PRACTICE 297-1001-531
VINTAGE 06.01
STANDARD

DIGITAL SWITCHING SYSTEMS

DMS*-100 FAMILY

COMMON CHANNEL SIGNALING 7

MAINTENANCE REFERENCE MANUAL

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* DMS is a trademark of Northern Telecom

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0 CHAPTER 1

0 INTRODUCTION

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GENERAL

This practice describes the maintenance of the common channel signaling 7 (CCS7) in the DMS-100 family of digital switching systems (see 297-1001-141 for a system description). Different standard organizations have used the terms common channel signaling 7 (CCS7) and signaling system 7 (SS7). In this document, SS7 can be substituted for CCS7.

Maintenance for the CCS7 system is done at a maintenance and administration position (MAP[1]). A MAP provides commands and displays for monitoring and maintaining the CCS7 system. For the description of a MAP, see 297-1001-110; for the description of using a MAP, see 297-1001-520.

CCS7 is defined by the specifications listed in Table 1.1.

TABLE 1.1
CCS SPECIFICATION REFERENCES

DMS-100 FAMILY DESIGNATION	SPECIFICATIONS
CCS7	The specifications are described in the following: ECSA[2] T1X1.1 recommendations Q.701 through Q.707 Q.711 through Q.714 Q.761 through Q.766 Q.771 through Q.774

[1] MAP is a trademark of Northern Telecom

[2] Exchange Carriers Standards Association, a member of the American National Standards Institute (ANSI)

PRACTICE APPLICATION

The information in this practice applies to offices with Batch Change Supplement 34 (BCS34) release software. Unless reissued, the practice also applies to any office with subsequent BCS release software. The correspondence between BCS releases and Northern Telecom Practice (NTP) issues is given in "DMS-100 Master Index of Practices" (297-1001-001).

REASON FOR REISSUE

To indicate the text that has been changed or added throughout the Practice, revision bars ( ) are placed in the left margin. A bar beside a heading indicates that all of the text is included up to the next heading of its kind. Text that has been deleted is not indicated by the bars, but is stated in this paragraph. If you do not have the previous issue of the Practice, ignore the revision bars.

This Practice is reissued to:

Reflect BCS34 changes to the POST command in the C7LKSET menu level.

* add information to Chapter 1 on page 1-1

* reformat Table 1.1 on page 1-1 and Table 2.1 on page 2-4

* refer to 297-1001-513 in References on page 1-6 and in User Application and User Program Layers for SEAS on page 13-2

* add menu levels to Figure 2.1 on page 2-1

* change the descriptions of the following commands:

    CCS7 on page 4-3
    CCIS6 on page 4-3
    CCITT6 on page 4-3
    DPNSS on page 4-3

* describe the management of the system’s changes of status by a signaling connection control part (SCCP) in SCCP System Management of Status Changes on page 5-1(feature package NTX041AB)

* describe the handling of system data by the message transfer part (MTP) in MTP Handling of System Data on page 5-2 (feature package NTX041AB)

* change the description of the link synchronization state IDLE in Table 5.10 on page 5-22

* reformat Figure 5.1 on page 5-6

* change the description of the command SCCPRSS on page 10-9

* change the responses of the commands SCCPRPC on page 7-8and SCCPLOC on page 7-9

* with feature package NTX835AA, add:

    SCCPLOC-Level Commands and Responses on page 12-1

    Logging Actions of SEAS on page 13-1

    SEAS Alarms for Changes of States on page 13-1

    User Application and User Program Layers for SEAS on page 13-2

    System Data Tables for SEAS on page 13-6

* add response information and change some descriptions of the following SEAS level commands:

    BSY on page 13-10
    OFFL on page 13-12
    PVC on page 13-13
    QUERYFLT on page 13-14
    RTS on page 13-16
    TST on page 13-18

* add response information, change some command descriptions, and change the syntax of the following PVC level commands:

    BSY on page 14-2
    OFFL on page 14-5
    NEXT on page 14-4
    QUERYFLT on page 14-9
    RTS on page 14-10
    TST on page 14-12

* add PVC-Level Menu Commands and Responses on page 14-1

* add the terms multi-protocol controller (MPC), private vitual circuit (PVC), and signaling engineering and administration system (SEAS) to Chapter 15 on page 15-1

* condense the size of most figures throughout the document, including removal of the notes regarding "The MAP display illustrated..."

