



DEFINITY<sup>®</sup> System's

Little  
Instruction  
Book

for basic diagnostics

By RG, CB,  
and LB

## **Notice**

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

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Toll fraud is the unauthorized use of your telecommunications system by an unauthorized party, for example, persons other than your company's employees, agents, subcontractors, or persons working on your company's behalf. Note that there may be a risk of toll fraud associated with your telecommunications system and, if toll fraud occurs, it can result in substantial additional charges for your telecommunications services.

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<b><u>Welcome</u></b>	<b><u>ix</u></b>
■ <u>Why this new book?</u>	<u>ix</u>
■ <u>We wrote this book for you!</u>	<u>ix</u>
■ <u>What information is in this book?</u>	<u>x</u>
■ <u>How to use this book</u>	<u>xi</u>
■ <u>Security concerns</u>	<u>xiii</u>
■ <u>Trademarks and service marks</u>	<u>xiii</u>
■ <u>Related books</u>	<u>xiv</u>
■ <u>Tell us what you think!</u>	<u>xiv</u>
■ <u>How to get this book on the web</u>	<u>xv</u>
■ <u>How to order more copies</u>	<u>xv</u>
■ <u>How to get help</u>	<u>xvi</u>
<b><u>Keeping system information</u></b>	<b><u>1</u></b>
■ <u>Keeping baseline information</u>	<u>1</u>
■ <u>Retrieving baseline information</u>	<u>2</u>
■ <u>Securing backups</u>	<u>4</u>
<b><u>Checking system status</u></b>	<b><u>5</u></b>
■ <u>Problem-solving strategies</u>	<u>5</u>
<u>Viewing the system status</u>	<u>6</u>
<u>Viewing general system operations</u>	<u>7</u>
<u>Viewing the status of a station</u>	<u>8</u>
<u>Viewing the status of your cabinets</u>	<u>9</u>
<u>Viewing changes to the system (history report)</u>	<u>10</u>
■ <u>How can Lucent help?</u>	<u>11</u>

<b><u>Solving common problems</u></b>	<b><u>13</u></b>
■ <u>Diagnosing a problem</u>	<u>13</u>
■ <u>Solving common phone problems</u>	<u>14</u>
<u>The user cannot dial out</u>	<u>15</u>
<u>Incoming calls ring but do not reach the user</u>	<u>16</u>
<u>The message lamp on the phone does not go out</u>	<u>17</u>
<u>Diagnosing general trunk problems</u>	<u>17</u>
<u>Diagnosing tie trunk problems</u>	<u>18</u>
<u>Diagnosing modem problems</u>	<u>18</u>
<u>Diagnosing printer troubles</u>	<u>19</u>
<u>Diagnosing password, login, and terminal access problems</u>	<u>19</u>
<u>Diagnosing SAT problems</u>	<u>19</u>
■ <u>Solving call center problems</u>	<u>20</u>
<u>Can't record an announcement on Integrated Announcement Boards</u>	<u>20</u>
<u>Callers don't hear announcement</u>	<u>21</u>
<u>A device in an Auto Answer hunt group doesn't respond</u>	<u>22</u>
<u>Too many abandoned calls</u>	<u>22</u>
<u>Customers complain they get a busy signal</u>	<u>23</u>
<b><u>Alarms and errors</u></b>	<b><u>25</u></b>
■ <u>Maintenance reports</u>	<u>25</u>
<u>Alarm logs</u>	<u>31</u>
<u>Clearing alarm logs</u>	<u>34</u>
<u>Assigning alarm buttons</u>	<u>34</u>

■ <a href="#">Understanding common error types</a>	<a href="#">34</a>
<a href="#">Error type 18 — busied out</a>	<a href="#">35</a>
<a href="#">Error type 513 — equipment “missing”</a>	<a href="#">36</a>
<a href="#">Error type 1 — circuit pack removed</a>	<a href="#">37</a>
■ <a href="#">Preventing alarms and errors</a>	<a href="#">38</a>
<a href="#">Turn off maintenance</a>	<a href="#">38</a>
<a href="#">Remove unused circuit packs</a>	<a href="#">39</a>
<a href="#">DS1 administration</a>	<a href="#">39</a>
<b><a href="#">Using features to troubleshoot</a></b>	<b><a href="#">41</a></b>
■ <a href="#">Using features to troubleshoot</a>	<a href="#">41</a>
<a href="#">Automatic Circuit Assurance</a>	<a href="#">41</a>
<a href="#">Busy Verify</a>	<a href="#">43</a>
<a href="#">Facility Busy Indication</a>	<a href="#">46</a>
<a href="#">Facility Test Calls</a>	<a href="#">47</a>
<a href="#">Trunk Identification</a>	<a href="#">49</a>
<b><a href="#">Solving IP and H.323 problems</a></b>	<b><a href="#">51</a></b>
■ <a href="#">Solving softphone problems</a>	<a href="#">51</a>
<a href="#">Users cannot login (register) with IP softphone</a>	<a href="#">51</a>
<a href="#">User is logged in, but cannot use softphone for calls</a>	<a href="#">52</a>
<a href="#">Cannot listen to messages with INTUITY Message Manager</a>	<a href="#">52</a>
<a href="#">Users get message “Action cannot be completed”</a>	<a href="#">52</a>
<a href="#">User cannot conference or transfer</a>	<a href="#">53</a>

<a href="#"><u>Users cannot use Directory</u></a>	<a href="#"><u>53</u></a>
<a href="#"><u>Other tips</u></a>	<a href="#"><u>53</u></a>
■ <a href="#"><u>Sound quality problems</u></a>	<a href="#"><u>53</u></a>
<a href="#"><u>Isolating problems in the LAN or DEFINITY ECS</u></a>	<a href="#"><u>54</u></a>
<a href="#"><u>Running a mute test</u></a>	<a href="#"><u>54</u></a>
<a href="#"><u>Other possible causes</u></a>	<a href="#"><u>54</u></a>
■ <a href="#"><u>Basic troubleshooting tools</u></a>	<a href="#"><u>55</u></a>
<a href="#"><u>Using ping</u></a>	<a href="#"><u>55</u></a>
<a href="#"><u>Using trace-route</u></a>	<a href="#"><u>56</u></a>
<a href="#"><u>Finding the IP address</u></a>	<a href="#"><u>57</u></a>
<a href="#"><u>Verifying the IP softphone registration</u></a>	<a href="#"><u>57</u></a>
<a href="#"><u>Verifying the trunk registration</u></a>	<a href="#"><u>58</u></a>
<a href="#"><u>When all else fails</u></a>	<a href="#"><u>58</u></a>
<b><a href="#"><u>Contacting Lucent</u></a></b>	<b><a href="#"><u>59</u></a></b>
■ <a href="#"><u>Preparing to contact Lucent</u></a>	<a href="#"><u>59</u></a>
■ <a href="#"><u>Contacting Lucent</u></a>	<a href="#"><u>61</u></a>
<b><a href="#"><u>Glossary</u></a></b>	<b><a href="#"><u>63</u></a></b>
<b><a href="#"><u>Index</u></a></b>	<b><a href="#"><u>71</u></a></b>
<b><a href="#"><u>Customer Self-Service Center web site</u></a></b>	<b><a href="#"><u>inside back cover</u></a></b>



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## **Welcome**

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### **Why this new book?**

You've told us that you want more information on how to keep your DEFINITY system up and running, and we've been listening. This book contains the basic technical knowledge you need to understand your telephone system. There are some differences between the different versions of DEFINITY, but the information provided will help you with the most basic operations.

### **We wrote this book for you!**

Use this book if you are a DEFINITY system administrator. Mark it up, make notes in it. If you are a new administrator taking over the position from someone else or if you simply want to refresh your memory, this book is for you.

## What information is in this book?

The *Little Instruction Book for basic diagnostics* is divided into sections to guide you through your day-to-day operations.

**Keeping system information** explains what kind of baseline information you should keep and how to retrieve the information from your switch. It also shows you how to verify that your backups are successful.

**Checking system status** explains different problem-solving strategies. It also tells you how to view the status of your system and any changes that have been made.

**Solving common problems** tells you what questions to ask to solve common problems. It walks you through examples of diagnosing and correcting typical problems, and explains how to solve basic call center problems.

**Alarms and errors** provides information on maintenance reports, frequently-encountered error types, and how to prevent some alarms and errors.

**Using features to troubleshoot** explains how to use specific features to determine the status of phones, trunk lines, and facilities.

**Solving IP and H.323 problems** tells you how to solve basic IP softphone and IP trunk and H.323 trunk problems.

**Contacting Lucent** explains how to escalate problems to Lucent and lists what information you should gather before you call.

## How to use this book

Become familiar with the following terms, procedures, and conventions. They help you use this book with your telephone system and its software.

- To “move” to a certain field, you can use the TAB key, arrows, or the RETURN key.
- A “screen” is a screen form displayed on the terminal monitor.
- In this book we always use the term phone; other Lucent books may refer to phones as voice terminals.
- If you use terminal emulation software, you need to determine which keys correspond to ENTER, RETURN, CANCEL, HELP, NEXT PAGE, etc.
- Commands are printed in bold face as follows: **command**.
- Keys and buttons are printed as follows: KEY.
- Screen displays are printed in constant width as follows:  
screen display.
- Variables are printed in italics as follows: *variable*.
- We show complete commands in this book, but you can always use an abbreviated version of the command. For example, **list configuration station** can be entered as **list config sta**.
- We show commands and screens from the newest DEFINITY system and refer to the most recently released books. Please substitute the appropriate commands for your system (if necessary) and refer to the manuals you have on hand.

