	86000	5000	56k	(700)5605000	85000
6001	56/64/384k	(700)7376001	86001	5001	56k	(700)5605001	85001
6002	56/64/384k	(700)7376002	86002	5002	56k	(700)5605002	85002
6003	56/64/384k	(700)7376003	86003	5003	56k	(700)5605003	85003
6004	56/64/384k	(700)7376004	86004	5004	56k	(700)5605004	85004
6005	56/64/384k	(700)7376005	86005	5005	56k	(700)5605005	85005
				5006	56k	(700)5605006	85006
				5007	56k	(700)5605007	85007
				5008	56k	(700)5605008	85008
				5009	56k	(700)5605009	85009
				5010	56k	(700)5605010	85010
				5011	56k	(700)5605011	85011
				5012	56k	(700)5605012	85012
				5013	56k	(700)5605013	85013
				5014	56k	(700)5605014	85014

## **Administering Trunks**

---

All video calls connecting to the MCU are transported on 56k or 64k digital circuits. DS1 trunks must be used to connect the MCU to either a PBX or the public network (interexchange carrier or Local Exchange Company). Provisioning the trunk parameters must be done in conjunction with ordering the network service, network access facility and provisioning call routing. See the *AT&T MultiPoint Control Unit System Description* for details.

### **Setting Network Service and Access Parameters**

---

The trunk signaling used to access the network is a determining factor when subscribing to the network service and when planning the transfer rates to be supported. The MCU supports ISDN-PRI and Robbed-Bit Signaling (RBS) trunks. Based on the number of video ports configured, the MCU may have multiple DS1 trunks. Based on the number of ISDN-PRI trunks configured, ISDN-PRI NFAS and D-channel backup features are supported.

DS1 signaling is commonly categorized as RBS signaling (also known as out of band and common channel signaling). In addition to this signaling type, other parameter settings on the DS1 circuit pack help determine what transmission speed is supported on the DS1.

The DS1 circuit pack provides a DS1 format, digital, multichannel interface between the MCU and T1 transmission facilities or it can be directly connected to a local DS1 interface (behind a PBX or on a private network). DS1 Trunk Service provides a set of digital trunks utilizing the DS1 circuit pack (TN767Cv23/D) that support MCU communications. Digital interfaces are supported for the following types of trunks:

- **ISDN-PRI**

When the DS1 interface provides ISDN-PRI trunk group service, a TN767Cv23/D DS1 circuit pack must be used in conjunction with a TN765 Processor Interface circuit pack. ISDN-PRI trunks provide end-to-end digital connectivity within the network and can provide national and international digital connectivity to other ISDNs that support the PRI standard. This mode of signaling supports 23 56k or 64k trunks for video transmission and one trunk for signaling.

- **DS1 tie trunks**

The TN767Cv23/D DS1 circuit pack supports DS1 tie trunks in RBS mode. The RBS mode supports 24 trunks for transmission on the circuit pack because the least significant bit (robbed) in every sixth frame of data transmission is replaced by a signaling bit. This limits a trunk to support 56k bandwidth for each B-channel.

## Administering DS1 Circuit Packs

---

Table 2-4 provides the commands that relate to the DS1 circuit pack.

**Table 2-4. DS1 Circuit Pack Administration Commands**

---

Action	Object	Qualifier
add	ds1	location
change	ds1	location
display	ds1	location
list	measurements ds1	location
remove	ds1	location

---

Where *location* is the DS1 circuit pack location obtained by entering the **list configuration all** command.

Use the following procedure to administer parameters for the TN767Cv23/D DS1 circuit pack:

1. At the *command:* prompt, enter **add ds1 location** where *location* is the location of the TN767Cv23/D DS1 circuit pack in the carrier.
2. Verify the screen displays the *DS1 Circuit Pack Form*.
3. Use TAB and RETURN to advance to the fields you want to change (see "DS1 Circuit Pack Form" on page 2-12 for a description of the fields and values).
4. Submit the form.
5. To verify the form, type **display ds1 location**.

### DS1 Circuit Pack Form

The DS1 Circuit Pack form is used to administer parameters on the TN767Cv23/D DS1 circuit pack. The circuit pack must be installed before it can be administered. The following list identifies the fields on the DS1 Circuit Pack form and the possible values:

- *Location*

This display-only field shows the location of the DS1 interface circuit pack. The first character identifies the network, the second character identifies the carrier, the third and fourth characters identify the slot number in the carrier and the last two characters identify the circuit number.

- *Name*

Enter the name of the DS1 link (up to 15 characters). This is usually the destination of the link.
- *Line Compensation*

Enter the number **1** or **2** as appropriate for the cable length. The cable length is one half the distance from the MCU TN767Cv23/D DS1 circuit pack to the CSU.

**1** = 000 to 133 feet  
**2** = 133 to 266 feet
- *Zero Code Suppression*

This entry indicates which line coding format is used to ensure the data meets T1-carrier requirements. For 64k or 384k bandwidth, enter **b8zs** for bipolar eight zero suppression. If the MCU is connected to a PBX that does not support B8ZS line coding, administer the DS1 circuit pack to support only 56k calls and enter **zcs** (AMI also known as zero code suppression) in this field. The selection must match the method used on the other end of the link.
- *Framing Mode*

The network diagram should indicate which choice is correct for the particular DS1/T1 span. Enter **d4** or **esf** to match the method used on the other end of the link. For 64k and 384k bandwidth, set this field to **esf**. For RBS, set this field to **d4**.
- *Signaling Mode*

Enter **robbed-bit**, **isdn-pri** or **isdn-ext** to match the method used on the other end of the link. For 56k, enter **robbed-bit**. For ISDN signaling, use **isdn-pri**, if the DS1 trunk contains a D-channel or enter **isdn-ext** if the D-channel is external (this is possible if NFAS is being used).
- *DMI-BOS*

This field is must be set to **n**.
- *Connect*

This field appears only when **isdn-pri** is selected, and specifies what is on the far end of the MCU in order to control Layer 3 protocol. Allowable entries are **network** and **pbx**. If the MCU is connected directly to the network, enter **network**. If the MCU is connected behind a PBX, enter **pbx**.
- *Interface*

This field appears only when the *Connect* field value is **pbx**. **Network** or **user** are the appropriate values. Selecting **network** sets the MCU to use the network end of the protocol. Entering **user** will set the MCU to use the protocol of the opposite end.

- *Slip Detection*

Enter **y** to maintain a slip count record for each DS1 interface. The slip count determines if the T1-span is experiencing errors and, if so, the severity of the errors (type alarm).

- *Remote Loop-Around Test*

Enter **y** to allow testing when the DS1 is connected to appropriate equipment. The response should be **n** unless testing is extremely important.

### **Providing a Synchronization Plan**

---

The Synchronization Plan form is used to assign primary and secondary external synchronization sources. It provides synchronization between the MCU and the digital facilities it uses. The MCU must be synchronized to the incoming data rate of 8,000 frames per second. This timing information reference may be derived from DS1 facilities. Loss of the reference signal, excessive phase changes, and variation in timing frequency can cause loss of data or dropped data connections.

Table 2-5 provides the commands that relate to the synchronization plan.

**Table 2-5. Synchronization Plan Administration Commands**

---

Action	Object	Qualifier
change	synchronization	
display	synchronization	print or schedule

---

Use the following procedure to change the synchronization assignments:

1. At the *command:* prompt, enter **change synchronization**.
2. Verify the screen displays the *Synchronization Plan* form.
3. Use TAB and RETURN to advance to the fields you want to change (see "Synchronization Plan Form" on page 2-16 for a list of fields and values).
4. Submit the form.
5. To verify the form, enter **display synchronization**.

## Synchronization Plan Form

The following list provides the fields on the Synchronization Plan form and the related values:

- *Stratum*

Enter the stratum level being used; **4** for Stratum 4 is the default.

 **NOTE:**

Stratum 3 is not supported with the MCU.

- *Primary*

Specify the four-character DS1 circuit pack location for the DS1 circuit pack that will function as the primary synchronization source.

- *Secondary*

Specify the four-character DS1 circuit pack location for the DS1 circuit pack that will function as the secondary circuit pack if the primary circuit has a failure.

- *Location*

Displays the location of each DS1 circuit pack administered on the DS1 Circuit Pack form.

- *Name*

Displays the name of each DS1 circuit pack administered on the DS1 Circuit Pack form.

- *Slip*

Displays the slip detection parameter for each circuit pack administered on the DS1 Circuit Pack form.

 **NOTE:**

The DS1 Circuit Pack location, name and slip display continues onto page 2 if necessary.

## **Administering ISDN-PRI D-channels**

ISDN-PRI forms provide end-to-end digital connectivity instructions and support a wide range of services, including voice and non-voice services to which users have access by a limited set of ITU-T-defined, standard multipurpose user-network interfaces.

### **Processor Interface Data Module**

The processor interface data modules are integrated into the TN786B Processor Interface circuit pack to provide the ISDN-PRI interface. Connection to this interface is provided via a DS1 interface. One direct EIA connection is available. When used, the physical channel assignment is **01**.

Table 2-6 gives the commands that relate to the data modules.

**Table 2-6. Processor Interface Data Module Administration Commands**

<b>Action</b>	<b>Object</b>	<b>Qualifier</b>
add	data-module	xxxx (extension or next)
change	data-module	xxxx (extension)
display	data-module	xxxx (extension), print, or schedule
list	data-module	starting extension number, count, print, or schedule

---

Use the following procedure to add a data module to provide an ISDN-PRI interface:

1. At the *command:* prompt, enter **add data-module xxxx**.
2. Verify the screen displays the *Data Module* form (see "Processor Interface Data Module Form" on page 2-18 for a list of the fields and their values).
3. Use TAB and RETURN to advance to the fields you want to change.
4. Submit the form.
5. To verify the form, enter **display data-module xxxx**.

## Processor Interface Data Module Form

The following list identifies the fields on the Processor Interface Data Module form and the possible values.

- *Data Extension*  
This display-only field provides the extension assigned to the data module.
- *Type*  
Enter **procr-infc**.
- *Physical Channel*  
Enter the two-digit circuit number of the processor interface port (**01** through **04** for the ESCC, **01** through **08** for the MCC).
- *Name*  
Optional field that identifies the name of the system such as MCU.
- *COS*  
Enter the desired Class of Service. The default is **1**.
- *COR*  
Enter the desired Class of Restriction. The default is **1**.
- *Maintenance Extension*  
Use the next consecutive extension number that appears in the *Data Extension* field.
- *Ext*  
No entry required. This extension number is assigned automatically.
- *Name*  
Make no entry. This name is automatically assigned.