* change some of the document’s phraseology to become consistent with the style of other NTPs

0 SOFTWARE IDENTIFICATION

0 Software applicable to a specific DMS-100 family office is identified by a BCS release number and by Northern Telecom (NT) Product Engineering Codes (PEC). The significance of the BCS number and the PEC is described in 297-1001-450 (section 450/32) and in the Office Feature Record D-190.

0 A display of the BCS number and PEC for the NT feature packages available in a specific office can be obtained by entering the command string:

0 PATCHER;INFORM LIST;LEAVE

0 at a Maintenance and Administration Position (MAP).

COMMAND FORMAT CONVENTIONS

In this practice, a uniform system of notation is used to illustrate system commands and responses. It shows the order in which command elements appear, the punctuation, and the options. Where the conventions are not used, an explanation is given in the text.

CAPITAL letters or special characters	show constants, commands, or keywords that the system accepts when entered as written.
lowercase letters	show a user- or system-supplied parameter. Definitions are given for each parameter.
Brackets [ ] or 	enclose optional parameters. A vertical list enclosed in brackets means that one or more of the parameters may be selected.
<u>Underlined parameter</u>	is a default. If no choice is entered, the system acts as though the underlined parameter had been entered.
Underscore connecting words	means the words are to be treated as one item, for example, pm_type or #_one_two.
...	indicates repeated steps or items.

In addition, the following conventions are used.

n (lowercase n)	is a number from 0 to 9.
a (lowercase a)	is a letter from A to Z.
h (lowercase h)	is a hexadecimal integer from 0 to F.

REFERENCES

References listed as prerequisites are essential for an understanding of this practice. Those listed as informative contain detailed information concerning other items mentioned in this Practice, but are not essential. References are inserted at the appropriate places in the text.

Note: The documents listed may exist in more than one version. See 297-1001-001 to determine the release code of the version compatible with a specific release of software.

Prerequisite References

DOCUMENT NUMBER	TITLE
297-1001-100	System Description
297-1001-103	Peripheral Modules
297-1001-106	Maintenance System Description
297-1001-110	Maintenance and Administration Position (MAP)
297-1001-141	Common Channel Signaling 7 Description
297-1001-142	Applications Processes Reference Manual
297-1001-509	Command Reference Manual
297-1001-520	Maintenance System Man-Machine Interface Description

Informative References

DOCUMENT NUMBER	TITLE
297-1001-120	Equipment Identification
297-1001-450	Provisioning
297-1001-500	Switch Maintenance Performance Oriented Practice
297-1001-513	Input/Output Devices (IOD) Man-Machine Interface Description
297-5101-100	Signaling Transfer Point Description and Documentation Guide
297-5101-102	Signaling Transfer Point Operations, Administration, and Maintenance

Notes:

1. References for all system data tables are found in the Customer Data Schema (297-1001-451).

2. Log messages (reports) are described in 297-1001-510.

3. Operational Measurement (OM) groups are described in 297-1001-114.

4. External alarms are described in 297-1001-517.

CHAPTER 2

DISPLAY HIERARCHY

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GENERAL

Information on the MAP is organized into a series of display levels (Figure 2.1), which are displayed sequentially when the appropriate commands are entered. The command interpreter (CI), the top level, is accessed automatically when a user "logs on" at a MAP using the Logging In At A Terminal procedure (297-1001-500). The command MAPCI selects the MAP facility and gives the user access to the menu of commands displayed.

One of the items on the MAPCI menu is maintenance (MTC). When the command MTC is entered, the MTC system status display (Figure 2.2 on page 2-2) is displayed on the MAP. The DMS-100 Family maintenance system is described in 297-1001-106.