- If you need help constructing a command or completing a field entry, remember to use HELP.
  - When you press HELP at any point on the command line, a list of available commands appears.
  - When you press HELP with your cursor in a field on a screen, a list of valid entries for that field appears.
- The status line or message line can be found near the bottom of your monitor display. This is where the system displays messages for you. Check the message line to see how the system responds to your input. Write down the message if you need to call our helpline.
- When a procedure requires you to press ENTER to save your changes, the screen you were working on clears and the cursor returns to the command prompt. The message line shows “command successfully completed” to indicate that the system accepted your changes.

You may see the following icons in this book:



**Tip:**

*Draws attention to information that you may find helpful.*



**NOTE:**

Draws attention to information.

 **CAUTION:**

Denotes possible harm to software, possible loss of data, or possible service interruptions.

 **SECURITY ALERT:**

*Indicates when system administration may leave your system open to toll fraud.*

## Security concerns

Toll fraud is the theft of long distance service. When toll fraud occurs, your company is responsible for charges.

Call the Lucent Technologies Security Hotline at +1 800 643 2353 or contact your Lucent representative for more information. Refer to the *BCS Products Security Handbook* for tips on how to prevent toll fraud.

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## Related books

*DEFINITY System's Little Instruction Book for basic administration* and *DEFINITY System's Little Instruction Book for advanced administration* are companions of this book. We suggest you use them often.

The *DEFINITY ECS Administrator's Guide* explains system features and interactions in detail. It provides a reference for planning, operating, and administering your system, and we refer to it often. Please note that prior to April 1997, this same information was in two separate books: the *DEFINITY Implementation* and the *DEFINITY Feature Description* books.

We also refer to *DEFINITY ECS Overview* and *BCS Products Security Handbook*.

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## How to get this book on the web

If you have internet access, you can view and download the latest version of *DEFINITY System's Little Instruction Book for basic diagnostics*. To view the book, you must have a copy of Acrobat Reader.

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1. Access the Customer Self-Service Center web site at <http://support.lucent.com>
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## Keeping system information

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This section explains what kind of system records to keep and how to collect the data. It also tells you how to make sure your backups are successful.

### Keeping baseline information

Baseline information consists of:

- the original switch configuration
- any upgrades and changes
- switch capabilities (for example, if your company uses a call center or telecommuting)

The very best set of records starts with information on the original set up of your switch. Most companies keep at least one paper copy of baseline information, with duplicate paper or electronic copies kept off site. Update this information any time you make changes to your switch.

Use baseline information to help you diagnose problems with your phone system. Also, this information is crucial in the event you need to reconstruct the information on your switch, such as in a disaster recovery.



**Tip:**

*Lucent Technologies Warranty and Service Agreement customers are automatically enrolled in the Emergency Service Plan. The plan provides coverage for disasters such as fire, flood, and storms. Under this plan, Lucent restores basic telephone service on a priority basis. We can also lease a DEFINITY system to Warranty and Service Agreement customers or can ship a replacement DEFINITY system, if necessary.*

## Retrieving baseline information

You can retrieve much of the hardware and configuration information you need right from your system administration terminal (SAT).

- Use **display** commands to see individual records.
- Use **list** commands to view a group of records.
- Add **print** to display or list commands to create paper copies of the records from your switch.



**Tip:**

*Be sure your printer is set up to print from the SAT. See DEFINITY System's Little Instruction Book for basic administration for more information.*

Keep track of the equipment and settings listed in the following table. Use the commands in this table to access the appropriate screens.

<b>switch component</b>	<b>information</b>	<b>group records</b>	<b>individual records</b>
switch configuration	the features your company purchased	display system parameters customer	
switch capacity	capacities enabled on your switch	display capacity	
cabinets and carriers	number of cabinets and carriers	list cabinet	
circuit packs	board type and vintage	list configuration all	display circuit-packs
trunks	type of service	list trunk-group	display trunk-group <i>n</i>
phones	model number, extension number, name, location, cable, and jack	list station list extension-type	display station <i>n</i> display extension <i>n</i>
class of restriction (COR)	calling privileges	list cor	display cor <i>n</i>
class of service (COS)		display cos	
feature access codes		display feature-access-codes	
feature parameters		display system-parameters features	
dial plan		display dial plan	
coverage paths		list coverage path	display coverage path <i>n</i>
announcements	extension, type, name, port	display announcements	
vectors	Vector Directory Number (VDN), vector number	list vector list VDN	display vector <i>n</i> display VDN <i>n</i>
hunt groups		list hunt-group	display hunt-group <i>n</i>

## Securing backups

Backup your system regularly to keep your records up to date.

- Use **save translations** to backup changes to your switch.
- Use **save announcements** to backup changes to announcements.

To verify that a backup was successful, review the Command Completion Status field.

- If the status field says *Success*, then the backup of the translations or the announcements was successful.
- If the status field does not say *Success*, record the Error Code and use the following list to determine what happened:
  - 1 = unable to save to active-spe device
  - 2 = unable to save to standby-spe device



### Tip:

See DEFINITY System's Little Instruction Book for basic administration *for more information on performing backups.*

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## Checking system status

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This section explains how to use switch information to keep track of the general health and status of your system. It tells you how to access system-wide and individual information, and describes how to check when changes are made to your system.

### Problem-solving strategies

As an administrator, one of your responsibilities is to check the status of your switch to determine whether it is performing properly. This is a proactive approach to system diagnostics.

- Use the **status** command to check on the operation of your system. See [“Viewing the system status”](#) on page 6 for more information.
- Use **display alarms** and **display errors** to closely monitor your switch. See [“Alarms and errors”](#) on page 25 for more information.

Another of your responsibilities is to respond to reports of phone problems from your users. You generally have to use a reactive approach to system diagnostics to perform this important function. See [“Solving common problems”](#) on page 13 for more information.

## Viewing the system status

Use system status screens to monitor various parts of your system. To be prepared for problems, you'll want to become familiar with what these reports look like when your system is operating well.

To view a list of the types of status reports you can run:

1. Type **status** and press HELP.

The Help screen appears.

This screen lists all the possible items for which you can request status.

```
Please enter one of the following object command words:
access-endpoint      hardware-group      psa
administered-connection health              processor-channels
attendant            interface           remote-access
bri-port             journal-link       signaling-group
card-mem             link                sp-link
cdr-link             logins              station
clan-ip              mst                 synchronization
clan-port            packet-interface   sys-link
cleared-alarm-notif periodic-scheduled system
conference           pms-link           trunk
data-module          pri-endpoint       tti
esm
```

### Help screen for status command

Let's look at a few example status screens.

## Viewing general system operations

Use the status health screen to determine whether everything is operating smoothly and to see a summary of your system status. You can use this report to look at alarms, see if anything is busied out, or check for any major problems.

To view the status health screen:

1. Type **status health** and press RETURN.

The Status Health screen appears.

```
ALARM SUMMARY
  Major:      0
  Minor:      5
  Warning:    34
BUSY-OUT SUMMARY
  Trunks:     0
  Stations:   1
  Others:     0
PROCESSOR OCCUPANCY STATUS
Static:  0%  SM:  1%
CP:     0%  Idle: 99%
CRITICAL SYSTEM STATUS
Active SPE: B/auto
Duplicated? SPE:y
SPE Power: commercial
Time Source: primary
# Logins: 2

CABINET STATUS
Emerg Alarms
Cab Trans Mj Mn Wn PNC
1 a-/on 0| 4| 32 up
2 auto- 0| 1|  2 up
3 n.a.  0| 0|  0 dn

13:46 FRI MAR 27 1998
```

Status health screen

## Viewing the status of a station

Use **status station** to view the setup of each individual station. This command is often the first place to gather information when a user reports a problem with a phone.

For example, if a user tells you that the phone rings a short ring and the call goes directly to coverage, use **status station** to see if SAC is activated on the user's extension.

To view the status of extension 7236:

1. Type **status station 7236** and press RETURN.

The General Status screen appears. In our example, you can see that this 7406+ phone is working properly (in-service/on-hook), but send all calls (SAC) is active. This would explain why they cannot answer their calls before they go to coverage.

```

                                GENERAL STATUS
Type: 7406+                      Service State: in-service/on-hook
Extension: 7236                  Download Status: not-applicable
Port: 02A0306                   SAC Activated? yes
Call Parked? no                 User Cntrl Restr: none
Ring Cut Off Act? no           Group Cntrl Restr: none
Active Coverage Option: 1       CF Destination Ext:
Message Waiting:
Connected Ports:

                                ACD STATUS
Grp/Mod Grp/Mod Grp/Mod Grp/Mod Grp/Mod
/ / / / /
/ / / / /
/ / / / /
On ACD Call? no      Occupancy: 0.0

                                HOSPITALITY STATUS
Awaken At:
User DND: not activated
Group DND: not activated
Room Status: non-guest room
    
```

General Status screen



## Viewing the status of your cabinets

Use the system status cabinet screen to become familiar with the service state of your individual cabinets. This screen also reports any alarms against your cabinets.