## **Processor Interface Links**

---

The Processor Interface Links form identifies, describes, and enables processor interface links for ISDN-PRI between the MCU and ISDN. When you are adding an ISDN-PRI trunk, you begin by setting the *Enable* field to **n** to disable the link until you complete the administration of the trunk. You then administer the processor channels and signaling group before coming back to this form to enable the links (use **change communication-interface links** then enter **y** in the *Enable* field).

Table 2-7 provides the commands that relate to the processor interface link.

**Table 2-7. Processor Interface Links Administration Commands**

<b>Action</b>	<b>Object</b>	<b>Qualifier</b>
change	communication-interface	links
display	communication-interface	links, print, or schedule

Use the following procedure to change the Processor Interface Links form:

1. At the *command:* prompt, enter **change communication-interface links**.
2. Verify the screen displays the *Processor Interface Links* form (see "Interface Links Form" on page 2-20 for a list of the fields and their values).
3. Use TAB and RETURN to advance to the fields you want to change.
4. Submit the form.
5. To verify the form, enter **display communication-interface links**.

## Interface Links Form

The following list provides the fields on the Interface Links form and their related values.

- *Link*

This display-only field indicates the physical interface link number (**1** through **4**) that connects to another node in the ISDN network.

- *Enable*

Enter **y** to enable the link.

 **NOTE:**

All fields on this form may be initially entered except the *Enable* field which must be set to **n**. After administering the processor channels and signaling groups, you can enter **y** in this field.

- *Est Conn*

Enter **y** in this field for ISDN signaling.

- *PI Ext*

This display-only field shows the data extension assigned on the Processor Interface Data Module form.

- *Prot*

Enter **ISDN** for the protocol type to be established on the link.

- *Digits*

Leave this field blank.

- *Brd*

Enter the TN767Cv23/D DS1 circuit pack address that has been administered as using ISDN signaling.

- *DTE/DCE*

No entry is required. Use to specify when the connection is to a DTE or a DCE.

- *Identification*

Enter a name for the link (up to 15 characters).

## **Processor Channel Assignments**

---

The Processor Channel Assignments form assigns channels to the MCU interface links.

Table 2-8 lists the commands that relate to the processor channels.

**Table 2-8. Processor Channels Administration Commands**

<b>Action</b>	<b>Object</b>	<b>Qualifier</b>
change	communication-interface	processor channels
display	communication-interface	processor channels, print, or schedule

Use the following procedure to change the Processor Channels form:

1. At the *command:* prompt, enter **change communication-interface processor channels**.
2. Verify the screen displays the *Processor Channels* form (see "Processor Channels Form" on page 2-21 for a list of the fields and their values).
3. Use TAB and RETURN to advance to the fields you want to change.
4. Submit the form.
5. To verify the form, enter **display communication-interface processor channels**.

### **Processor Channels Form**

The following list provides the fields and values on the Processor Channels form:

- *Proc Chan*  
This display-only field indicates the 64 channels that are available.
- *Appl*  
Enter **ISDN** to specify the type of application that connects to this processor channel.
- *Link*  
Enter a number (**1** through **4** for ESCC; **1** through **8** for MCC) to identify the interface link/channel pair used to establish a connection.

- *Chal*  
This field, along with the *Link* field identifies the link and channel pair that is associated with the local processor channel. This field should remain blank.
- *Priority*  
Enter **h** for high or **l** for low to indicate the priority of this channel. Assignments should be made based on the operational speed of the links.
- *Remote Proc Chan*  
Leave this field blank.
- *Machine ID*  
Leave this field blank.

### Administering Signaling Groups

The Signaling Group form identifies groups of ISDN DS1 interface B-channels for which a given D-channel or D-channel pair will carry associated signaling information. The NFAS feature allows a D-channel to convey signaling information for B-channels that are located on DS1 facilities other than the one containing the D-channel. With NFAS, the signaling group does not necessarily correspond to a single DS1 interface.

The Signaling Group form is administered to show how B-channels and D-channels are related.

Table 2-9 lists the commands that can be used with the Signaling Group form.

**Table 2-9. Signaling Group Commands**

Action	Object	Qualifier
add	signaling-group	1-8 or next
change	signaling-group	1-8
display	signaling-group	1-8, print, or schedule
list	signaling-group	1-8, print, or schedule
remove	signaling-group	1-8

Use the following procedure to specify a signaling group:

1. At the *command:* prompt, enter **add signaling-group x** where **x** is the signaling group number (**1** through **8**) or **next**.
2. Verify the screen displays the *Signaling Group* form (see "Signaling Group Form" on page 2-23 for a list of fields and values).
3. Use TAB and RETURN to advance to the fields you want to change.
4. Submit the form.
5. To verify the form, enter **display signaling-group x**.

## Signaling Group Form

The following list identifies the fields on the Signaling Group form and their related values.

- *Group Number*  
This is a display-only field that provides the signaling group number used as a qualifier in the above commands.
- *Associated Signaling*  
Enter **n** to indicate NFAS; enter **y** to select FAS (with FAS, the D-channel can only carry signaling information for B-channels on the same DS1 circuit pack).
- *Max Number of NCA TSC*  
Leave this field set to **0**.
- *Primary D-Channel*  
Enter up to six characters for the port number associated with the DS1 interface circuit pack port. Port Number 24 is used to assign the primary D-channel in the signaling group. Both FAS and NFAS are always the 24th port on the DS1 interface circuit pack.
- *Max Number of CA TSC*  
Leave this field set to **0**.
- *Secondary D-channel*  
When NFAS is selected, this field is displayed. Enter up to six characters for the port number associated with the DS1 interface circuit pack port used for secondary D-channel signaling.
- *Trunk Group for NCA TSC*  
This field is not used.

- *Trunk Brd*

When using NFAS, enter a four-character DS1 interface circuit pack number that has trunk members belonging to this Signaling Group. The four characters are the port network number, carrier letter, and two-digit slot number (**01** through **18**). The default is blank.

- *Interface ID*

When using NFAS, enter an interface ID (**0** through **31**) for the corresponding DS1 interface circuit pack. The interface ID is referenced by both ends to determine which B-channel is to be used to establish a call; therefore the interface ID numbers on both ends must be the same. The 4ESS™ switch must start with 0, *Trunk Brd 1* which should be the primary D-channel. If a secondary D-channel is used, it should be *Trunk Brd 2 ID 1*.



**NOTE:**

Pages 2 through 5 are not used.

## Administering Trunk Groups

Use the following procedures to administer ISDN-PRI and tie trunks for the MCU. Table 2-10 shows the commands that are used to administer trunk groups using the Trunk Group form.

**Table 2-10. ISDN-PRI Trunk Group Commands**

Action	Object	Qualifier
add	trunk-group	1-99 (next)
change	trunk-group	1-99 or TAC X
display	trunk-group	1-99 or TAC X, print, or schedule
list	trunk-group	print or schedule
remove	trunk-group	1-99 or TAC X
status	trunk-group	1-99 or TAC X

Use the following procedure to add a ISDN or tie trunk group:

1. At the *command:* prompt, enter **add trunk group x** where **x** is a trunk group number (1 through 99) or **next**.
2. Verify the screen displays the Trunk Group form (see "Administering ISDN-PRI Trunk Groups" on page 2-25 or "Administering Tie Trunk Groups" on page 2-29 for a list of fields and values).
3. Use TAB and RETURN to advance to the fields you want to change.
4. Submit the form.
5. To verify the form, enter **display trunk-group x**.

### Administering ISDN-PRI Trunk Groups

The following list identifies the fields on the Trunk Group form and their values entered when administering ISDN-PRI trunk groups:

#### **Trunk Group Form, Page 1 of 10**

- *Group Number*  
This display-only field shows the trunk group number.
- *Group Type*  
Enter **isdn** to identify the trunk group.
- *SMDR Reports*  
Enter **y** to track incoming calls made on all trunks in the trunk group.
- *Group Name*  
Enter a name up to 15 characters to describe this trunk group. The default is **OUTSIDE CALL**.
- *COR*  
Leave at the default of **0**.
- *TAC*  
Enter the trunk access code that must be dialed to access the trunk group. A different TAC must be assigned to each trunk group. SMDR uses the TAC to identify the trunk group on Call Detail Record (CDR) reports. Allowable entries must match the dial plan.
- *Direction*  
This display-only field is set to **incoming** since the MCU allows only incoming calls.

- *Outgoing Display*  
Since the MCU R1.0 does not allow outgoing calls, this field should be set to **n**.
- *Dial Access*  
This field must be set to **n**.
- *Service Type*  
Indicates the service for which this ISDN-PRI trunk group will be dedicated. The valid entries include **accunet**, **cbc**, **sddn**, **sdn**, or **tie** and any user-defined or selected service as administered on the Network Facilities form.

⇒ **NOTE:**

The service type selected must match whatever is administered at the other end.

- *Test Call ITC*  
Leave at the default of **rest** for restricted.
- *Far End Test Line No:*  
Specify the number that is sent to the far-end ISDN test line extension. When test trunk is entered, this number is sent to the far-end to establish a call that tests the integrity of the trunk member under test. The number does not pass through routing or undergo digit manipulation. The digits entered here must be what the far-end expects. For example, for an ISDN tandem trunk, the far-end test number must be a 7-digit Electronic Tandem Network (ETN) number. Up to 15 digits may be entered in this field.
- *TestCall BCC*  
Leave this field at its default setting of **4** for DCP Mode 0.
- *Display, TCM, Lookahead Codeset*  
This field is not used.
- *Max Message Size to Send*  
Leave this field set at the default of **260** byte messages.
- *Trunk Hunt*  
For 384k bandwidth, set this field to **ascend** or **descend** as provisioned on the network.
- *Connected To*  
This field is defaulted to **main**.
- *Connected to Toll*  
This field is set to **n**.

- *DTT to DCO Loss*  
Leave this field set at the default of **normal**.
- *Synchronization*  
This field is not used.
- *Duplex*  
This field is not used.