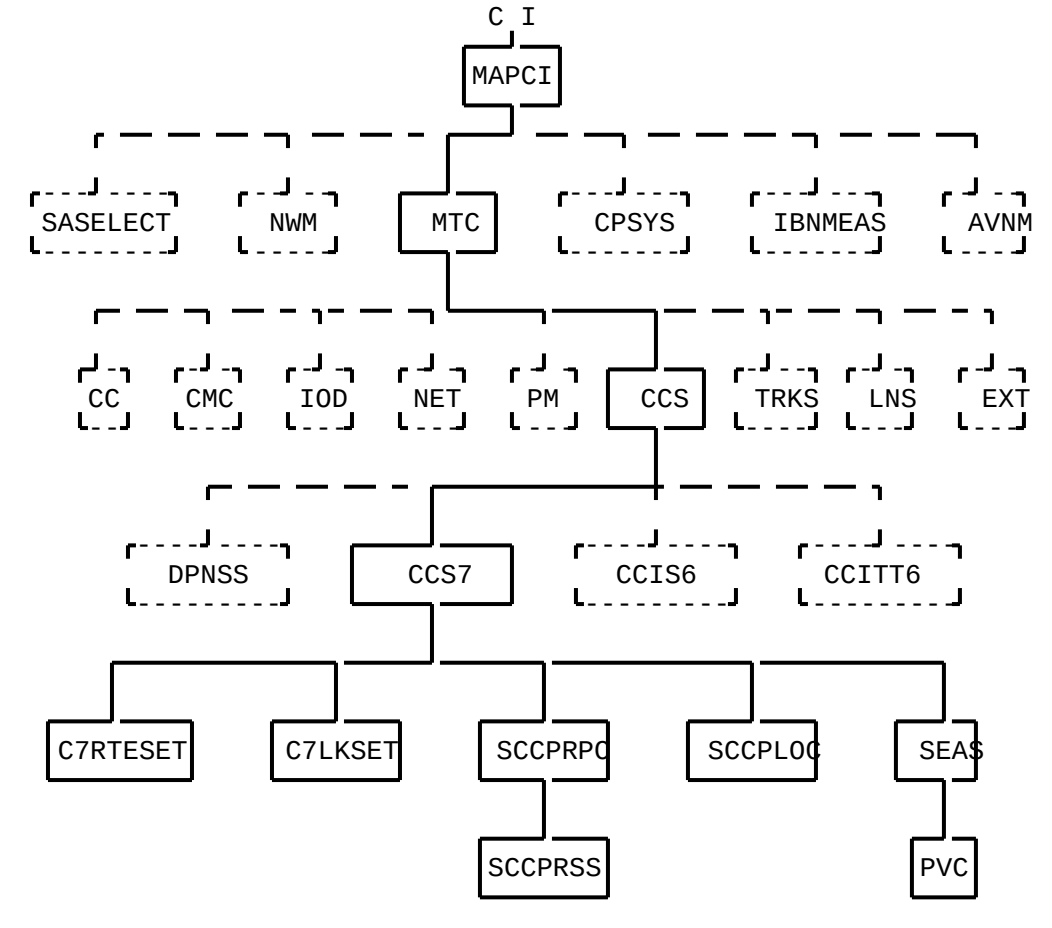
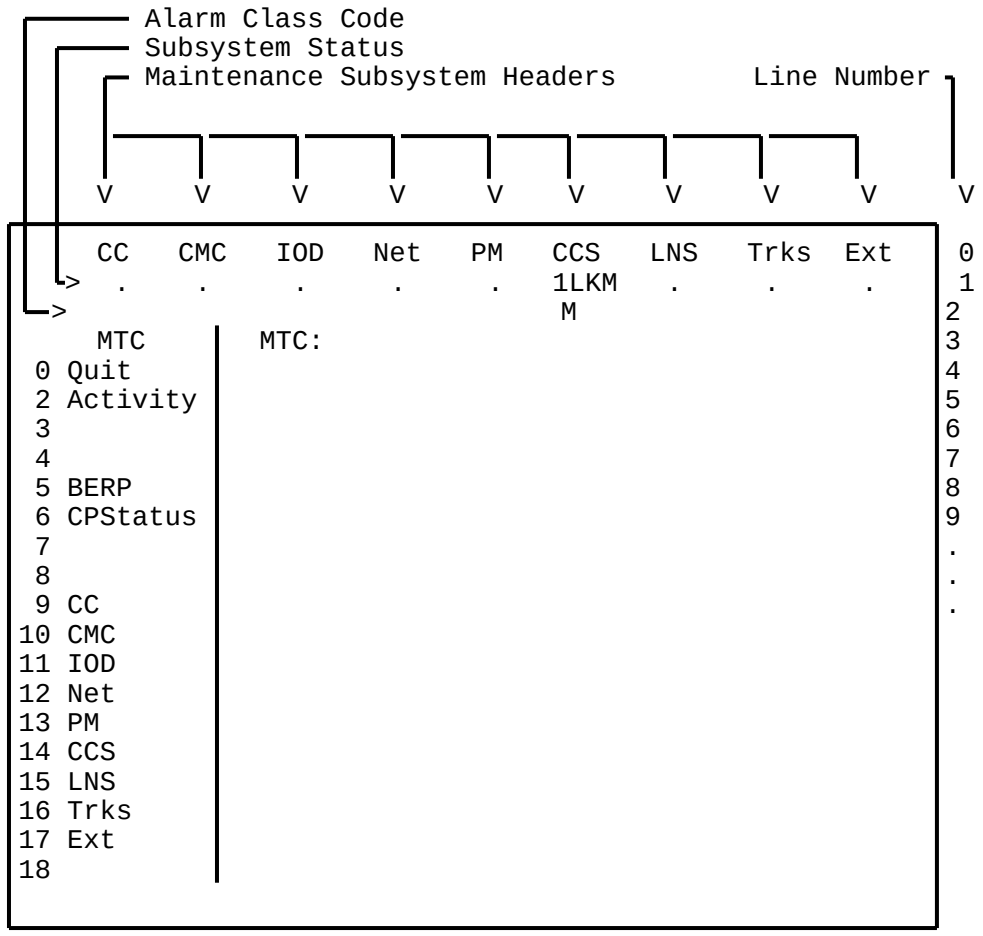