To view the status of your system cabinets:

1. Type **status system all-cabinets** and press RETURN.

The System Status Cabinet screen appears.

SYSTEM STATUS CABINET 1									
SPE	MODE	SELECT	SPE ALARMS	TONE/	SERVICE	SYSTEM	SYSTEM		
		SWITCH	MAJOR	MINOR	CLOCK	STATE	CLOCK	TOPE	SYSTEM
1A	standby	auto	0	0	1A	in	standby	standby	
1B	active	spe b	0	0	1B	in	active	active	
TDM	SERVICE	CONTROL	DEDICATED	SERVICE	BUS ALARMS	BUS	OPEN	BUS	
STATE	CHANNEL	TONES	PKT	STATE	MAJOR	MINOR	FAULTS	LEADS	
1B	in	n	n						
1A	in	y	y	1	in	n	n	0	0
EMERGENCY	SELECT			SERVICE			CABINET		
TRANSFER	SWITCH	EXP-LINK	STATE	MODE	TYPE				
1A	on	01A01-02A01	in	active	MCC				
1B	auto-off	01B01-02B02	in	standby					

### System Status Cabinet screen

Using a number of the status commands can go a long way in helping you know if your system is running OK.

## Viewing changes to the system (history report)

Use the history report to see what kind of changes have been made to your system. For example, if users report that the coverage on their phones is not working, check the history report to see if any changes have been made to a coverage path.

The history report lists the date, time, login level, action taken, and the screen for any change to your system. The history report does not show you exactly what data or field was changed.

To view the history report and review the recent changes to your system:

1. Type **list history** and press RETURN.

The History screen appears.

```

                                HISTORY
Date of Loaded Translation: 2:48pm Sat Jul 26, 1997
Date  Time Port      Login  Actn  Object      Qualifier
3/16  2:33 INADS    inads  logn
3/16  1:16 INADS    inads  logf
3/16  1:16 MGR1   craft  logf
3/16  0:39 INADS    inads  logn
3/15  7:17 MGR1   craft  cha  hunt-group  2
3/15  7:05 MGR1   craft  cha  system-param features
3/15  7:04 INADS    inads  logf
3/15  7:04 MGR1   craft  cha  system-param features
3/15  7:04 MGR1   craft  cha  coverage  path 1
3/15  7:03 MGR1   craft  cha  system-param features
3/15  6:09 MGR1   craft  cha  console-param
3/15  6:06 MGR1   craft  add  station    next
3/15  6:06 MGR1   craft  add  station    next
3/15  5:35 MGR1   craft  cha  console-para
```

History screen

---

## **How can Lucent help?**

With a Lucent Technologies Service Agreement or warranty coverage, your DEFINITY system is linked to Lucent Technologies Expert Systems for constant remote monitoring, proactive diagnosis and trouble resolution. This electronic monitoring is so effective that 70% of all troubles are remotely identified, diagnosed, and resolved. This round-the-clock coverage is the best in the industry, helping to provide maximum up-time for your voice communication system.

Also, Lucent Technologies is the first in the industry to provide Power Surge Protection, completely covering the costs of product damage due to power surges. You are automatically covered if your system is under Warranty or Service Agreement, and power protection has been installed, all local and national electrical codes have been followed, and Lucent site requirements have been met. Service Agreement and warranty customers will receive first priority toward resolution of these problems.

Checking system status

*How can Lucent help?*

12

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## Solving common problems

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This section tells you the questions to ask and the information to gather to solve some of the most basic phone problems. It also describes how to solve common call-center problems.

### Diagnosing a problem

As a system administrator, an important part of your job is to respond to trouble calls from users. You can identify some of the most common of these problems by following a few simple steps, asking the right questions, and trying to recreate the problem.

Use a set of questions to determine if:

- the equipment or process has worked before and is now broken, or if this is a new set-up that you need to correct
- the problem comes from your company's own equipment, or if the problem comes from your vendor
- the problem originates within your switch, or if the source of the problem is outside of your own facility

Ask the following basic questions of yourself, your users, and other switch administrators who work with you:

- Is this a new feature or piece of equipment, or did it work before but does not work now?
- Does the trouble arise when dialing outside the switch, dialing into the switch, or dialing inside the switch?
- Can we duplicate the problem?

## Solving common phone problems

This section describes the approach that many administrators take to diagnose and correct common problems. Following is a list of suggested actions you can take if you have a problem.

- ask for the exact symptoms
- try to duplicate the problem or have the user show you the problem
- look at the phone
- find out if the phone was swapped out
- check the physical connections (for example, see if the phone is plugged in)
- check that the phone is where it is supposed to be
- try the phone at another location
- ask if the cord or handset was changed
- check **status station**
- use **display station** to look at the station screens page-by-page

- check the station screens for SAC, coverage paths
- look at printed switch records for discrepancies
- check the alarms and errors logs
- clear any alarms and errors
- test the boards

Let's take a look at the types of problems users report to their system administrators, and see how to diagnose and correct the problem.

## **The user cannot dial out**

A user calls to report that his phone “does not work.” Strangely enough, this seems to be the most commonly reported problem! Ask questions to find out what is really wrong and how to fix it.

To find out why a phone “does not work,” ask these questions:

- How does the phone “not work?” Does the problem occur when:
  - they try to answer a ringing incoming call
  - they try to make a call
- If the problem occurs when they try to make a call, is the call
  - internal, station to station
  - external, to an outside phone
- Is the problem with just one number, or are they unable to place any outgoing calls?

- Is this a new phone, or is this a new problem with an existing phone (were they able to call out before)
- Do they hear dial tone before they try to call?
- What do they hear after they dial?
  - a tone of some kind
  - a message
  - static
  - nothing
- If they hear a message after they dial, what is the exact message?

If the message says that the call cannot be completed as dialed, the problem is likely your ARS programming. See *DEFINITY System's Little Instruction Book for basic administration* for more information on changing your outbound routing.

## Incoming calls ring but do not reach the user

Another user calls to report that his phone “does not work.” Ask questions similar to the ones listed above. You determine that the user can call out, and that the phone rings but there is no call on the line when the user picks up.

Type **status station** to see if send all calls is activated.



## The message lamp on the phone does not go out

This problem often occurs even when the messages associated with the phone have been cleared.

To clear a message waiting light:

1. At the command prompt, type **clear amw all nnnn** where *nnnn* is the extension, and press RETURN.

## Diagnosing general trunk problems

The following questions help you determine a problem with a trunk.

- Is the trouble on every call or is the trouble intermittent?
- Are you getting any sort of recordings when you try to dial out on this trunk?
- Can you identify the trunk in question?

Use a trunk access code (tac) to identify the trunk, especially if the console has a trunk ID button.

- Is there static on the call?

This is likely a problem with the trunk external to the switch.

- Have you notified your vendor of this problem?

## **Diagnosing tie trunk problems**

- Is the problem on incoming calls only?
- Is the problem on outgoing calls only?
- What happens when you try to use this trunk?
- Have you notified the T1 vendor?
- Does this trunk connect to another location?  
If so, try to determine the IL number of that location.
- Do you know the circuit ID of this trunk?

## **Diagnosing modem problems**

- What is the extension of the modem?
- Is the modem connected through the switch?
- What is the modem connected to?  
For example, computer, fax, or CMS?
- Have the setup options been changed or checked recently?
- What company manufactures the modem?
- What is the model number?

## Diagnosing printer troubles

- What is the problem with the printer?
- What is the printer used for?

For example, is it connected to the switch, CMS, CAS, or maybe AUDIX?

- Who manufactures the printer?
- What is the model number?

## Diagnosing password, login, and terminal access problems

If the problem is with remote dial-in access, ask:

- How do you dial in?
- What type of software or dialing program do you use?
- What error messages do you see when you try to dial in?

If your password expired, is not working, or is incorrect, call Lucent for assistance in getting the issue resolved.

## Diagnosing SAT problems

- What type of terminal is it?
- What type of trouble are you having?

## Solving call center problems

This section helps you identify and solve common problems affecting hunt groups, splits, announcements, and caller access.

The tables below describe symptoms and solutions for common problems in call centers not using ACD or call vectoring.

### Can't record an announcement on Integrated Announcement Boards

Possible Causes	Solutions
You do not get port 0 when you start to record an announcement.	If port 0 is in use when you start to record an announcement, you hear a reorder (or fast-busy) tone followed by silence. Redial the announcement access code and extension every 45 seconds until your recording session is successful.
The phone you are using to record the announcement does not have a COS with console permission.	Use the station screen to change the COS for that phone to a different COS that has console permissions.
The Pro (protected) field on the Recorded Announcements screen is <b>y</b> .	Set this field to <b>n</b> to allow changes from a phone with console permissions.
The proper procedure was not used.	Try again. Verify the Feature Access Code (FAC) you're using.
The extension you want to use is not assigned to an announcement.	Check the number you're dialing, or assign the extension to an announcement on the Recorded Announcements screen.