### **Trunk Group Form, Page 2 of 10**

- *ACA Assignment*  
Indicates whether or not Automatic Circuit Assurance (ACA) measurements are taken for this trunk group. The default is **y**. When ACA measurements are enabled, three related fields are shown where you need to specify the *Long Holding Time* (in hours), *Short Holding Time* (in seconds) and *Short Holding Time Threshold* (number of short holding time occurrences before alarming). ACA must also be enabled on the Feature-Related System Parameters form (see "Automatic Circuit Assurance Reports" on page 3-12 in Chapter 3).

#### **NOTE:**

Since video conference calls generally last several hours, be sure to set the *Long Holding Time* high enough to accommodate the average length (up to 10 hours). Descriptions of long holding time, short holding time and short holding time threshold are found under "Automatic Circuit Assurance Reports" on page 3-12 in Chapter 3.

- *Wideband Support*  
Indicates whether or not wideband is supported on this trunk group. For 384k bandwidth, set this field to **y** (when wideband is supported, page 3 of this form needs to be completed).
- *Data Restriction*  
Leave this field set to **n**. If this field is set to **y**, it prevents generation of tones on a data call that cause erroneous data transmission.
- *NCA-TSC Signaling Group*  
This field is not used.
- *Send CPN*  
This field is not used.
- *Send Name*  
This field is not used.

- *Maintenance Tests*

Leave this field in its default setting of **y**.

### **Trunk Group Form, Page 3 of 10**

- *Wideband Support Options*

For 384k bandwidth and service providers supporting NXDS0, enter **y** for **H0**.

- *Contiguous*

This field should be set to **y**.

### **Trunk Group Form, Page 4 of 10**

- *Port*

Enter the trunk port number (up to six characters).

 **NOTE:**

Use **list configuration all** to determine the trunk port number.

- *Name*

Enter the name of the member of the trunk group (up to 10 characters). The name can be the seven-digit telephone number or a 10-digit trunk circuit identification number (provided by the trunk supplier).

- *Sig Grp*

Enter the signaling group number (1 through 8). If a DS1 interface appears in one, and only one signaling group, then the number of that signaling group appears as a default in this field for any trunk on that interface. If a DS1 circuit pack appears in more than one signaling group, then this field must be completed manually.

 **NOTE:**

The fields and values of page 4 are continued on pages 5 through 10.

## Administering Tie Trunk Groups

The following list identifies the fields on the Trunk Group form and their values entered when administering tie trunk groups:

### **Trunk Group Form, Page 1 of 9**

- *Group Number*  
This is a display-only field shows the trunk group number.
- *Group Type*  
Enter **tie** to identify the trunk group.
- *SMDR Reports*  
Enter **y** to track incoming calls made on all trunks in the trunk group.
- *Group Name*  
Enter a name up to 15 characters to describe this trunk group. The default is **OUTSIDE CALL**.
- *COR*  
Leave this field at the default of **0**.
- *TAC*  
Enter the Trunk Access Code (TAC) that must be dialed to access the trunk group. A different TAC must be assigned to each trunk group. Station Message Detail Recording (SMDR) uses the TAC to identify the trunk group on Call Detail Record (CDR) reports. Allowable entries must match the dial plan.
- *Direction*  
This display-only field is set to **incoming** since the MCU allows only incoming calls.
- *Outgoing Display*  
Since the MCU R1.0 does not allow outgoing calls, this field should be set to **n**.
- *Dial Access*  
Leave this field set to **n**.
- *Comm Type*  
This display-only field is set to **rbavd** for Robbed Bit Audio Voice and Data.
- *ITC*  
Leave this field at the default setting of **rest** for restricted.

- *Trunk Type (in/out):*  
Specify the type of trunk. The default is **wink/wink**.
- *Incoming Rotary Timeout (sec)*  
Specify the number of seconds before an incoming rotary call is timed out. The default is **5**.
- *Outgoing Dial Type*  
This field should be set to **tone**.
- *Incoming Dial Type*  
This field should be set to **tone**.
- *Disconnect Timing*  
Specify in milliseconds the disconnect time. The default is **500** milliseconds.
- *Digits*  
Leave this field blank.
- *Digit Treatment*  
If inserting or deleting digits at the trunk group level, set this field to either **insert** or **delete** as appropriate. If **insert** is selected, you must enter the digits to be inserted.
- *DTT to DCO Loss*  
This field should be left at the default of **normal**.
- *Connected to Toll*  
Leave this field set to **n**.
- *Incoming Dial Tone*  
Leave this field set to **y**.
- *Synchronization*  
This field is not used.
- *Duplex*  
This field is not used.

### Trunk Group Form, Page 2 of 9

- *ACA Assignment*

Indicates whether or not Automatic Circuit Assurance (ACA) measurements are taken for this trunk group. The default is **y**. When ACA measurements are enabled, three related fields are shown where you need to specify the *Long Holding Time* (in hours), *Short Holding Time* (in seconds) and *Short Holding Time Threshold* (number of short holding time occurrences before alarming). ACA must also be enabled on the Features-Related System Parameters form ( see "Automatic Circuit Assurance Reports" on page 3-12 in Chapter 3).

 **NOTE:**

Since video conference calls generally last several hours, be sure to set the *Long Holding Time* high enough to accommodate the average length (up to 10 hours). Descriptions of long holding time, short holding time and short holding time threshold are found under "Automatic Circuit Assurance Reports" on page 3-12 in Chapter 3.

- *Data Restriction*

Leave this field set to **n**. When set to **y** this prevents generation of tones on a data call that cause erroneous data transmission.

- *Suppress # Outpulsing*

Leave this field set to **n**.

- *Maintenance Tests*

Leave this field set to **n**.

### Trunk Group Form, Page 3 of 9

- *Port*

Enter the trunk port number (up to six characters).

- *Name*

Enter the name of the member of the trunk group (up to 10 characters). The name can be the seven-digit telephone number or a 10-digit trunk circuit identification number (provided by the trunk supplier).

- *Sig Grp*

Enter the signaling group number (1 through 8). If a DS1 interface appears in one and only one signaling group, then the number of that signaling group appears as a default in this field for any trunk on that interface. If a DS1 circuit pack appears in more than one signaling group, then this field must be completed manually.

⇒ **NOTE:**

The fields and values on page 3 are continued on pages 4 to 9.

## **Administering Maintenance Alarm Terminals**

---

Use the Station form to assign alarm buttons to the maintenance alarm terminal. One maintenance alarm terminal (model 7444D) is supplied with the MCU; up to two additional maintenance alarm terminals are supported.

The following commands can be used to administer the maintenance alarm terminal.

**Table 2-11. Station Administration Commands**

---

Action	Object	Qualifier
add	station	extension or next
change	station	extension
display	station	extension
list	station	extension, type, count, port, print, or schedule
remove	station	extension

---

Use the following procedure to add a maintenance alarm terminal:

1. At the *command:* prompt, enter **add station xxxx** where **xxxx** is an extension number or **next**.
2. Verify the screen displays the *Station* form (see "Station Form" on page 2-33 for a list of fields and values).
3. Use TAB and RETURN to advance to the fields you want to change.

4. Submit the form.
5. To verify the form, enter **display station xxxx**.

### **Station Form**

---

The following list shows the fields on the Station form and their related values.

- *Extension*

A display-only field that shows the extension number of the maintenance alarm terminal being administered.

- *Type*

This display-only field shows the model alarm terminal assigned to this extension.

 **NOTE:**

The 7444D is the only type of alarm terminal supported by the MCU. However, for administration purposes, the alarm terminal is administered as if it was a 7434D.

- *COR*

The Class of Restriction assigned to this maintenance alarm terminal. This should be assigned to the same COR as any other maintenance alarm terminal.

- *Port*

Specify the MCU port that is associated with this maintenance alarm terminal. This port is located on a TN754 Digital Line circuit pack.

- *COS*

The Class of Service assigned to this maintenance alarm terminal should be the same as the COS assigned to any other maintenance alarm terminal.

- *Name*

A label that identifies this maintenance alarm terminal.

- *Data Module*

When **y** is entered, a 7400B data module must be administered for this maintenance alarm terminal.

- *Display Module*

Set to **y** if the maintenance alarm terminal has a display (this is the correct setting for the 7444D).

**Station Form, Page 2 of 5**

- *Room*  
Specify the room number where this maintenance alarm terminal is located.
- *Headset*  
This field is not used. Leave it set to **n**.
- *Jack*  
Specify the jack number where the maintenance alarm terminal is connected.
- *Cable*  
Enter the cable number that connects the jack to the MCU.
- *Button Assignments*  
Assign the desired features on the appropriate buttons. Table 2-12 lists the recommended maintenance alarm terminal button assignments for buttons 1 through 10.

**Table 2-12. Maintenance Alarm Terminal Button Assignments**

<b>Button</b>	<b>Assignment</b>	<b>Button</b>	<b>Assignment</b>
1	call-appr	6	ac-alarm
2	call-appr	7	smdr1-alm
3	call-appr	8	pr-sys-alm
4		9	trk-ac-alm
5	aca-call	10	verify

**Station Form, Page 3 of 5**

- *Button Assignments*  
Use this continuation of screen 2 to assign features to the appropriate buttons. Table 2-13 lists the recommended maintenance alarm terminal button assignments for buttons 11 through 34.

**Table 2-13. Maintenance Alarm Terminal Button Assignments**

Button	Assignment	Button	Assignment
11		23	
12		24	link-alarm Lnk #: 1
13	major-alm	25	link-alarm Lnk #: 2
14	minor-alm	26	link-alarm Lnk #: 3
15	warn-alm	27	link-alarm Lnk #: 4
16	mmi-cp-alm	28	
17	vc-cp-alm	29	
18	ds1-alarm	30	
19		31	
20		32	
21		33	
22		34	

---

**Station Form, Page 4 of 5**

■ *Display Button Assignments*

Assign the display button appearances to the appropriate buttons as shown in TTable 2-14.

**Table 2-14. 7444D Display Button Assignments**

Button	Assignment
1	normal
2	inspect
3	trk-id
4	trunk-name

**Table 2-14. 7444D Display Button Assignments**

---

Button	Assignment
5	date-time
6	timer
7	

---

**Station Form, Page 5 of 5****NOTE:**

This screen displays only when **y** is entered in the *Data Module* field on the first screen.