Figure 2.1 CCS MAP Level - Hierarchy



Note: The MAP display is an example. Text outside the display area is for explanation only. Not all maintenance subsystem headers or commands shown may be present, depending on office configuration.

Figure 2.2 Maintenance (MTC) System Status Display

MAINTENANCE SYSTEM DISPLAY

Line 0 of the MTC System Status Display lists a number of abbreviations (headers) which represent the maintenance systems of the DMS-100 Family. Below each of these headers, on lines 1 and 2 respectively, appear the fault status and the alarm status of the maintenance system. The header of interest in this Practice is CCS. When the CCS System is in service or available for service, a dot (.) appears as the fault status on line 1.

Should a fault be detected by the CCS Maintenance System, a fault status code is displayed on line 1 beneath CCS. With the fault status code may be an alarm status code on line 2 directly underneath the fault status code. The alarm status codes are as follows:

C	Critical Alarm
M	Major Alarm
	a blank is a Minor Alarm

If more than one type of CCS is available on the switch, the alarm status code that is displayed is associated with the type that has the greater priority. The priority is determined by the position of CCS types in system tables. Note also that an alarm under the CCS banner does not identify the faulty CCS type.

If more than one category of fault exists at any one time in the CCS System, only the code for the most severe fault is displayed. Table 2.1 on page 2-4 gives the system status and alarm codes that may be displayed under the CCS system header.