## Can't record an announcement on Integrated Announcement Boards

Possible Causes	Solutions
There is insufficient time left on the announcement board.	Use <b>list integrated-annc-boards</b> to display the Integrated Announcement Board screen to show the time remaining on each board. <ul style="list-style-type: none"><li>■ Create a shorter announcement.</li><li>■ Shorten existing announcements.</li><li>■ Rerecord existing announcements at a lower compression rate. Be sure the audio quality at the lower compression rate is acceptable.</li><li>■ Delete some announcements.</li><li>■ Add an additional announcement board.</li></ul>

## Callers don't hear announcement

Possible Causes	Solutions
All announcement ports are frequently busy and no queue is administered for the announcement.	Set the Q field on the Recorded Announcements screen to <b>y</b> . (Set this field to <b>y</b> for every extension assigned to an integrated announcement board.) If the problem continues, add another announcement board.
No announcement is recorded.	Dial the announcement extension. If you hear a fast busy signal, there is no announcement. Record one.
The announcement board malfunctioned.	Re-record the announcement.

## A device in an Auto Answer hunt group doesn't respond

Possible Causes	Solutions
The device is off or malfunctioning.	<p>With UCD-MIA, since a malfunctioning unit will be the most idle port all calls to the hunt group may begin to go to the malfunctioning device.</p> <ol style="list-style-type: none"><li>1. Dial each modem's extension until you find the one that isn't answering.</li><li>2. Busy out that device, or remove its extension number from the Hunt Group screen until the device can be fixed.</li></ol>

## Too many abandoned calls

Possible Causes	Solutions
There is no coverage path.	Assign a coverage point in the Coverage Path field on the Hunt Group screen.
Announcements are not being used or need to be changed.	Create announcements that encourage callers to wait. Tell callers their call is very important and ask them to stay on the line.
Customers aren't willing to wait until the call is answered.	Add agents to reduce average speed of answer.

## Customers complain they get a busy signal

Possible Causes	Solutions
Trunk capacity is insufficient.	<p>Check the system Trunk Summary report, including yesterday-peak, today-peak and last hour. Print last-hour once an hour during business hours.</p> <p>Check the % ATB (All Trunks Busy) field for both incoming and two-way trunks. If this figure is consistently high for ONE-WAY incoming trunks, calls are probably being blocked. Add trunks.</p> <p>If ARS is being used on a two-way trunk, it may need further investigation.</p> <p>DEFINITY ECS can't tell you if calls are being blocked in the central office. Ask your network provider to do a traffic study on incoming calls</p>
The administered queue length is too short.	<p>Set the Queue Length field on the Hunt Group screen to a value equal to or greater than the number of hunt group agents. Add more agents.</p>
There's no coverage path.	<p>Assign a coverage point in the Coverage Path field on the Hunt Group screen.</p>

Solving common problems

*Solving call center problems*

24

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## Alarms and errors

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This section is for adventurous administrators who are curious about how to diagnose and fix common problems. The information here will help you understand how to read and interpret:

- error logs
- alarm logs

## Maintenance reports

Your DEFINITY system monitors many switch components. When a component fails or performs unacceptably, the subsystem generates two kinds of reports:

- **detailed** reports in the error log
- **general** reports in the alarm log

The system detects error conditions in its components through maintenance objects (MO). MOs are the software modules that monitor, test, and report possible fault conditions.

## Viewing error logs

It is a good idea to run and inspect error logs on a regular basis. You can view all active system errors on the error log. You can also specify a particular component of your system or a certain time period to be reported on the error log.

To view the error log:

1. Type **display errors** and press RETURN.

The Error Report screen appears.

```

                                ERROR REPORT
The following options control which errors will be displayed.
ERROR TYPES
  Error Type:                      Error List: active-alarms
REPORT PERIOD
  Interval: a                      From: / / : To: / / :
EQUIPMENT TYPE ( Choose only one, if any, of the following )
  Cabinet:
  Port Network:
  Board Number:
  Port:
  Category:
  Extension:
Trunk ( group/member ): /
```

### Error Report screen

2. To see all current errors, press RETURN

OR

Indicate the errors that you want to see by entering the information requested in each field. See the field descriptions listed in the following section.

3. Press ENTER to view the report.

## Error report field descriptions

Field	What to enter																																																		
Error Type	error type																																																		
Error List	active-alarms, errors, or cleared-errors																																																		
Interval	h(our), d(ay), w(eek), m(onth), a(ll)																																																		
From/To	time interval by date and time																																																		
Cabinet	cabinet number (1 - 44)																																																		
Port Network	port network number (1 - 44)																																																		
Board Number	5-character board number in <b>UUCSS</b> format: UU = cabinet (1-44), C = carrier (A-E), SS = slot (0-20)																																																		
Port	7-character port address in <b>UUCSSs</b> format: UU = cabinet (1-44), C = carrier (A-E), SS = slot (0-20), ss = circuit																																																		
Category	category name (choose from the list below):  <table border="0"> <tr> <td>adm-conn</td> <td>announce</td> <td>bri/asai</td> <td>cdr</td> <td>data-mod</td> </tr> <tr> <td>detector</td> <td>dup-spe</td> <td>environ</td> <td>exp-intf</td> <td>ext-dev</td> </tr> <tr> <td>generatr</td> <td>inads-link</td> <td>infc</td> <td>maint</td> <td>mass-st</td> </tr> <tr> <td>mbus</td> <td>memory</td> <td>misc</td> <td>mmi</td> <td>mnt-test</td> </tr> <tr> <td>modem</td> <td>mssnet</td> <td>pkt</td> <td>pms/jrnl</td> <td>pnc</td> </tr> <tr> <td>pncmaint</td> <td>pnc-peer</td> <td>procr</td> <td>quick-st</td> <td>s-syn</td> </tr> <tr> <td>spe</td> <td>stabd</td> <td>stacrck</td> <td>stations</td> <td>sys-link</td> </tr> <tr> <td>sys-prnt</td> <td>tape</td> <td>tdm</td> <td>tone</td> <td>trkbd</td> </tr> <tr> <td>trkerk</td> <td>trunks</td> <td>vc</td> <td>vsp</td> <td>wideband</td> </tr> <tr> <td></td> <td>wireless</td> <td></td> <td></td> <td></td> </tr> </table>	adm-conn	announce	bri/asai	cdr	data-mod	detector	dup-spe	environ	exp-intf	ext-dev	generatr	inads-link	infc	maint	mass-st	mbus	memory	misc	mmi	mnt-test	modem	mssnet	pkt	pms/jrnl	pnc	pncmaint	pnc-peer	procr	quick-st	s-syn	spe	stabd	stacrck	stations	sys-link	sys-prnt	tape	tdm	tone	trkbd	trkerk	trunks	vc	vsp	wideband		wireless			
adm-conn	announce	bri/asai	cdr	data-mod																																															
detector	dup-spe	environ	exp-intf	ext-dev																																															
generatr	inads-link	infc	maint	mass-st																																															
mbus	memory	misc	mmi	mnt-test																																															
modem	mssnet	pkt	pms/jrnl	pnc																																															
pncmaint	pnc-peer	procr	quick-st	s-syn																																															
spe	stabd	stacrck	stations	sys-link																																															
sys-prnt	tape	tdm	tone	trkbd																																															
trkerk	trunks	vc	vsp	wideband																																															
	wireless																																																		
Extension	assigned extension, or blank																																																		
Trunk Group	group number between 1-666																																																		
Member	group member between 1-255, or blank																																																		

HARDWARE ERROR REPORT - ACTIVE ALARMS

Port	Mtce Name	Alt Name	Err Type	Aux Data	First Occur	Last Occur	Err Cnt	Err Rt	Rt/ Hr	Al St	Ac
01AXX1	PI-LINK		257	25	05/02/08:07	05/04/08:38	255	5	13	a	n
01AXX1	PI-LINK		2049	1	05/02/12:03	05/02/12:03	1	0	0	a	n
01AXX1	PI-LINK		257	25	05/02/18:48	05/03/13:57	2	0	0	a	n
01A0101	DIG-LINE	Attd1	1537	40968	05/02/12:29	05/02/12:29	1	0	0	a	n
01A0101	DIG-LINE	Attd1	513	0	05/02/12:29	05/02/12:29	3	0	0	a	n

## Hardware Error Report

Use the **print** command to print the report. Make special note of the information in these fields:

- The Port field contains information in several formats:
  - circuit pack address (UUCSS)
  - port address (UUCSSs)
  - 2-digit signaling number
  - administered port network number
- Mtce Name (the name of the Maintenance Object)
- Alt Name (the extension with the error)  
In this example, Attd1 is the digital port with the errors.
- Error Type (represents the error condition category)
- Aux Data (represents a detail of the Error Type)
- First Occur (indicates the date/time of the first occurrence)
- Err Cnt (lists how many occurrences since the first one)

## Interpreting the error log

The Hardware Error Report above shows five error entries. The switch detected an unplugged digital phone. Here is how to interpret the report:

- PI-LINK is the MO monitoring the processor interface links to digital equipment, including adjuncts. You can see that over 2 days (May 2 to May 4) it incurred 255 type-257 errors, 1 type-2049 error, and 2 type-1 errors.
- The DIG-LINE errors indicate that the system can't find the phone administered to port 01A0101. According to the switch, that is supposed to be attendant 1 (Alt Name).

Notice that the error type and aux data fields for both MOs contain many different numbers. The numbers are software codes that represent a specific error condition.