- *Data Extension*  
Enter the extension assigned to the data module.
- *BCC*  
Leave this field set to **2**.
- *ITC*  
Information Transfer Capability used for routing calls according to the end-point's ITC. The default is **restricted**.
- *Name*  
Optional name for identification.
- *COR*  
The Class of Restriction assigned to this extension.
- *COS*  
The Class of Service assigned to this extension.
- *Ext Name*  
The terminal with a data extension button for this data module.

## **Administering Meet-Me Numbers and Extensions**

---

Calls gain access to the MCU via DS1 trunks. Once the network delivers a call across the DS1 to the MCU, the MCU processes the incoming call digits and routes it to the proper Meet-Me extension. The Meet-Me extension associates the call to the proper conference and the MCU selects the necessary resources from its resource pool to process the call. MCU ports are virtual entities internal to the MCU and are composed of different resources (unlike terminating calls at a voice terminal connected to a PBX).

The number of MCU ports is determined by the software administration of the 2B and H0 MCU ports and the hardware resources in the MCU. The MCU is shipped with a configuration of hardware resources appropriate for the model ordered.

As calls arrive at the MCU trunks, the network sends the dialed digits across the MCU access trunk. The Meet-Me number dialed is mapped to a Meet-Me extension which in turn enables the MCU to allocate available resources for the call. If the incoming call is from a 2B-channel 56k/64k video endpoint, the MCU actually receives two incoming network calls for the same Meet-Me number. When this occurs, both calls are joined by the MCU and assumed to come from the same video endpoint.

An important function of call routing is the ability to manipulate the digits. This capability provides great flexibility when assigning numbers to users and connecting users to conferences. Digit manipulation can be done through the network, on the PBX (if the MCU is behind a PBX), on the MCU trunk group or in the MCU call routing table. This optional capability allows the MCU to handle any digit string matching the North American dial plan, a private network dial plan or any multinational dial plan.

A 56k Meet-Me number cannot be assigned to a 64k or 384k (H0) conference. However, a 64k or 384k Meet-Me number can be assigned to a 56k conference. If video endpoint dials into a 56k conference with a 64k or 384k bandwidth, the MCU will notify the endpoint to switch to 56k bandwidth and will make it an audio-only source. If the endpoint responds that it has switched to 56k bandwidth, it will become a video source.

## Network Services

---

The MCU is viewed as an endpoint by the public network. If the MCU resides behind a PBX, the PBX serves as the public network endpoint. Endpoint users must subscribe to a network service that provides a digital transmission service.

Table 2-15 provides an overview of the most commonly used digital services provided by AT&T.

**Table 2-15. AT&T Network Services**

Network Service	Number Dialed to Join Conference	Bandwidth	Comments
Switched Digital International (SDI)	700-56x-xxxx 700-737-xxxx 700-730-xxxx	56k 56k, 64k, 384k 56k, 64k, 384k	RBS network access ISDN-PRI ISDN-PRI
ACCUNET Switched Digital Service (SDS) SW56	700-56x-xxxx	56k	RBS network access
ACCUNET SDS SW56/64	700-737-xxxx	56k, 64k, 384k	ISDN-PRI
Software Defined Data Network (SDDN)	NNN-NNNN Nxx-xxxx N0/1x-Nxx-xxxx	56k 56k, 64k, 384k 56k, 64k, 384k	RBS network access ISDN-PRI ISDN-PRI
SDDN-Virtual Off-Net	700-56x-xxxx 700-737-xxxx	56k 56k, 64k, 384k	RBS network access ISDN-PRI
Private Network (PBX)	1 to 7 digits		Based on PBX dial plan connecting to the MCU

---

x = any number from 0 through 9

N = any number from 2 through 9

## **Administering the Dial Plan**

---

Through administration of the dial plan, the MCU identifies calls from the network and routes them to available video ports. This is done through the Dial Plan Record form.

The MCU is preset with a 5-digit dial plan. Each video port is identified by a unique 5-digit extension.

The commands in Table 2-16 can be used to access the Dial Plan Record form.

**Table 2-16. Dial Plan Administration Commands**

---

<b>Action</b>	<b>Object</b>	<b>Qualifier</b>
change	dialplan	
display	dialplan	print or schedule

---

Use the following procedure to change the dial plan:

1. At the *command:* prompt, enter **change dialplan**.
2. Verify the screen displays the *Dial Plan Record* form (see "Dial Plan Form" on page 2-39 for a list of fields and values).
3. Use TAB and RETURN to advance to the fields you want to change.
4. Submit the form.
5. To verify the form, enter **display dialplan**.

### **Dial Plan Form**

The following list shows the fields on the Dial Plan Record and related values.

#### **Dial Plan Form, Page 1 of 6**

- *Area Code*  
Enter the area code number where the MCU is located.
- *Local PBX*  
Reserved for future use.

- *ARS Prefix 1 Required*  
Enter **y** if a prefix of "1" is required.
- *Uniform Dialing Plan*  
If UDP is administered, enter **y**. UDP provides a common four or five digit dial plan that can be shared among the MCU and a PBX.
- *Plan Length*  
When UDP is administered, enter the number of digits in the dial plan (**4** or **5**).
- *First Digit Table*  
This table consists of fields for each possible first digit and dialed number length. If the first digit of an extension number is **3** and the length of the extension number is **5** digits, enter **extension** in the third row, fifth column. Likewise, if trunk access codes (TAC) begin with a **1** and are **3** digits long, enter **tac** in the first row, third column.

#### **Dial Plan Form, Page 2 through 6 of 6**

- *Code*  
Enter the number representing the first one, two, three, or four digits of a 4- or 5-digit extension.
- *LCL*  
Enter **n** if the code above is located on a remote PBX.
- *RNX*  
When UDP is selected, the code yields the associated RNX which is used to select a Routing Pattern for the call.
- *ID*  
Leave this field blank.

## **Assigning Meet-Me Extensions**

---

The MCU is given a network number that corresponds to its location in the network. This number is the Meet-Me number that conferees dial to join a multipoint conference. You obtain network numbers from Network Services or, if the MCU is an SDDN or private network location, the Meet-Me numbers can be selected and assigned per your existing dial plan. After you obtain the Meet-Me numbers, you need to associate each number with a Meet-Me extension on the MCU.

**⇒ NOTE:**

Whenever possible, the last four digits of the Meet-Me extension should be the same as the last four digits of the corresponding Meet-Me number. This helps with troubleshooting so you can quickly relate a dialed Meet-Me number with the matching Meet-Me extension on the MCU. It is important to note, however, that a Meet-Me extension cannot begin with a **0**.

Table 2-17 provides the commands that can be used to administer Meet-Me extensions.

**Table 2-17. Meet-Me Extension Administration Commands**

<b>Action</b>	<b>Object</b>	<b>Qualifier</b>
add	meet-me	extension or next
change	meet-me	extension
display	meet-me	extension, count, print, or schedule
list	meet-me	extension, count, print, or schedule
remove	meet-me	extension

**⇒ NOTE:**

A Meet-Me extension cannot be removed if it is assigned to a conference reserved on the MCU.

Use the following procedure to add a Meet-Me extension:

1. At the *command:* prompt, enter **add meet-me xxxx** where **xxxx** is an extension number or **next**.
2. Verify the screen displays the *Meet-Me Extension* form (see "Meet-Me Extension Form" on page 2-42 for a list of fields and values).
3. Use TAB and RETURN to advance to the fields you want to change.
4. Submit the form.
5. To verify the form, enter **display meet-me xxxx**.



**NOTE:**

Be sure to make the appropriate changes to the Meet-Me Extensions and Numbers to Dial Form described earlier in "Recording Meet-Me Numbers and Extensions."

### **Meet-Me Extension Form**

---

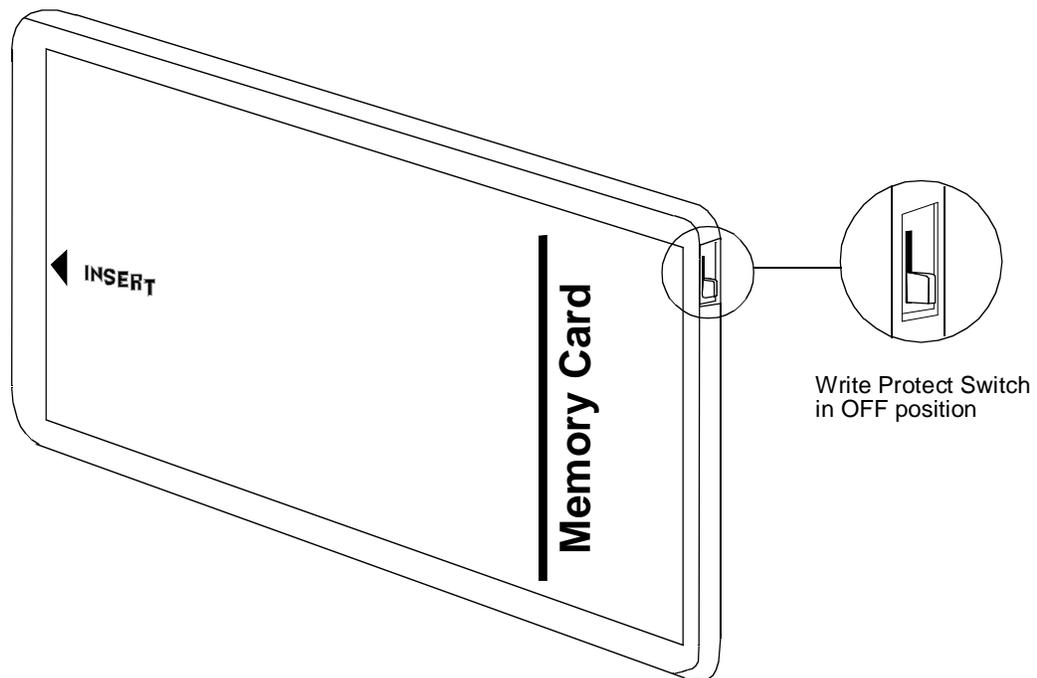
The following list shows the fields on the Meet-Me Extension form and their related values.

- *Extension*  
A display-only field that shows the Meet-Me extension number.
- *Name*  
If this is a preassigned Meet-Me number, enter the name of the individual or location assigned to this number. Otherwise, enter the network number (the number the conferee dials to join a conference) that corresponds to this Meet-Me extension.
- *Bandwidth per Channel*  
Enter the bandwidth (**56k, 64k/384k**) the Meet-Me number supports.