TABLE 2.1
CCS STATE AND ALARM CLASS CODES

STATUS CODE	ALARM CODE	DESCRIPTION
LKC		Not applicable to CCS7
RSC	*C*	Routeset Critical. The routeset has no signaling capability.
PCC	*C*	Point Code Critical. The routeset is out of service. This alarm is usually masked by an RSC alarm. When the RSC alarm is cleared the point code (PC) goes to the system busy state until the message transfer part corrects the status of the PC. This is only a temporary state if the routeset is in the in-service state.
SSC	*C*	Subsystem Critical. A subsystem is out of service <u>Local Subsystem</u> * is in the manual busy state (ManB) * is in the system busy state (SysB), which is caused by the entire system going system busy, or the subsystem put itself out of service, or it is in a temporary state during a return to service command. <u>Remote Subsystem</u> * is in the manual busy state (ManB) * is in the system busy state (SysB) * is in the initializing state (INI)
LKM	M	Linkset Major. The links within a linkset are unable to carry traffic. One or more of the following conditions may exist: * a processor outage signal has been received on the signaling link * all the signaling links in a linkset are out of service * a major equipment failure in the system caused a linkset to go out of service

Table Continued

TABLE 2.1 (Continued)
CCS STATE AND ALARM CLASS CODES

STATUS CODE	ALARM CODE	DESCRIPTION
RSM	M	Routeset Major. There are reduced alternative routes for traffic.
SSM	M	Subsystem Major.
LK		Linkset Minor. There is not a full set of links available for traffic.
PC		Point Code Minor. There is congestion on the links to the point code.
RS		Routeset Minor.
SEAS		SEAS Minor. The SEAS system is not available, especially when it is in one of the following states: system busy manual busy in-service trouble
*		All CCS systems are in service or available for service.

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CHAPTER 3

CCS COMMANDS AND RESPONSES

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GENERAL

This chapter describes the functions and usage of the menu commands and parameters for CCS maintenance subsystems. The commands and parameters are described using the notational conventions listed in Chapter 1 on page 1-1. The method of obtaining access to the maintenance system, and the basic procedures for entering commands, are described in 297-1001-520.

Commands

Commands and parameters are listed in the menu area (left side of the MAP screen) of each level display. An underscore following a menu item means that a parameter must follow the item. A menu item following an underscore is a parameter. An item without an underscore is a command which does not always require parameters, but may require some to complete the command. Commands and parameters can be entered either by the number preceding the menu item, or character by character without regard to upper or lower case.

The commands listed in the menu are described alphabetically. Throughout this practice, the command name appears at the top left of the page that begins its description.

If difficulty is experienced when entering a command, use ABORT and re-enter the original command. To obtain information about the syntax and parameters associated with a command enter HELP followed by the name of the command. If an error has been made, the following message appears at a MAP:

EITHER INCORRECT OPTIONAL PARAMETER(S) OR TOO MANY PARAMETERS

followed by the reason for the error message.

Responses

After a command is entered, a response appears on the MAP screen and/or printer. Responses that are unique to a command are given in the associated "Responses" following the command description. The responses are listed alphabetically.

COMMON CCS MENU COMMANDS

The command QUIT leaves the current display level, erases the part of the display associated with the current maintenance level, and accesses the higher display level specified by the parameters.

Usage Note:

If the parameter n is specified and the number of levels specified exceeds those remaining, the display retreats only as far as the CI level.

Where:

1 retreats to the next higher display level. This is the default.

n retreats through a quantity of n display levels.

Values: 0 through 9.

ALL returns to the command interpreter (CI) level.

incr_name retreats to the specified display level.

Values: MTC or CI.