## Clearing the error

If an important component in your system fails, the software records that "event" with code numbers in the error or alarm log.

To interpret the error codes and clear the error:

1. Look up the MO (for example, DIG-LINE or PI-LINK) in the *DEFINITY ECS Maintenance* books for your switch.
2. Find the error type in the Hardware Error Type table for that MO.

3. Find the note associated with that error type for an explanation of the conditions that generated the error.
4. Perform the recommended procedure to clear the error.

The recommended procedure may require you to test alarmed components. Be sure to have test permissions enabled.

If any tests fail or abort, you will get an error code for the test.

5. Look up the test error code by MO in your *DEFINITY ECS Maintenance* books.
6. Find the numbered test listed in the test results.
7. Look for the correct *combination* of error code and test result in the numbered-test tables.

## Alarm logs

Alarms are classified as major, minor, or warning, depending the degree of severity and the effect on the system.

warning level and description	reported to INADS?	reported to console?	take this action
major Critical service degradation	Y	Y (occurs after 4 attempts to call INADS)	Immediate attention
minor Some service degradation, but system is operable, usually limited to a few trunks or stations or a single feature.	Y	Y (occurs after 4 attempts to call INADS)	Check to see what service is affected
warning Failure that causes no significant service degradation Note: DS1 off board faults (error type 138) generate warning alarms only, indicating a customer network problem. In this case, warning alarms can cause critical service degradation.	N (INADS can receive some downgraded warning alarms)	N	Monitor the situation; check for service or equipment interruption or failure outside the switch.

Alarms are further classified as:

- *on-board* problems originate within the circuitry of the alarmed circuit pack
- *off-board* problems originate in a process or component that is external to the circuit pack

## Reading the alarm log

Let's look at an alarm log that results from an unplugged digital phone.

To the view the alarm log:

1. Type **display alarms** and press RETURN.

The Alarm Report screen appears.

```

                                ALARM REPORT
The following options control which alarms will be displayed.
ALARM TYPES
      Active? y      Resolved? n
      Major? y      Minor? y      Warning? y
REPORT PERIOD
      Interval: m      From: / / :      To: / / :
EQUIPMENT TYPE ( Choose only one, if any, of the following )
      Cabinet:
      Port Network:
      Board Number:
      Port:
      Category:
      Extension:
Trunk ( group/member ): /
```

### Alarm Report screen

2. Indicate which alarms you want to view by entering **y** and ENTER after each alarm type.



#### Tip:

*Unless you can restrict the trouble to a particular time period, press ENTER to see all active alarms.*

*If you choose **n** for major alarms and **y** for minor and warning alarms, you will not see the high-level information that you may need to determine what is wrong with your system.*



3. Press ENTER to view the alarm report.
4. The alarm report screen appears.

ALARM REPORT								
Port	Maintenance Name	On Brd?	Alt Name	Alarm Type	Svc State	Ack? 1 2	Date Alarmed	Date Resolved
01AXX1	PI-LINK	n		WARNING			05/02/09:48	00/00/00:00
01AXX1	PI-LINK	n		WARNING			05/02/09:48	00/00/00:00
01A0101	DIG-LINE	n	Attd1	WARNING	RDY		05/02/12:29	00/00/00:00
01A0101	DIG-LINE	n	Attd1	WARNING	RDY		05/02/12:29	00/00/00:00
01AXX1	PI-LINK	n		WARNING			05/02/18:49	00/00/00:00

### Alarm Report screen

## Interpreting alarm logs

The Alarm Report lists the major alarms first, followed by the minor and warning alarms.

The alarm log in the example above shows:

- a processor interface link (PI-LINK) at address 01AXX1 has alarmed three times on May 2 with *off-board* (On Brd? = n) warnings.
- the same port (01A0101) on a digital line (DIG-LINE) circuit pack has alarmed twice on May 2 in response to two different error counters (refer to the error log example).

## Clearing alarm logs

To clear an alarm log:

1. Investigate or fix the first major alarm in the log.
2. See if other alarms are retired by fixing the most severe problem first.

## Assigning alarm buttons

You can administer feature button lamps on any phone to act as alarm indicators, similar to the alarm lamp on the attendant console. The following table describes the meaning of the green light associated with an alarm button.

<b>status of light</b>	<b>meaning</b>
flashing green	an alarm occurs
steady green	INADS notified and acknowledges alarm
light goes off	an alarm is resolved

Press the alarm button to turn off the light. The light flashes again if the alarm is still active when the next maintenance routine runs.

## Understanding common error types

This section discusses frequently-encountered error types, and explains why they occur.

## Error type 18 — busied out

Error type 18 is a reminder from the switch that a component has been busied out. The busyout command is used to temporarily disable a component and is usually used before you test or replace a component.

Use the **release** command (permissions enabled) to restore a component to its normal operating mode.

For example, you receive a complaint that a phone does not work. As part of your diagnosis, you:

- use **status station**

OR

- view the hardware error report for error 18

To view a hardware error report for error 18:

1. Type **display errors** and press RETURN.

The Hardware Error Report screen appears.

2. Fill in the Error Type field and press RETURN.

In our example, type 18.

The Hardware Error Report for error 18 appears.

HARDWARE ERROR REPORT - ACTIVE ALARMS										
Port	Mtce Name	Alt Name	Err Type	Aux Data	First Occur	Last Occur	Err Cnt	Err Rt	Rt/ Hr	Al St
01A0901	DIG-LINE	1234	18		03/09/00:30	03/09/00:30	1	0	0	a n

### Hardware Error Report (error type 18)

The log entry indicates that extension 1234, a digital line, is busied out (Err Type 18).

Use the **release** command (permissions enabled) to remove the busyout status from the station. In our example:

1. Type **release port 01A0901** (permissions enabled) and press RETURN.

The station is no longer busied-out.

## Error type 513 — equipment “missing”

Error type 513 notifies you that equipment such as phones, data modules, or circuit packs, are administered but not physically connected to the switch.

For example, view a hardware error report for error 513:

1. Type **display errors** and press RETURN.

The Hardware Error Report screen appears.

2. Fill in the Error Type field and press RETURN.

In our example, type 513.

The Hardware Error Report for error 513 appears.

HARDWARE ERROR REPORT - ACTIVE ALARMS											
Port	Mtce	Alt	Err	Aux	First	Last	Err	Err	Rt/	Al	Ac
	Name	Name	Type	Data	Occur	Occur	Cnt	Rt	Hr	St	
01C0507	DIG-LINE	7157	513	0	03/09/00:30	03/09/00:30	1	0	0	a	n

### Hardware Error Report (error type 513)

In this example, a digital phone is missing. A port on the digital line circuit pack (DIG-LINE) at cabinet 1, carrier C, slot 05, port 07 does not have its administered equipment physically present (Error Type 513).

To fix error 513 in our example:

1. Plug the phone into the jack assigned to port 01C0507.
2. Type **test station 7157** (permissions enabled) and press RETURN to test the phone.

The system will clear the error only after the system runs its administered checks and diagnostics.

## **Error type 1 — circuit pack removed**

Error Type 1 often indicates that an administered circuit pack has been removed.

To correct the problem and clear Error type 1:

1. Replace and latch the circuit pack in its administered slot.

The next time the system runs its routine maintenance program, it should be able to “see” the circuit pack and the error will not appear.

## Preventing alarms and errors

This section lists a few common causes of unnecessary alarms.

### Turn off maintenance

The Remote Loop-Around Test sends a burst of current to activate a phone's ringer. If the ringer responds, the test detects the return. Data modules, fax machines and modems do not have ringers and do not respond to this test. This generates an error on that port.

You should turn off this test for data modules, fax machines and modems. Turning off the test does *not* affect the performance of any of these devices.

To turn off the maintenance test:

1. Type **change data-module extension** and press RETURN.

The following screen appears:

```
DATA MODULE
Data Extension: 3151      Name: joes r2cms pdm      BCC: 2
Type: pdm                COS: 1      Remote Loop-Around Test? n
Port: 01C0501           COR: 1      Secondary data module? n
ITC: restricted         TN: 1      Connected to: dte

ABBREVIATED DIALING
List1:
SPECIAL DIALING OPTION:
ASSIGNED MEMBER ( Station with a data extension button for this data module )
Ext      Name
1:
```

### Data module screen

2. Change the Remote Loop-Around Test field to **n**.
3. Press ENTER to save your changes.

## Remove unused circuit packs

Occasionally, a company upgrades phones from the 7000-series analog model to the 8400-series digital phones. The upgrade process is to:

1. Remove the analog line and trunk administration
2. Remove the old analog equipment
3. Rewire the workplace for the new digital phones and jacks
4. Administer the new digital phones and circuit packs

If the analog circuit packs remain physically plugged into the system and are *still administered as circuit packs* (even though the administration is removed in Step 1 above), the system generates errors. This stops when you remove the administration (**change circuit-pack UUCSS**) for this unused circuit pack.