## Performing System Backups and Saving Translations

---

The save translation command copies the current system translations onto the memory card located on the Network Control circuit pack. One system memory card is included with the MCU. A backup memory card may be purchased optionally.



---

**Figure 2-1. Memory Card**

Use the following procedure to save translations on the original system memory card and to make a backup memory card:

1. Be sure the system memory card is inserted in the Network Control circuit pack with the write-protect switch in the OFF position.
2. Login as **cust** on the MCU-MT.
3. At the *command:* prompt, enter **save translation** and press RETURN.

4. Check for a **0** in the *Error Code* column; a **0** indicates the save translation was successfully completed.

 **NOTE:**

If a number other than **0** appears, the save translation process did not complete. Record the number in the *Error Code* field along with any *Error Message*, then call the AT&T Video Technical Center (VTC) at **800 242-2121**. Select **Video** from the voice menu and a VTC engineer will assist you.

5. If the save translation procedure is successful, remove the system memory card and insert the backup memory card (if you have one). Repeat steps 2 and 3, then swap the memory cards. Place the backup memory card in a safe place.

### Overview

---

You can request a variety of reports about the MCU. These reports provide details about performance and status of trunks and MCU ports.

The optional system printer, not the local printers connected to the MCU-MT or MCU-ST, automatically prints all reports when the command includes the schedule qualifier. The system printer is remotely connected to the MCU via a 7400B data module.

If you do not have a system printer, you can request to print individual reports on local printers by adding the print qualifier to the command line.

### Scheduling Reports

---

The schedule option appears as a qualifier for many MCU list, display and test commands. Whenever a command containing the schedule qualifier is executed, a *Job Id* is generated and a Report Scheduler screen appears so you can change the *Print Interval*. A maximum of 50 *Job Ids* can be scheduled for printing on the system printer.

The *Print Interval* field allows you to specify when each report is printed (**immediate**, **deferred**, or **scheduled**). The **immediate** option prints the report on-demand and is the default.

The **deferred** option allows you to schedule the report for a single printing at some day or time in the future. Once the report is printed, the *Job Id* is automatically deleted.

Both the **deferred** and **scheduled** options provide two additional fields for *Print Time* and *Days of Week* so you can specify when the report is to be printed. The **scheduled** option differs from the **deferred** option because the specified report continues to print at the scheduled time until you remove it from the Report Scheduler.

Table 3-1 lists the commands that relate to the Report Scheduler feature.

**Table 3-1. Report Scheduler Administration Commands**

---

Action	Object	Qualifier
list	report-scheduler	
change	report-scheduler xx	
remove	report-scheduler xx	

---

xx = the Job ID

When you want to change a scheduled report with the **change report-scheduler** command, the *Job Status* field indicates whether the report is scheduled to be printed (**print-next**), currently printing (**printing**), finished printing (**printed**), or not scheduled to print (**waiting**) during the current 15-minute interval. To print a scheduled report immediately, change the *Print Interval* field to **immediate**.

## **Recent Change History**

---

The Recent Change History Report allows you to view or print a history of the most recent administration and maintenance changes. This report may be used for diagnostic or informational purposes.

The MCU maintains a log in the software buffer of up to 250 of the most recent administration and maintenance commands. This log is called the transaction log. The commands must be data-affecting and are called data commands (see Table 3-2).

The Recent Change History Report shows the command, date and time, MCU port (such as, MCU-MT, INADS, or CDR) and the login used to enter the command. The transaction log can be displayed on screen or printed using the following command:

**Table 3-2. Recent Change History Administration Commands**

---

Action	Object	Qualifier
list	history	print

---

The following list shows the data commands available on the MCU:

**Table 3-3. MCU Data Commands**

---

Command	Command	Command
add	enable	reset
busyout	get	rp
change	list	save
clear	mark	set
disable	monitor	status
display	recycle	test
download	release	upload
duplicate	remove	wp

---

## Trunk Group Measurements Report

There are three reports that provide traffic measurements for trunk groups and Call-By-Call (CBC) reports. The Trunk Group Call-By-Call Report displays the last-hour traffic data for any specified trunk group. The Trunk Group Summary Report tracks the activity of the trunk group. The Trunk Group Measurements Hourly Report captures hourly trunk group usage.

Table 3-4 shows the commands that relate to obtaining trunk group measurements.

**Table 3-4. Trunk Group Measurements Administration Commands**

Action	Object	Qualifier
change	meas-selection trunk-group	print or schedule
display	meas-selection trunk-group	print or schedule
list	measurements trunk-group hourly ##	print or schedule
list	measurements trunk-group summary	yesterday-peak, today-peak, last-hour, print, or schedule
list	measurements cbc-trunk-group <number>	last-hour, print, or schedule

## Trunk Group Measurements Call-By-Call Report

The Trunk Group Measurements Call-By-Call Report monitors the trunk group and determines if the usage selected by the Usage Allocation Plan (UAP) is optimal.

Each UAP specifies the network services and features assigned to the trunk group. By implementing the UAP, you can optimize, within certain limits, the CBC trunk group without involving any of the Inter-Exchange Carrier/Local Exchange Carrier (IXC/LEC) network services personnel. Each plan specifies the minimum number of reserved channels and maximum number of channels each service or feature may use at a given time.

The UAP may be administered as **fixed** or **scheduled**. With the **fixed** method, a specified plan remains in effect continuously. With the **scheduled** method, two or

three UAPs may be scheduled to vary during the week or time of day. Before you can analyze this report, you must know the intent of the UAP.

The following list identifies the data collected by the Trunk Group Measurements Call-By-Call Report:

- *Queue Size*

This field is set to **0**; no queue is administered.

- *Calls Queued*

This field is not used.

- *Queue Overflow*

This field is not used.

- *Queue Abandonments*

This field is not used.

- *Out of Service*

The number of trunks in the trunk group that are out-of-service at the time the measurements are taken. An individual trunk may be taken out-of-service automatically by the MCU if too many errors occur or by maintenance personnel in order to run tests.

- *Usage Allocation Plan Used*

A list of the UAP numbers followed by a list of the respective amount of time (in minutes), the duration, that each plan was in effect during the measurement period. The *Number* field can display up to a maximum of six plan numbers; a maximum of three plans may be defined for each trunk group.

- *Service/Feature*

The name of up to 10 services or features and the special identifier "other" for which the associated measurements are being reported. The following services can be administered in a UAP: ACCUNET digital service, SDN and SDDN. The identifier "other" is used to report activity for any service or feature not specified in the current UAP. If no UAP is in effect, no report is made. If public network access is to an LEC or IXC other than AT&T, that carrier's ISDN services or features are listed, provided they have been administered as a user-defined service or feature.

- *Min Chn*

The minimum number of channels in the ISDN-PRI CBC trunk group allocated to the specified service or feature at the time the measurements were collected.

- *Max Chn*

The maximum number of channels in the ISDN-PRI CBC trunk group allocated to the specified service or feature at the time the measurements were collected.
- *Total Usage*

The sum of time, in hundred-call-seconds (CCS) for all channels that were used by the specified service or feature during the measurement interval (60 minutes).
- *Total Seize*

The total number of incoming calls that requested the specified service or feature through the ISDN-PRI CBC trunk group.
- *Inc. Seize*

The total number of incoming calls that requested the specified service or feature through the ISDN-PRI CBC trunk group.
- *Tan Seize*

This field does not apply. It should remain at **0**.
- *Ovf TG*

This field does not apply. It should remain at **0**.
- *Ovf S/F*

This field is not used.
- *Ovf Max*

This field is not used.
- *% TBM*

This field is not used.
- *% ATB*

The percentage of time (**0** to **100** percent) during the measurement interval when the specified service or feature could not get a channel because all trunks in the ISDN-PRI trunk group were busy on a call or busied-out by maintenance, the service was above its minimum and all available trunks were reserved, or the specified service or feature was at its maximum number of channels.
- *% BLK*

This field does not apply.

## Trunk Group Summary Report

The following list identifies the data collected by the Trunk Group Summary Report:

- *Peak Hour for All Trunk Groups*  
Peak hour and busy hour are one in the same. The peak hour is the highest usage for each day regardless of the average across days.
- *Grp No.*  
A number that identifies each trunk group associated with the displayed data.
- *Grp Size*  
The number of administered trunks in a trunk group.
- *Grp Type*  
The type of trunk (**isdn-pri** or **tie**) in the trunk group.
- *Grp Dir*  
The direction (**incoming**) of the trunk group.
- *Meas Hour*  
The hour (using the 24-hour clock) in which the measurement was taken.
- *Total Usage*  
The total time the trunks are busy during the one hour measurement period.
- *Total Seize*  
The number of times a trunk in the trunk group was seized. The call may or may not have been completed.
- *Inc. Seize*  
The total number of times a trunk in the trunk group was seized in order to receive an incoming call. The call may or may not have been completed.
- *Grp Ovfl*  
This field is not used.
- *Que Size*  
This field is not used.
- *Calls Qued*  
This field is not used.

- *Que Ovf*  
This field is not used.
- *Que Abd*  
This field is not used.
- *Out Serv*  
The total number of trunks in the trunk group that are out-of-service (listed as **maintenance busy**) at the time data was collected. An individual trunk may be taken out-of-service by the MCU when an excessive number of errors occurs or by maintenance personnel to run diagnostic tests. If the trunks were taken out-of-service by the MCU, it may be appropriate to notify maintenance personnel.
- *% ATB*  
The percentage of time that all trunks in the trunk group were simultaneously in use during the measurement interval. In use means all trunks were busy either processing calls or they were busied-out by maintenance. A high number in this field probably indicates calls are being blocked.
- *% Out Blk*  
This field is not used.

### **Trunk Group Hourly Report**

---

 **NOTE:**

In order to generate this report you must first enter the number of trunks you want measured hourly in the *Trunk Group Number* field of the Trunk Group Measurement Selection. If no selections are made, no measurements are taken.

The following list identifies the data collected by the Trunk Group Hourly Report:

- *Grp No.*  
A number that identifies each trunk group associated with the displayed data.
- *Grp Size*  
The number of administered trunks in a trunk group.
- *Grp Type*  
The type of trunk (**isdn-pri** or **tie**) in the trunk group.
- *Grp Dir*  
The direction (**incoming**) of the trunk group.

- *Que Size*

This field is not used.

- *Total Usage*

The total time the trunks are unavailable due to the trunks being busy, busied-out by maintenance or any other reason.