CHAPTER 4

CCS MAP LEVEL

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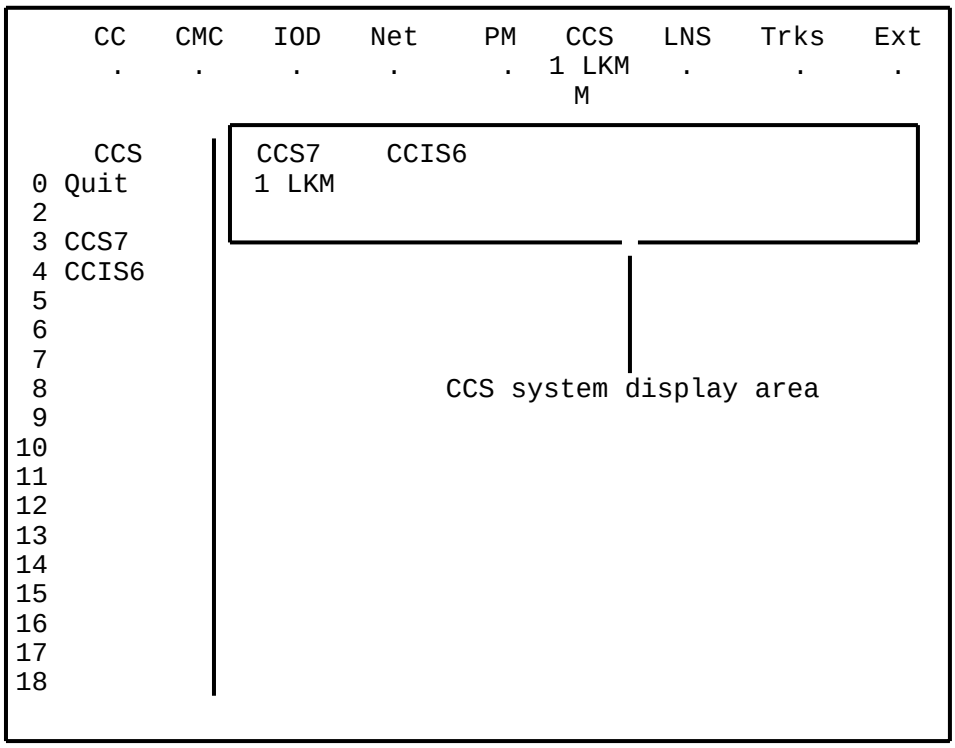
CCS-LEVEL STATUS DISPLAY

The CCS-level status display is the initial entry into the status displays of the CCS subsystems. It lists in a menu all of the CCS subsystems that are available to a MAP user and displays the most serious alarms that are currently active for each CCS subsystem. The position of the CCS subsystems in the CCS system display area, and their menu item number is determined by system tables.

The CCS system status display is accessed by entering the maintenance menu command CCS. The layout of the CCS system status display is shown in Figure 4.1 on page 4-2.

Line 3 is used for displaying the CCS subsystems that have faults and line 4 is used for displaying the status code of the faults. A description of these fault status codes are given in Table 2.1 on page 2-4. If the CCS subsystems have different fault status levels, only the CCS subsystems with the most serious fault status are identified.



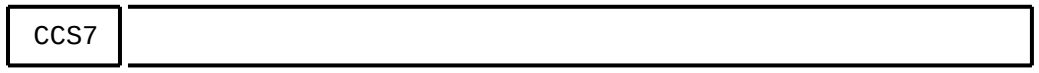
Note:

If only one type of CCS is available on the switch, it occupies the leftmost position in the CCS system display area and uses menu item number 3. If more than one type of CCS is available, their position in the CCS system display area and their menu item depends on the sequence in which they have been assigned in the system tables.

Figure 4.1 CCS System Menu and Position of Status Display

0 CCS7

The command CCS7 accesses the CCS7 level of the MAP and displays the commands and parameter requirements that are available for monitoring and maintaining the common channel signaling 7 (CCS7) system.



0 CCIS6

The command CCIS6 accesses the CCIS6 level of the MAP and displays the commands and parameter requirements that are available for monitoring and maintaining the common channel interoffice signaling 6 (CCIS6) system. Maintenance for CCIS6 is described in 297-1001-528.

0 CCITT6

The command CCITT6 accesses the CCITT6 level of the MAP and displays the commands and parameter requirements that are available for monitoring and maintaining the CCITT signaling system 6 (CCITT6). Maintenance for CCITT6 is described in 297-1001-528.