## DS1 administration

Depending on whether a DS1 circuit pack is present and whether its ports are assigned or not, the system reports faults according to the following table:

Alarms and errors

Preventing alarms and errors

circuit pack present?	circuit pack administered?	ports administered?	alarm level	action
N	Y	N	warning	<ol style="list-style-type: none"> <li>1. Replace and latch the board in its assigned slot.</li> <li>2. Remove the trunk and DS1 administration (<b>change circuit-pack UUCSS</b>), leaving the circuit pack in its assigned slot.</li> </ol>
N	Y	Y	minor	<ol style="list-style-type: none"> <li>1. Replace and latch the board in its assigned slot.</li> <li>2. Administer one or more ports (<b>change circuit-pack UUCSS</b>), leaving the circuit pack in its assigned slot.</li> </ol>
Y	N	N	varies	<ol style="list-style-type: none"> <li>1. Remove the circuit pack from the carrier.</li> </ol>



## Using features to troubleshoot

### Using features to troubleshoot

You can use some DEFINITY features to help you identify if your system is having problems or to help you diagnose problems you know are occurring. The table below shows you which features to use for various kinds of system problems.

feature	problem area			
	trunks	phones	hunt groups	paging groups
Automatic Circuit Assurance	X			
Busy Verify	X	X	X	
Facility Busy Indication	X	X		X
Facility Test Calls	X	X		
Trunk Identification	X			

#### Automatic Circuit Assurance

You can use Automatic Circuit Assurance (ACA) to help identify faulty trunks. If activated (**change system-parameters features**), your system notifies you with a referral call when it detects unusual trunk usage like very short or very long calls. It needs to be turned on for each individual trunk group.

The referral call arrives on an idle call appearance. If you answer the call, your display shows:

- that the call is an ACA call
- the trunk-group access code
- the trunk-group member number
- the reason for the call (short or long holding time)

### **To use ACA on a G3V2 or older switch**

1. Assign an ACA button to your phone.
2. Press the ACA button to activate your phone for referrals.
3. When you receive an ACA referral call, answer the call.
4. Record the information listed on your display to use for further troubleshooting.

### **To use ACA on a G3V3 or newer switch**

1. Assign an ACA-Halt button to your phone.
2. Leave the ACA-Halt button OFF to keep your phone active for referrals.
3. When you receive an ACA referral call, answer the call.
4. Record the information listed on your display to use for further troubleshooting.

## **Busy Verify**

You can use Busy Verify to place test calls to check the busy condition of trunks, phones, or hunt groups. This test helps you determine if the trunk, phone, or hunt group is busy because of heavy use or appears busy because of a problem.

To use Busy Verify, you should administer a Busy Verify button on your phone.

### **To busy-verify a phone**

1. Press the Busy Verify button on your phone.

The busy verify light turns green.

2. Dial the extension of the phone you want to test.

You hear a tone and see a display. The following table describes what the tone and display indicate and how to respond.

display	tone	frequency	pattern (seconds)	status of extension	next step
Invalid	intercept	440 Hz alternating 620 Hz	.25 on  .25 on repeated	invalid number	cancel and try again
Terminated	ringback	combined 440 Hz + 480 Hz	1 on 3 off repeated	idle and ringing (working properly)	release the call
Bridged	none			bridged onto active call (working properly)	release the call
Out of service	reorder	combined 480 Hz + 620 Hz	.25 on .25 off repeated	trouble condition or station administered without hardware and no coverage path	cancel; use <b>status station extension</b> command for more information

### To busy-verify a hunt group

1. Press the Busy Verify button on your phone.

The busy verify light turns green.

2. Dial the extension for the hunt group you want to test.

You hear a tone and see a display. The following table describes what the tone and display indicate and how to respond.

<b>display</b>	<b>tone</b>	<b>frequency</b>	<b>pattern (seconds)</b>	<b>status of extension</b>	<b>next step</b>
Invalid	intercept	440 Hz alternating 620 Hz	.25 on  .25 on repeated	invalid number	cancel and try again
Terminated	ringback	combined 440 Hz + 480 Hz	1 on 3 off repeated	idle and ringing	release the call
All made busy	reorder	combined 480 Hz + 620 Hz	.25 on .25 off repeated	made busy is active	release the call and try again later
Denied	reorder	same as above	same as above	active on a call	release the call and try again later
Out of service	reorder	same as above	same as above	trouble condition or station administered without hardware	cancel report an out-of-service condition

### **To busy-verify a trunk**

1. Press the **Busy Verify** button on your phone.

The busy verify light turns green.

2. Dial the trunk access code for the trunk you want to test.

Your display should be blank and you should hear dial tone. If your display shows “DENIED” and you hear intercept tone, repeat steps 1 and 2.

If you have trunk group select buttons on your phone, you can also press the **Busy Verify** button and then press the **Trunk Group Select** button for the appropriate trunk.

3. Dial the trunk-group member number you want to verify.

You hear a tone and see a display. The following table describes what the tone and display indicate and how to respond.

display	tone	frequency	pattern (seconds)	status of extension	next step
Invalid	intercept	440 Hz alternating 620 Hz	.25 on  .25 on repeated	invalid	cancel and try again
Verified	confirmation			idle and ringing (working properly)	release the call
none	ringback	combined 440 Hz + 480 Hz	1 s on 3 s off repeated	idle automatic or release link (working properly)	release the call
none	dial tone	combined 350 Hz + 440 Hz	continuous	idle (working properly)	release the call
Bridged	none			bridged onto active call (working properly)	release the call
Out of Service	reorder	combined 480 Hz + 620 Hz	.25 on .25 off repeated	trouble condition	cancel; report an out-of-service condition

## Facility Busy Indication

You can use Facility Busy Indication to display the idle or busy condition of phones, trunks, or paging zones.

To use this feature you need to add facility busy indication buttons to your phone. Label the facility busy buttons as “Busy” followed by the number or name of the facility being monitored.

If the green light associated with the Facility Busy Indication button stays lit for a long time, the facility may have a problem.

## Facility Test Calls

You can use Facility Test Calls to place test calls to specific trunks or phones. Because this feature bypasses the regular system traffic, it is very helpful in finding noisy lines and other problems. However, this feature can be easily misused by outside parties. Disable this feature when you are not using it.

### SECURITY ALERT:

*Whenever you use this feature, enable the feature access code only for the tests you want to make. Be sure to immediately remove the access code when you are through testing because leaving this feature enabled can leave you open to security breaches.*

### To place a test call to a trunk or touch-tone phone

1. At the system terminal, enable a feature access code for Facility Test Call.
2. At your phone, dial the feature access code for Facility Test Call. Listen for dial tone.
3. Dial the 6- or 7-digit port address in **UUCSSss** format, where:

**UU** = cabinet number (01, 02, etc.)

**C** = carrier number (A=1, B=2, C=3, D=4, E=5)

**SS** = slot number (depends on system)

**ss** = port number (depends on circuit pack)



*If you have problems with this step, try dialing the port address without the first zero in the cabinet number.*

You hear a tone and see a display. The following table describes what the tone and display indicate and how to respond.

tone	frequency	pattern (seconds)	status	next step
dial	combined 350 Hz + 440 Hz	continuous	connected	go to step 4
reorder	combined 480 Hz + 620 Hz	.25 on .25 off repeated	busy	release the call
intercept	440 Hz alternating 620 Hz	.25 on .25 on repeated	no access	release the call

4. If you are testing a trunk, place the call.  
or  
If you are testing a touch-tone receiver, dial the number.
5. If you receive a dial tone, the test passed.  
or  
If you receive an intercept tone, the test failed.



**SECURITY ALERT:**

*At the system terminal, BE SURE to disable the Facility Test Call feature access code.*



## Trunk Identification

You can identify a faulty or noisy trunk with Trunk Identification.

You can use Trunk Identification:

- on an active call
- while accessing a trunk

To identify the specific trunk used on a call:

1. Press the Trunk ID button.

Trunk access code and trunk group member number appears on the display.

If 2 trunks are used on the call, the identification of the last trunk added to the call displays. If more than 2 trunks are on a call, Trunk Identification is denied.

2. See if there are any *on-board* alarms against a trunk circuit pack.

If no, report the trunk problem to the appropriate vendor.

If yes, report the trunk problem and the identification information to Lucent.

Using features to troubleshoot

*Using features to troubleshoot*

50

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## Solving IP and H.323 problems

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This section describes some basic troubleshooting tips and tools that may help you solve problems with IP (internet protocol) softphones, and IP and H.323 trunk issues.

In addition to using this section, you may want to refer to the Lucent Technologies Online Expert for DEFINITY Systems at <http://support.lucent.com>

### Solving softphone problems

This section discusses some common problems you or your users may encounter while using IP softphones (telecommuter or road warrior types).

#### **Users cannot login (register) with IP softphone**

The user's password needs to be the same as the administered station security code. So, the first thing to verify is whether or not the user is using the correct password. If they are using the correct password, then you should determine if the problem is with their PC.

To determine if the problem is related to the user's PC, try to register (login) this extension from another PC. If you can successfully register, then the problem is within the user's PC. If you cannot register, then the extension may not be administered correctly or you may have a network problem.

### **User is logged in, but cannot use softphone for calls**

If you see the message "Telephony is not available" in the call status area, then you may have COR to COR restrictions between the IP softphone and the actual hard phone used to make calls.

If you do not have restrictions, then try logging off and back in again. If that fails, reboot the PC.

### **Cannot listen to messages with INTUITY Message Manager**

When a user is logged in to IP softphone in the roadwarrior application, the softphone has control of the PC sound card. Since only one application can control the PC sound card at a time, the sound card will not be available to Message Manager.