- *Maint Usage*

The total usage of trunks in this trunk group for maintenance busy or any other non-call situation where trunks are unavailable.

- *Total Seize*

The total number of seizures on the trunk group.

- *Inc. Seize*

The total number of times a trunk in the trunk group was seized in order to receive an incoming call. The call may or may not have been completed.

- *Tandem Seize*

This field is not used.

- *Grp Ovfl*

This field is not used.

- *Calls Qued*

This field is not used.

- *Que Ovfl*

This field is not used.

- *Que Abd*

This field is not used.

- *Out Serv*

The total number of trunks in the trunk group that are out-of-service (listed as **maintenance busy**) at the time data was collected. An individual trunk may be taken out-of-service by the MCU when an excessive number of errors occurs or by maintenance personnel to run diagnostic tests. If the trunks were taken out-of-service by the MCU, it may be appropriate to notify maintenance personnel.

- *% ATB*

The percentage of time that all trunks in the trunk group were simultaneously in use during the measurement interval. In use means all trunks were busy either processing calls or they were busied-out by maintenance. A high number in this field probably indicates calls are being blocked.

- *% Out Blk*

This field is not used.

## **Trunk Outage Report**

---

This report lists up to a maximum of five trunks in each trunk group that were out-of-service when sampled. The number of times the trunks were out-of-service when sampled is also given. The trunk outage data is kept for the current day, the previous day and the last hour.

Table 3-5 shows the command that relates to obtaining trunk outage measurements.

**Table 3-5. Trunk Outage Measurements Administration Commands**

---

<b>Action</b>	<b>Object</b>	<b>Qualifier</b>
list	measurements outage-trunk	yesterday, today, print, or schedule

---

## **Trunk Outage Measurements Report**

---

The following list shows the data collected for the Trunk Outage Measurements Report:

- *Grp No.*  
A number that identifies each trunk group associated with the displayed data.
- *Grp Type*  
The type of trunk (**isdn-pri** or **tie**) associated with the accumulated data.
- *Grp Dir*  
Identifies the direction (**inc** for incoming only) of the trunk group.
- *Grp Size*  
The number of trunks in the trunk group.
- *Grp Mbr #*  
The number that identifies a specific trunk member in the group that is out-of-service.

- *#Sampled Outages*

The number of times the group member is sampled as out-of-service over the period covered by the report (**yesterday**, **today**, or **last hour**). If there are no outages then no data is displayed. The sampling period is once per hour. If the report covers several hours but the column indicates a small number of outages, the trunk member may be providing intermittent service. Use the facility test calls feature to determine whether a specific trunk member is functioning. If you suspect the trunk is causing problems, use the ACA feature to monitor the particular trunk group. If the trunk is out-of-service, you may choose to refer the problem to maintenance personnel.

## **Trunk Group Traffic Report**

---

The Trunk Group Status Report gives a current indication of the load on various trunk groups. For comparative analysis, the trunk members in the group that are active on calls are also displayed. Table 3-6 shows the command that relates to obtaining trunk status reports:

**Table 3-6. Trunk Status Administration Commands**

---

<b>Action</b>	<b>Object</b>	<b>Qualifier</b>
monitor	traffic trunk-groups	

---

## **Trunk Status Report**

---

The following list shows the data collected for the Trunk Status Report:

- *#*  
Group number that identifies each trunk group.
- *S*  
Group size that shows the number of trunks administered for the trunk group.
- *A*  
Shows the number of trunk members in the group that are active on a call. Busied-out trunks are not active.

- *Q*  
This field is not used.
- *W*  
This field is not used.

## **Automatic Circuit Assurance Reports**

---

The ACA Parameters Report lists all trunk groups in the system and displays the current definitions for long and short holding times. It identifies possible malfunctioning trunks by providing an alerting mechanism that monitors the occurrences of an excessive number of short holding time calls and abnormally long holding time calls. The report sets time ranges for each trunk group.

**⇒ NOTE:**

The *ACA Assignment* field must be set to **y** on the Trunk Group form (see “Administering Trunks” in Chapter 2. ACA must also be enabled on the Feature Related System Parameters form described in this section.

The ACA Measurements Report displays the audit trail of any short or long holding time that exceeds the established limits. It displays up to 64 of the most recent entries.

Table 3-7 lists the commands related to obtaining ACA measurements.

**Table 3-7. Automatic Circuit Assurance Administration Commands**

<b>Action</b>	<b>Object</b>	<b>Qualifier</b>
change	system-parameters features	
list	aca-parameters <number>	count, print, or schedule
list	measurements aca	print or schedule

---

## Features-Related System Parameters Form

The following list shows the fields on the Feature-Related System Parameters form that must be set use to the ACA feature:

- *Automatic Circuit Assurance (ACA) Enabled*  
Enter **y** to activate the ACA features to allow the MCU to take trunk group measurements and report possible malfunctions. This field must be set to **y** if you want to collect data for the ACA reports.
- *ACA Referral Calls*  
Displayed when ACA is enabled, specifies where the ACA referral calls are generated. The default and the correct setting is local.
- *ACA Referral Destination*  
Enter the extension number of the maintenance alarm terminal that will alert when a malfunction is reported.
- *ACA Short Holding Time Originating Extension*  
Enter an unassigned extension number that is used to identify when the referral is the result of too short holding times. A short holding time warning is sent to the maintenance alarm terminal specified as the ACA referral destination and displayed as "ACA CALL(SHORT)."
- *ACA Long Holding Time Originating Extension*  
Enter an unassigned extension number that identifies when the referral is the result of excessively long holding times. A long holding time warning is sent to the maintenance alarm terminal specified as the ACA referral destination and displayed as "ACA CALL(LONG)."

## ACA Parameters Report

The following list shows the data collected by the ACA Parameters Report:

- *Group Number*  
A unique number assigned during administration that identifies each trunk group.
- *TAC*  
The Trunk Access Code (TAC) assigned during administration for the trunk group. An ISDN trunk cannot have a TAC assigned to it.
- *Group Type*  
The type of trunk associated with the accumulated data (**isdn-pri** or **tie**).

- *Group Name*

The trunk group identification that is administered on the Trunk Group form.
- *ACA On?*

Indicates whether or not the trunk group is being monitored by ACA. When you do not have a specific reason to monitor a trunk group, set this field to **n**.
- *Short Hold Time*

The maximum number of seconds that a call is considered a short holding time call. A holding time longer than this value is considered normal up until the long holding time is exceeded. The short holding time value is specified on the Trunk Group form.
- *Short Threshold*

The system maintains a running total of calls that have short holding times. The count is increased by one for each call that meets that criteria and decreased by one for each call that does not. When this count reaches a designated threshold, an entry is made on the ACA Measurements Report and a referral call is placed. The threshold value is administered on the Trunk Group form.
- *Long Hold Time*

The minimum time of seizure in hours, that the MCU will consider a call as having a long holding time. This number is specified on the Trunk Group form. Since video conference calls generally run for several hours, this number should account for the longer duration. A referral call is placed as soon as a single long holding call is detected. Subsequently, a referral call is placed at the top of the hour until the problem is resolved or the trunk becomes idle.

### **ACA Measurements Report**

---

The following list shows the data collected for the ACA Measurements Report:

- *Day & Time of Referral*

The day and time at which either the threshold for the short holding time was exceeded or long holding time call was reached and a referral call was entered (shown as day/hh:mm). Referral calls are only attempted if the referral button is enabled. A referral call is completed if the call is answered. A call that is not answered is attempted again when a new ACA call is received.

- *Trunk Group No.*  
Number of the trunk group in which the referral occurred.
- *Trunk Access Code*  
The Trunk Access Code (TAC) number administered for the trunk group.
- *Trunk Member*  
One specific trunk in the group that incurred the referral. This information can be used with other maintenance tests to identify the equipment location (circuit pack) of the trunk group member.
- *Type of Referral*  
Indicates whether or not the referral occurred as the result of too many short holding times or long holding times. Depending upon local arrangements, it may be appropriate to notify maintenance personnel if they have not already been alerted.

## DS1 Measurements

---

There are two performance measurements for DS1 links. The DS1 Link Performance Measurements Summary Report provides an indication of the quality of a DS1 link that connects to a DS1 interface circuit pack. The DS1 Link Performance Detailed Log Report lists errored events for the past 24 hours. The errored event records are listed for each 15-minute interval. This shows 96 records (for each 15-minute interval) from the current time back 24 hours before the current interval, beginning with the oldest record.

Check these reports if you receive complaints from video endpoints about the stability of the far-end handshake, especially when the Status of Conference screen reports **Handshake** as the drop reason (see the *AT&T MultiPoint Control Unit Reservation Agent Manual* for troubleshooting details).

**Table 3-8. DS1 Measurements Administration Commands**

Action	Object	Qualifier
clear	measurements-ds1	
list	measurements ds1	location, print, or schedule
list	measurements ds1-log	location, print, or schedule

---

Where location is **NNCSSF** where **NN** is the port network number, **C** is the carrier, **SS** is the slot and **F** is the facility number.

### **DS1 Link Performance Measurements Summary**

The following list shows the data collected on the DS1 Link Performance Measurements Summary form:

- *Counted Since*  
The date and time the counters were last cleared and restarted. The counters are set to 0 and start accumulating data when the MCU is administered or reinitialized. The current system time appears in the field once the system clock is set. An error message appears if the system clock has not been set following a reinitialization.
- *Number of Seconds Elapsed*  
The total number of 15-minute intervals (**0** to **96**) in the past 24 hours that have valid values. An invalid value is any 15-minute interval when the time was changed, a system reinitialization occurred or the DS1 circuit pack was removed.
- *Worst 15-Min Interval*  
The date, ending time, and count for the 15-minute period that contained the maximum count in each error category. If there are no errors, the field displays a **0** with the oldest time.
- *Total of 24-Hour Count*  
The total count in each error category for the last 24 hours (**0** to **65535**).
- *Current 15-Min Interval Count*  
The count-so-far in each error category for the 15-minute interval in progress when the report was requested. If no errors have occurred in any of the categories during the current 15-minute interval, the respective field will contain a **0**. If the system is busy performing call processing functions and cannot respond within eight seconds, the field will show **N/A**.

## DS1 Link Performance Detailed Log Report

The following list shows the data collected on the DS1 Link Performance Detailed Log Report form:

- *Date*

The date on which the event occurred (**yesterday** or **today**).

- *Time*

The ending times for the 15-minute sampling intervals.

- *Errored Second*

The number of errored seconds (maximum of **900**) for the specified interval. An errored second is any second in which one or more data transmission errors occurred. **N/A** indicates the count for that interval was not available because there was no data.

- *Bursty Err Sec*

The number of bursty errored seconds (maximum of **900**) for the specified interval. A bursty errored second is any second in which two to 319 data transmission errors occurred. **N/A** indicates the count for that interval was not available. An error count of this severity causes a minor alarm. Depending on local arrangements, it may be appropriate to notify maintenance personnel if they have not already been alerted.

- *Severely Err Sec*

The number of severely errored seconds for the specified interval (maximum of **900**). A severely errored second is any second in which 320 or more data transmission errors occurred. An error count of this severity results in a major alarm. Depending on local arrangements, it may be appropriate to notify maintenance personnel if they have not already been alerted.

- *Failed Second*

The number of failed seconds states for the specified interval (maximum of 900). A failed second state exists any time that ten or more consecutive severely-errored seconds have occurred. An error count of this severity results in a major alarm. **N/A** indicates the count for this interval was not available. Depending on local arrangements, it may be appropriate to notify maintenance personnel if they have not already been alerted.

- *Valid Interval*

Specifies whether or not a valid count is provided by the DS1 interface circuit pack. A value of **y** indicates all counts are valid for the interval. An invalid interval is any 15-minute interval during which the system clock was changed, a system reinitialization occurred or the specified circuit pack was removed.

## Hunt Group Measurements

There are three measurement reports for hunt groups. The Hunt Group Measurements Report monitors the hunt group. This report shows hunt group measurements for yesterday's peak hour, today's peak hour, and the last hour. A peak hour is the hour within a 24-hour period when there was the greatest usage for the specified day.

The Hunt Group Performance Report gives the slowest hourly average speed of answer for each hunt group. The Hunt Group Status Report provides an instantaneous indication of the load that is pending for various hunt groups. Table 3-9 lists the commands related to hunt group measurements.

**Table 3-9. Hunt Group Measurements Administration Commands**

Action	Object	Qualifier
list	measurements hunt-group	yesterday-peak, today-peak, last hour, print, or schedule
list	performance hunt group	yesterday, today, print, or schedule
monitor	traffic hunt-groups	

## Hunt Group Measurements Report Form

The following list shows the data collected on the Hunt Group Measurements Report form:

- *Grp No.*  
A number that identifies each hunt group.
- *Grp. Name*  
Name assigned, during administration, to the hunt group.
- *Grp Size*  
The number of extensions assigned to the hunt group.
- *Grp Type*  
The type of hunt group.

- *Meas Hour*

The peak hours for the specified hunt group. Depending on the time of day the report is generated, today's peak hour data may vary.
- *Total Usage*

The sum of all times that the members of a hunt group are busy on hunt group calls.
- *Calls Ans*

The total number of all hunt group calls answered by the hunt group.
- *Calls Aban*

The total number of calls which attempt to reach the hunt group but abandon the attempt before being answered.
- *Queue Size*

This field is not used.
- *Calls Queued*

This field does not apply.
- *Queue Ovfl.*

This field does not apply.
- *Time Avail*

The total time that the hunt group extensions are not in use but are available to receive hunt group calls during the measurement hour.
- *Speed of Answer*

The average time interval (in seconds) from when the call first enters the hunt group until the call is answered by a hunt group member.

### **Hunt Group Performance Report**

The following list shows the data collected on the Hunt Group Performance Report:

- *Grp No.*

A number that identifies each hunt group.
- *Grp Size*

The number of extensions assigned to the hunt group.
- *Grp Type*

The type of hunt group.

- *Slowest Speed of Answer (sec)*  
A bar graph representation of the slowest hourly average speed of answer for the report interval (**yesterday** or **today**).
- *Speed Ans (sec)*  
The number of seconds corresponding to the slowest hourly average speed of answer (longest amount of time to answer) for the report interval (**yesterday** or **today**).
- *Meas Hour*  
The starting time (using the 24-hour clock) of the hour during which the data was recorded.
- *Daily Avg.*  
The number corresponding to the 24-hour daily average speed of answer for each hunt group.

### **Hunt Group Status Report**

---

The following list shows the data collected for the Hunt Group Status Report:

- *#*  
Group number that identifies each hunt group.
- *S*  
Group size that shows the extensions assigned to the hunt group.
- *A*  
Shows the number of hunt group members that are active on a call.
- *Q*  
This field is not applicable.
- *W*  
This field is not applicable.
- *LCIQ*  
This field is not applicable.

## **Security Violations Reports**

---

There are two security violation reports. The Security Violations Measurements Report measures the number of attempts at system entry through an invalid login. The Security Violations Status Report provides current status information on invalid system administration terminal login attempts and remote access violations.

Invalid login attempts and remote access violations are logged at the time they occurred. The login is entered and the port that was accessed during the failed login attempt is recorded. For remote access violations, the trunk group number is also reported. A total of 16 entries are maintained for invalid access. The data displayed by this report is refreshed every 30 seconds.



**NOTE:**

If login security violations occur, change the password for the login immediately.

Table 3-10 lists the commands that are used to obtain security violation reports.

**Table 3-10. Security Violation Administration Commands**

---

<b>Action</b>	<b>Object</b>	<b>Qualifier</b>
clear	security-violations	
list	measurements security-violations	print or schedule
monitor	security-violations	print

---

## Security Violations Measurements Report

The following list shows the data collected on the Security Violations Measurements Report form:

- *Login ID*  
The login that was attempted.
- *Port Type*  
The port that was used for the login attempt.
- *Successful Logins*  
The total number of login attempts for each login that completed.
- *Invalid Passwords*  
The number of passwords that were entered for the login that were incorrect.
- *Counted Since*  
The time at which the counts were last cleared and started accumulating again or when the system was initialized.

## Security Violations Status Report

The following list shows the data collected on the Security Violations Status Report:

- *Date*  
The date of the invalid login attempt.
- *Time*  
The time of the invalid login attempt.
- *Login*  
The login ID used in the invalid login attempt. The failure may have been due to an invalid password but the login (valid or invalid) is also listed.
- *Port*  
The port on which the invalid login attempt was made. **SYSAM-LCL** is for the MCU-MT, **SYSAM-RMT** is for the MCU-ST and **SYS-PORT** is for the dial-up remote maintenance port.
- *Ext*  
The extension assigned to the port.

- *Date*  
The date of the remote access attempt.
- *Time*  
The time of the remote access attempt.
- *TG No.*  
The trunk group number associated with the trunk used in the invalid remote access attempt.
- *Mbr*  
The trunk group member number of the trunk used in the invalid remote access attempt.
- *Ext.*  
The remote access extension.

## System Status Reports

---

There are two monitor system status reports. Monitor System View1 Report includes maintenance status and last hour's traffic data for hunt groups and trunk groups. The Monitor System View2 Report provides maintenance status and last hour's traffic for trunk groups only (no hunt group data). For both reports, data for maintenance status is updated every minute. Data for traffic status is collected on an hourly basis from existing measurements.



### **NOTE:**

Consider requesting these reports as the last request during your current login. The screens are exited by pressing CANCEL which also logs you off the system.

Table 3-11 lists the commands related to obtaining system status reports.

**Table 3-11. System Status Reports Administration Commands**

Action	Object	Qualifier
monitor	system view1	
monitor	system view2	

---

### Monitor System View1 Report

The following list shows the data collected for the Monitor System View1 Report:

- *Maintenance Status*  
Shows the number of alarms (including minor and major alarms) that may indicate problems on trunks, stations (maintenance alarm terminals) or other resources. If any alarm exists in the system or if remote maintenance (for example, INADS) has acknowledged an alarm, indications are shown on the report. Use the **display alarms** command to determine exactly what alarms currently exist. A **y** in the *INADS* field indicates the alarm has been acknowledged.
- *Traffic Status*  
Displays the call handling status for trunk groups and hunt groups. The report indicates the number of abandoned calls during the previously completed measurement interval for the identified group. For the trunk group measurements, only the four trunk groups numbers with the highest percentage of blocking are listed.
- *Grp Dir*  
Displays the trunk group direction (**incoming**).
- *%Time ATB*  
Shows the percentage of all trunks busy. For incoming trunk groups that report a high number in this field, enter the **list performance trunk-group** command to check the trunk group for problems.

## Monitor System View2 Report

The following list shows the data collected for the Monitor System View2 Report:

- *Maintenance Status*

Shows the number of alarms (including minor and major alarms) that may indicate problems on trunks, stations (maintenance alarm terminals) or other resources. If any alarm exists in the system or if remote maintenance (for example, INADS) has acknowledged an alarm, indications are shown on the report. Use the **display alarms** command to determine exactly what alarms currently exist. A **y** in the *INADS* field indicates the alarm has been acknowledged.

- *Traffic Status*

Displays the call handling status for trunk groups only. The report indicates the number of abandoned calls during the previously completed measurement interval for the identified group. Only the four trunk groups numbers with the highest percentage of blocking are listed.

- *Grp Dir*

Displays the trunk group direction (**incoming**).

- *%Time ATB*

Shows the percentage of all trunks busy. For incoming trunk groups that report a high number in this field, enter the **list performance trunk-group** command to check the trunk group for problems (see "Performance Reports" for details).

## Performance Reports

---

There are two performance reports. The Performance Summary Report summarizes the peak hour trunk blocking, ARS traffic data, trunks out-of-service and trunks not used. The report captures data from the previous day or the current day. The Trunk Group Performance Report gives a graphical and numerical display of the peak hour blocking for each trunk group. This report captures data from the previous day or the current day.

Table 3-12 gives the commands related to obtaining performance reports.

**Table 3-12. Performance Reports Administration Commands**

Action	Object	Qualifier
list	performance summary	yesterday, today, print, or schedule
list	performance trunk-group	yesterday, today, print, or schedule

---

### Performance Summary Report

---

The following list shows the data collected for the Performance Summary Report:

- *Peak Hour Trunk Blocking*  
Lists up to the maximum of five trunk groups that have the highest percentage of blocking in a measurement hour. For incoming trunk groups, the percentage of blocking is shown in the % *ATB* field. The number in this field represents the percentage of time all trunks in the trunk group were simultaneously in use during the measurement interval.
- *Daily ARS Calls Carried*  
This field is not used.
- *Trunks Out of Service*  
Lists four trunk groups with out-of-service trunks over the report interval. A list of the first 10 trunks that are out-of-service is also given. The message `more out of service` is displayed when more than four trunk groups are out of service or more than ten members of any trunk group are out of service. This measurement is a summary of the Outage Trunk Measurement Report.