### **Users get message "Action cannot be completed"**

The user may have a button on the IP softphone that is not actually administered on the Station screen for the extension. Or the user is trying to dial a feature access code that is not administered in the system.

## **User cannot conference or transfer**

Both the conference and the transfer operations require at least two lines. Make sure the user has more than one line available to place calls. To determine if the user has more than one line appearance, complete the following steps:

1. At the IP softphone, select Number of Calls from the Options menu.
2. Verify that the Minimum or Default number of lines to be displayed is more than one.

## **Users cannot use Directory**

In order to use the directory, users must have a Directory, Normal and Next button available.

## **Other tips**

If your users get the message “Communication to the server has been lost. You will be logged off by the server,” the only option is to click OK. However, if the user is active on a call, they can finish the call before they click OK.

## **Sound quality problems**

Because of the myriad of networks and equipment involved in an IP call, there are a lot of factors that may contribute to sound quality problems. This section contains tips for how to determine the source of the problem, and some things you can do that may help.

## **Isolating problems in the LAN or DEFINITY ECS**

There are a few easy things you can do to determine if a voice quality problem is in the DEFINITY ECS or in your LAN or PC.

To check the PC sound quality, create and play back a sound file using the PC sound recorder. If the sound quality is unacceptable, the problem is somewhere in your headset or sound card.

To check sound quality over the LAN, shut down IP softphone. Now start up NetMeeting and initiate a call. This completely bypasses the DEFINITY ECS. Therefore, if you are still experiencing sound quality problems, the source must be somewhere within the LAN. If this resolves the sound quality problem, the issue is with the DEFINITY ECS.

### **Running a mute test**

The mute test can also help determine the source of a sound quality problem. To run this test, set up an IP softphone test call between two users who are experiencing voice quality problems. Have one user mute their phone and have the other user count aloud to 10. If the sound quality improves, then the problem is in the sound card, microphone, or headset of the muted phone. If the sound quality does not improve, try the test again, but this time mute the other phone.

### **Other possible causes**

If a user is browsing the web while using softphone and they are accessing web sites with large graphics, they may experience an interruption in voice transmission.

## Basic troubleshooting tools

This section describes some basic tools that you can use to understand better what is going on in your network and with the DEFINITY IP hardware and software.

### Using ping

The DEFINITY ping command helps you to determine if endpoints on the network are available to place or receive calls, and if nodes in the network are active.

For example to ping an endpoint at 111.122.133.144, complete the following steps:

1. At your DEFINITY command line, type **ping 111.122.133.144** and press RETURN.

You can also use **ping node-name nodename** if the *nodename* is defined on the Node Names screen.

The Ping Results report appears.

PING RESULTS						
End-pt	Node-name	Port	Port Type	Result	Time (ms)	Error code
111.122.133.144		01A011	ETH-PT	PASS	60	

#### Ping Results screen

2. Review the report to see if pinging the endpoints failed or if the round-trip time was too long.

## Using trace-route

The DEFINITY trace-route command helps you determine the path that a call is taking from the PC endpoint, through the various nodes in a network. Trace-route can help you see where in the network a problem may be occurring.

For example, to determine the path from a PC at 111.122.133.144, complete the following steps:

1. At your DEFINITY command line, type the command **trace-route 111.122.133.144** and press RETURN.

Use the IP address of the starting PC that placed the call. The Trace Route Results screen appears.

### TRACE ROUTE RESULTS

Hop	Time (ms)	IP Address
0	Start Addr:	111.122.133.144
1	5, 6, 6	111.122.133.111
2	35, 36, 37	111.44.33.111
3	49, 51, 51	111.44.33.144
4	58, 58, 59	111.44.33.222

### Trace Route Results screen

2. Verify that the last listed IP address is the final endpoint in the path.

If the system was unable to follow the full path, it lists the last address that it could successfully communicate with. This information may help you narrow which part of the network is experiencing problems.



## Finding the IP address

In some cases, you will want to know the IP address of a PC so that you can ping it or trace the route of a call. To determine the IP address, complete the following steps:

1. At the PC, open a DOS window.

Typically you can access the DOS command by selecting Start>Programs>MS-DOS Prompt.

2. At the DOS prompt, type **ipconfig /all** (for Windows NT) or **winipcfg** (for Windows 95/98).
3. Record the IP address for the PC.

## Verifying the IP softphone registration

Sometimes you will need to know whether or not an IP softphone is registered. For example, to determine whether the softphone at extension 4455 is registered, complete the following steps:

1. Type **status station 4455** and press RETURN.

The General Status screen appears.

2. Verify that the port field is S0nnnn.

If this field displays a standard port address (for example, 01A0210) or an X, then the extension is not registered.

## Verifying the trunk registration

Sometimes you will need to know whether or not a trunk group is registered. For example, to determine whether the trunk member 01 of trunk group 40 is registered, complete the following steps:

1. Type **status trunk 40/01** and press RETURN.

The Trunk Status screen appears.

2. Verify that the port field is T00nnn.

If this field displays a standard port address (for example, 01A0210), then the trunk is not registered.

## When all else fails

Reboot the PC! When you are experiencing unexpected behavior that you cannot easily fix, you may want to close all your applications and reboot the machine.

---

## Contacting Lucent

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This section describes what information you should have handy when you need to contact the Lucent Technologies Technical Service Center (TSC). This section also provides a list of phone numbers you can call when you have a problem with your system.

### Preparing to contact Lucent

Do you need to call Lucent for additional information or help in solving a problem?

If you do, please have the following information handy. This helps the person taking your call.

- your name and number (in case we need to call you back)
- your installation location number (also called your IL)

---

(Write your IL number here for easy reference)

- your company's main phone number
- the type of your switch
- the number of trunks on your system
- the number of stations on your system

Also, use the information in this book to determine the possible source of your problem. It always helps to keep a log of the steps you took and the information you gathered while performing your diagnosis. This information is extremely helpful when you partner with a Lucent representative in solving your switch problems.

Remember, if the problem is with equipment or service outside of your own equipment, you need to call your vendor or service provider. If you determine that the problem is with your own equipment, such as on your own stations, switch, or trunks, give Lucent a call.

If you are not sure where the problem is located, double-check your system information. Refer to [“Problem-solving strategies” on page 5](#) for more information.

Be ready to talk about:

- the problem you want to solve
- if the problem is with a new component or feature
- if something that used to work now does not work
- any numbers involved with the problem (for example, extensions or phone numbers, trunk group numbers, phone types, or report types)
- the contents of any recorded messages received
- error messages from the switch
- type of ringback tones received on phones
- the names and numbers of your vendors
- any other pertinent information

## Contacting Lucent

The following table lists additional services available to you. If you are outside of the +1 800 calling area, contact your local Lucent representative.

Technical Service Center for Large-Systems Customers and Toll Fraud Crisis Intervention (for help with repairs)	+1 800 242 2121
DEFINITY Helpline (for administration and software problems, including vectors, how features work, administration, and interactions)	+1 800 225 7585

Contacting Lucent

*Contacting Lucent*

62

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## Glossary

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### A

#### Abbreviated Dialing

A feature that allows callers to place calls by dialing just one or two digits.

#### access code

A dial code used to activate or cancel a feature or access an outgoing trunk.

#### analog phone

A phone that receives acoustic voice signals and sends analog electrical signals along the phone line.

#### ARS partitioning

A feature that allows you to route calls differently for different groups of users.

#### attendant

A person at a console who provides personalized service for incoming callers and voice-services users by performing switching and signaling operations.

#### attendant console

The workstation used by an attendant. The attendant console allows the attendant to originate a call, answer an incoming call, transfer a call to another extension or trunk, put a call on hold, and remove a call from hold. Attendants using the console can also manage and monitor some system operations.

---

**Audio Information Exchange (AUDIX)**

A fully-integrated voice-mail system. Can be used with a variety of communications systems to provide call-history data, such as subscriber identification and reason for redirection.

**Automatic Alternate Routing (AAR)**

A feature that routes calls to alternate routes when facilities are unavailable.

**Automatic Call Distribution (ACD)**

A feature that gives users more flexibility in routing calls to hunt group agents. ACD also allows external measurement systems such as BCMS and CentreVu<sup>®</sup> CMS to be used.

**Automatic Circuit Assurance (ACA)**

A feature that tracks calls of unusual duration to facilitate troubleshooting.

**Automatic Route Selection (ARS)**

A feature that allows the system to automatically choose the least-cost route for toll calls.

---

**B**

**barrier code**

A security code used with Remote Access to prevent unauthorized access.

**bridge (bridging)**

The appearance of a phone's extension at one or more other phones.

**bridged appearance**

A call appearance on a phone that matches a call appearance on another phone for the duration of a call.



---

## C

### call appearance

For the phone or attendant console, a button labeled with an extension and used to place outgoing calls, receive incoming calls, or hold calls. Lights next to the button show the status of the call appearance.

### Call Detail Recording (CDR)

A feature that records call data.

### Call Vectoring

A feature that allows users to provide flexible, customized call handling by writing a series of instructions in a simple programming language.

### carrier

An enclosed shelf containing vertical slots that hold circuit packs.