- *Trunks Not Used*

Lists the four trunk groups with trunks that have not been used over the report interval. A list of the first five trunks, in each of the identified groups, that have not been used are also listed. The message *more out of service* displays when more than four trunk group have not been used or whenever more than five members of any group have not been used. You should determine the exact reason why trunks are not being used. If there is only one trunk member identified for a trunk group and that member has zero calls, the trunk may be defective.

### **Trunk Group Performance Report**

The following list shows the data collected for the Trunk Group Performance Report:

- *Group No.*

A number that identifies the trunk group associated with the displayed data.

- *Grp Type*

The type of trunk (**isdn-pri** or **tie**) associated with the accumulated data.

- *Grp Dir*

The direction (**incoming**) of the trunk group.

- *Grp Size*

The number of trunks in the trunk group.

- *% Outgoing Blocking or % ATB*

A graphical representation equivalent to the numerical value of all trunks busy. For incoming trunks, peak hour is the largest % ATB. Since outgoing blocking is meaningless for incoming trunks, it is displayed as \* in that column.

- *%Out Blkg*

This field is not used.

- *%Time ATB*

The percentage of time that all trunks in the trunk group were simultaneously in use during the measurement interval. In use means the trunks were busy processing calls or are busied-out by maintenance.

- *Meas Hour*

The starting time (using the 24-hour clock) of the hour during which the data was recorded.

- *Total Calls*

Since the value collected is not relevant for incoming trunks, it is displayed as \* in that column.

## Occupancy Reports

These four reports track the percentage of time the MCU is busy performing call processing tasks, maintenance tasks, administration tasks and the operating system support for each of these tasks. The percentage of time when the MCU is not used is referred to as Idle Occupancy (*Idle Occ*). These reports allow you to determine usage, available capacity and help to diagnose certain customer-reported problems.

Table 3-13 lists the commands that relate to occupancy measurements.

**Table 3-13. Occupancy Reports Administration Commands**

Action	Object	Qualifier
clear	measurements occupancy	
list	measurements occupancy	summary, print, or schedule
list	measurements occupancy	last-hour, print, or schedule
list	measurements occupancy	busiest-intervals, print, or schedule
list	measurements communications-links	print or schedule

## Occupancy Summary Report

The following list shows the data collected for the Occupancy Summary Report:

- *Meas Hour*

The starting time (using the 24-hour clock) of the hour during which the data was recorded. Data is listed beginning with the most recent.

- *Meas Min*

The start 3 minute interval for which the measurement is taken. It takes the form **hh:mm**.

- *Date of Occur*

The date and time that coincides with a line of busiest-interval data. It takes the form of **MM/dd/hh:mm** where **MM** is the month, **dd** is the day, **hh** is the hour and **mm** is the minute.

- *Stat Occ*

The amount of time taken by high priority background processes to support call processing, maintenance and administration functions.

- *CF Occ*

The amount of time taken by call processing level processes, such as ISDN and CDR. It is not desirable for the MCU to operate at 100 percent processor occupancy. Rather, the *CP Occ* and *Stat Occ* fields should combine to no more than 70 percent. This allows the system to perform conferencing and administration functions at optimum levels.

- *Sm Occ*

The amount of time taken by lower priority activities, such as maintenance and administration command processing and error logging.

- *Idle OCC*

The amount of time that the processor is unused. This value should not fall below 15 percent for a sustained period.

- *Total Calls*

This field is not used and is marked with an \*.

- *Total Atmpt*

The number of incoming trunk seizure attempts made during the measurement interval.

- *Intcom Atmpt*

This field is not used.

- *Out Atmpt*

This field is not used.

- *Pnet Atmpt*

The number of incoming seizures that are made over private network facilities.

### **Occupancy Last-Hour Measurements Report**

The data collected for the Occupancy Last-Hour Measurements Report is the same as the Occupancy Summary Report except that the measurements are taken for the last hour. This report helps to identify potential load related problems that may have occurred during the last hour. Be sure to check the hardware error log for an excessive amount of maintenance activity when investigating a problem.

### **Occupancy Busiest-Interval Measurements Report**

The data collected for the Occupancy Busiest-Interval Measurements Report is the same as the Occupancy Summary Report except that the measurements are a collection of the 20 busiest 3-minute intervals (instead of one hour intervals) within the past two months. This report is useful to maintenance personnel who need to investigate habitual performance problems or problems that were not reported when they occurred. Be sure to check the hardware error log for an excessive amount of maintenance activity when investigating a problem.

### **Occupancy Communications Link Measurements Report**

The following list shows the data collected for the Occupancy Communications Link Measurements Report:

- *Meas Hour*

The starting time (using the 24-hour clock) of the hour during which the data was recorded. Data is listed beginning with the most recently completed hour.
- *Link #*

The links are identified by numbers **9** through **16**. The numbers in each column represent the number of messages traversing the link. Once a link is established and traffic begins flowing over it, the messages are counted automatically; no command is required.

## **Tone Receiver Measurements Report**

The Tone Receiver Measurements Report provides traffic data on the TN748D Tone Detector circuit pack. Reports can be requested for yesterday's peak hour, today's peak hour, or the last hour. You may want to request this report if conferencees report they are unable to join a conference when other conferences are also active.

Table 3-14 shows the command related to obtaining the tone receiver measurements.

**Table 3-14. Tone Receiver Measurements Administration Command**

---

<b>Action</b>	<b>Object</b>	<b>Qualifier</b>
list	measurements tone-receiver	last-hour, today-peak, yesterday-peak, print, or schedule

---

The following list shows the data collected for the Tone Receiver Measurements Report:

- *Hour*  
The starting time (using 24-hour clock) of the hour during which the greatest number of requests for tone receivers were made.
- *Type*  
The type of tone receiver being measured. Each TN748 circuit pack provides four DTMF ports (for touch-tone reception) and two GPTD ports (for call progress tone reception).
- *Total Avail*  
The systemwide total number of DTMF and GPTD receivers that are available and not busied-out for maintenance.
- *Total Req.*  
The systemwide total number of requests by the tone receivers during the listed hour. The total number of requests is calculated by incrementing a counter for each request.

- *Peak Req*

The systemwide peak number of simultaneous requests for tone receivers that occurred at any one time for the listed hour. The peak (or maximum) number is calculated by incrementing a counter for each request and decreasing the counter when the request fails or a tone receiver is released. Denied requests fail and are given the reorder tone.
- *Total Queued*

The systemwide total number of tone receivers that were queued during the listed hour. There is no queuing for GPTD receivers.
- *Peak Queued*

The systemwide maximum number of DTMF receivers that were queued at any one time during the listed hour. The system has a maximum queue size of four. GPTD receivers cannot be queued.
- *Total Denied*

The systemwide total number of requests for tone receivers that were denied because none were available.
- *Peak Denied*

The systemwide peak number of requests for tone receivers that were denied because no receivers were available during the listed hour.
- *PN*

The port network where the circuit pack is located.
- *Type*

The type of tone receiver being measured (**DTMF** or **GPTD**).
- *PN Req*

The port number requests.
- *PN Alloc*

The total number of tone receivers located in the port network that were allocated for use during the listed hour.
- *Peak Alloc*

The peak number of tone receivers located in listed port network that were used simultaneously during the listed hour.
- *Total Off-PN*

This field is not used.
- *Peak Off-PN*

This field is not used.





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## P x 64 Interoperability



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The Px64/H.320 standards have been implemented on the AT&T MultiPoint Control Unit (MCU) in conformance with the ITU-T standards on video teleconferencing. AT&T has tested, and will continue to test interoperability of its Px64 implementation with the video products of other manufacturers. AT&T will disclose the products that are found to be interoperable with the MCU. The current results on AT&T Px64 interoperability testing are provided in the table below. Tests are conducted on-site in a laboratory environment with purchased or loaned video endpoints and the tests will carry the distinction of AT&T certification of results.

**⇒ NOTE:**

The ITU-T standards are implemented on a self-certification basis. There is no official ITU-T conformance testing body nor is there a guide to arbitrate different interoperations of the standards by manufacturers of video products. Thus, as manufacturers implement the standards and add features or options to their endpoints, their products may change. AT&T will have no knowledge or control of any such changes made by other manufacturers in their Px64 implementation. As such, AT&T cannot guarantee the interoperability of our ITU-T implementation with untested versions of ITU-T compliant endpoints.

Table C-15 shows the AT&T and non-AT&T video endpoints that are supported by the MCU.

**Table C-15. MCU Supported Video Endpoints**

<b>Endpoint Vendor/Model/ Software Version</b>	<b>G.711 Audio</b>	<b>G.728 Audio</b>	<b>112k (2B- channel 56k)</b>	<b>128k (2B- channel 64k)</b>	<b>384k (H0)</b>
AT&T TeleMedia Personal Video System Model 70	Yes	Yes	Yes	Yes	No
AT&T Group Video System Model 4000	Yes	No	Yes	Yes	Yes
CLI Rembrandt II/VP Version 7.94	Yes	No	Yes	Yes	Yes
PictureTel System 4000 Model 150E, 280E, 400E, 600E, and 800E Version 3.03 and 4.1	Yes	No	Yes	Yes	Yes
CLI Eclipse 1.1*	Yes	Yes	Yes	Yes	No

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\*QCIF only

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## Paper-Based Scheduling Forms

# B

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The blank forms on the following pages can be copied for use with the paper-based scheduling system described in the *AT&T MultiPoint Control Unit Reservation Agent Manual*.

Included in this appendix are the following forms:

- Site Profile
- Meet-Me Extensions and Numbers to Dial

Use the following two forms to prequalify video endpoints and record available Meet-Me numbers for multipoint video conferences







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## Paper-Based Scheduling Forms

# C

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The blank forms on the following pages can be copied for use with the paper-based scheduling system described in the *AT&T MultiPoint Control Unit Reservation Agent Manual*. Use the two forms to prequalify video endpoints and available Meet-Me numbers for multipoint video conferences.

Included in this appendix are the following forms:

- Site Profile
- Meet-Me Extensions and Numbers to Dial







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