### centum call seconds (CCS)

CCS is a unit for measuring call traffic. One CCS equals 100 seconds. Call traffic for a facility, such as a hunt group or phone, is scanned every 100 seconds. If the facility is busy, it is assumed to have been busy for the entire scan interval. There are 3600 seconds per hour, so a facility that is busy for an entire hour will be measured as being busy for 36 CCS.

### central office (CO)

The location of phone switching equipment that provides local phone service and access to toll facilities for long-distance calling.

### circuit

A channel or transmission path between two or more points.

### Class of Restriction (COR)

A feature that defines call-origination and call-termination restrictions.

---

### Class of Service (COS)

A feature that determines whether users can activate certain features.

### coverage answer group

A group of phones that ring simultaneously when a call is redirected to it.

### coverage path

The order in which calls are redirected to alternate phones.

### coverage point

An extension designated as an alternate phone in a coverage path.

---

## D

### data module

A digital interface device between the switch and data equipment.

### Direct Department Calling (DDC)

A method for distributing hunt group calls to agents. The switch searches through all the hunt group extensions in order, starting with the first extension. As soon as the switch finds an available extension, it connects the call. Compare to Uniform Call Distribution (UCD).

---

## E

### Expert Agent Selection (EAS)

A feature allowing incoming calls to be routed to specialized groups of agents within a larger pool of agents.

### extension

A number by which calls are routed through a communications system.

---

external call

A connection between a communications system user and a party on the public network or on another communications system in a private network.

---

**F**

facility

A telecommunications transmission pathway and associated equipment.

feature access code (FAC)

A code users dial to access a system feature.

feature button

A button on a phone or attendant console used to access a specific feature.

---

**H**

hunt group

A group of extensions that all can receive calls directed to a single phone number. When a call arrives at the group number, the switch searches (“hunts”) for an available extension in the group and connects the call to that extension.

---

**I**

internal call

A connection between two users on the same phone system.

---

## M

### major alarm

An indication of a component failure that requires immediate attention.

### minor alarm

An indication of a component failure that could affect customer service.

### multiappearance phone

A phone equipped with several call-appearance buttons allowing the user to handle more than one call on that same extension at the same time.

---

## P

### pickup group

A group of individuals authorized to answer any call directed to an extension within the group.

### port carrier

A carrier in a cabinet containing port circuit packs, power units, and service circuits. Also called a port cabinet.

### primary extension

The main extension associated with the physical phone or data terminal.

### principal

A phone that has its primary extension bridged on one or more other phones.

### public network

The network that can be openly accessed by all customers for local and long-distance calling.

---

## R

### redirection criteria

Information administered for each phone's coverage path that determines when an incoming call is redirected to coverage.

---

## S

### skill

An attribute assigned to an agent in a system using Expert Agent Selection. An agent's skill indicates a specialty in which the agent is proficient.

### split

An ACD hunt group.

### system administrator

The person who maintains overall customer responsibility for system administration.

### system printer

An optional printer that may be used to print scheduled reports via the report scheduler.

### system report

A report that provides historical traffic information for internally measured splits.

---

## T

**trunk**  
A dedicated telecommunications channel between 2 phone systems or COs.

**trunk group**  
Telecommunications channels assigned as a group for certain functions that can be used interchangeably between two communications systems or COs.

---

## U

**Uniform Call Distribution (UCD)**  
A method for distributing hunt group calls to agents by comparing agents' workloads. DEFINITY ECS can deliver each new call to the most idle agent (the available agent who has been idle the longest since their last hunt group call) or to the least occupied agent (the agent who has spent the least amount of time on hunt group calls in their current shift). Compare to Direct Department Calling (DDC).

**Uniform Dial Plan (UDP)**  
A feature that allows a unique 4- or 5-digit number assignment for each point in a multiswitch system.

---

## V

**Vector**  
A set of call handling instructions for DEFINITY ECS, that can direct the switch to queue calls, play announcements, play music, route calls to voice messaging, as well as many other things.

# Index

---

## A

- alarm buttons, [34](#)
  - alarm logs, [31](#)
  - alarms
    - clearing, [34](#)
    - DS1, [39](#)
    - levels, [31](#)
    - off-board, [31](#)
    - on-board, [31](#)
    - preventing, [38](#)
  - Automatic Circuit Assurance (ACA), [41](#)
- 

## B

- backups, [4](#)
  - baselining
    - definition, [1](#)
    - retrieving information, [2](#)
  - books
    - how to order more copies, [xv](#)
    - online, [xv](#)
  - busy-verify
    - hunt groups, [44](#)
    - trunks, [45](#)
  - buttons
    - Alarm, [34](#)
    - Busy Verify, [43](#)
    - help, [xii](#)
    - Trunk ID, [49](#)
- 

## C

- cabinet status, viewing, [9](#)
  - call center, problems, [20](#)
  - calling Lucent, [59](#)
  - circuit packs, removing, [39](#)
  - clearing alarms, [34](#)
  - clearing errors, [29](#)
  - commands
    - change circuit-pack, [40](#)
    - change data-module extension, [38](#)
    - display alarms, [5](#), [32](#)
    - display errors, [5](#), [26](#)
    - list history, [10](#)
    - ping, [55](#)
    - save announcements, [4](#)
    - save translations, [4](#)
    - status, [5](#)
    - status health, [7](#)
    - status station, [8](#)
    - status station extension, [8](#)
    - status system all-cabinets, [9](#)
    - test station extension, [37](#)
    - trace-route, [56](#)
- 

## D

- diagnosing problems, [13](#)
  - dialing out, problems, [15](#)
  - DS1, alarms, [39](#)
- 

## E

- error logs
  - interpreting, [29](#)
  - viewing, [26](#)

error types, common, [34](#)  
errors  
    18-busied out, [35](#)  
    1-circuit pack removed, [37](#)  
    513-equipment missing, [36](#)  
    clearing, [29](#)  
    frequently-encountered, [34](#)  
    preventing, [38](#)  
extended service agreement, [xvi](#)

---

## F

Facility Busy Indication, [46](#)  
Facility Test Calls, [47](#)

---

## H

H.323 trunk, [51](#)  
help  
    buttons, [xii](#)  
    numbers to call, [xvi](#)  
history, viewing, [10](#)  
hunt groups, busy-verify, [44](#)

---

## I

incoming calls, problems, [16](#)  
internet protocol (IP), [51](#)  
IP address, [57](#)  
IP softphone, [51](#)

---

## L

login, problems, [19](#)  
logs  
    alarms, [31](#)  
    clearing alarms, [34](#)  
    error, [26](#)

---

## M

maintaining records, [2](#)  
Maintenance Objects (MOs), [25](#)  
message lamp problems, [17](#)  
message line, [xii](#)  
modem problems, [18](#)

---

## O

online books, [xv](#)  
Online Expert, [51](#)

---

## P

password, problems, [19](#)  
phone problems, solving, [14](#)  
phones, busy-verify, [43](#)  
printer problems, [19](#)  
problems  
    call center, [20](#)  
    diagnosing, [13](#)  
    dialing out, [15](#)  
    incoming calls, [16](#)  
    login, [19](#)  
    message lamp, [17](#)  
    modem, [18](#)



problems, (continued)

- password, [19](#)
  - phone, [14](#)
  - printer, [19](#)
  - SAT, [19](#)
  - softphone, [51](#)
  - sound quality, [53](#)
  - terminal access, [19](#)
  - tie trunks, [18](#)
  - trunks, [17](#)
- problem-solving, strategies, [5](#)

---

## R

- records, maintaining, [2](#)
- removing circuit packs, [39](#)
- reports
  - error, [26](#)
  - history, [10](#)

---

## S

- SAT problems, [19](#)
- screens, [xi](#)
  - Alarm Report, [32](#), [33](#)
  - Data Module, [38](#)
  - Error Report, [26](#)
  - General Status, [8](#)
  - Hardware Error Report, [28](#), [36](#)
  - Help, [6](#)
  - History, [10](#)
  - Status Health, [7](#)
  - System Status Cabinet, [9](#)
- security
  - access codes, [47](#)
  - concerns, [xiii](#)
- service agreement, extended, [xvi](#)

- softphone, [51](#)
- station status, viewing, [8](#)
- status
  - cabinet, [9](#)
  - station, [8](#)
  - system health, [7](#)
- status line, [xii](#)
- strategies, problem-solving, [5](#)
- system backups, [4](#)
- system changes, viewing, [10](#)
- system health, viewing, [7](#)
- system logs
  - alarms, [25](#)
  - errors, [25](#)
- system status, viewing, [6](#)

---

## T

- terminal access, problems, [19](#)
- Terminal Alarm Notification, [34](#)
- testing
  - phones, [47](#)
  - trunks, [47](#)
- testing, busy phones, [43](#)
- tests, [38](#)
- tie trunk problems, [18](#)
- toll fraud, [xiii](#)
- troubleshooting
  - phone problems, [14](#)
  - trunks, [49](#)
  - using features, [41](#)
- Trunk Identification, [49](#)
- trunks
  - busy-verify, [45](#)
  - identifying problems, [17](#)
  - troubleshooting, [49](#)
- turning off tests, [38](#)
- turning-off, [38](#)

---

## V

### viewing

error logs, [26](#)

station status, [8](#)

system changes, [10](#)

system status, [6](#)

voice terminals, *see* phones

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