0 DPNSS

The command DPNSS accesses the DPNSS level of the MAP and displays the commands and parameter requirements that are available for monitoring and maintaining the digital private network signaling system (DPNSS).

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CHAPTER 5

CCS7 SUBSYSTEM

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CCS7 INTRODUCTION

CCS7 is modeled on a protocol defined in a set of standards produced by ANSI T1X1.1[3] . The standards, numbered Q.701-Q.708, Q.711-Q.714, and Q.771-Q.774, define the protocols used for the message transfer part (MTP), the signaling connection control part (SCCP), and the transaction capabilities application part (TCAP)[4] of signaling system 7 (SS7).. SS7 is used for national systems. In this practice, CCS7 is synonymous with SS7.

SCCP SYSTEM MANAGEMENT OF STATUS CHANGES

With feature package NTX041AB, the SCCP software management feature (F6697):

* handles the INFO_BLOCK supplied by a message transfer part (MTP) which indicates the quantity of Routset status changes

* selectively sends the changes of local and remote subsystem status to local subsystems

SCCP software management affects all CCS7 products, including:

service switching points (SSP)
signaling transfer points (STP)
service control points (SCP)

For changes in the status of a remote point code, a remote subsystem, or a local subsystem the following events occur:

* MAP displays are updated to indicate the new status

* logs are generated to record the change

* other local subsystems are notified of the change in status

* the routing tables are updated

* the translation tables are updated

* the data manager updates all PMs that require the status data

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[3] American National Standards Institute (ANSI) Working Group T1X1.1 (a subgroup of Exchange Carriers Standards Association--ECSA).

[4] TCAP provides a common protocol for remote operations across the CCS7 network. It is transparent to the user and does not have any MAP access for maintenance purposes. Errors detected in TCAP are identified as SCCP errors.

0 * messages are sent to the CCS7 network to notify other nodes and to audit the overall status of the subsystem

0 Logs for Status Changes

0 Whenever a CCS7 node has a change of status, for example, changing from the in-service state to the system busy state, a log is generated to record it. The following logs are generated for the CCS7 subsystem's changes of state:

0 CCS210 a remote point code has become system busy after an attempted return to service because a routeset failure is identified at the MTP level of the MAP. Service may degrade.

0 CCS211 a set of remote point codes has become Available, meaning that the routeset for the point code is also available.

0 CCS229 a remote point code has in-service trouble after an attempted return to service because the routeset to this point code is congested or restricted. Service may degrade.

0 CCS176 an RSM link audit detects an inconsistency in the link data.

0 CCS177 an RSM route audit detects an inconsistency in the route data.

0 System Table C7GTT

0 The system automatically uses field DRIDX of table C7GTT for dump and restore index functions between the computing module (CM) and an LIU7.

0 Note: Field DRIDX is not intended for use by a craftsperson; manual use can cause table corruption.

0 MTP HANDLING OF SYSTEM DATA

0 With feature package NTX041AB, the Message Transfer Part (MTP) feature (F6698), that is, layers 1, 2 and 3 of CCS7 protocol, provides the following:

0 * a change to the status of a single linkset

0 * changes to CCS7 system tables

0 * changes to logs associated with the CCS7 system

0 A Linkset Changing Status

A single linkset which is used by a large number of routesets can cause those routesets to change availability when a status change occurs for that linkset.

0 System Table C7LKSET

In system table C7LINK, links can be added to a linkset and brought into service dynamically while other links are carrying traffic, or a link can be deleted from a linkset by taking it out of service at a MAP and deleting it from the table.

When a link is added to a linkset, the alarm state of the linkset is updated according to the current status of all links in the linkset, including the added one. When a link is deleted from a linkset, the alarm status of the linkset is updated according to the current status of all links remaining in the linkset.

In field Q703T2 of table C7LKSET, the value for a non-aligned timer is from 50-1000 to 50-1500 milliseconds (5 to 150 seconds). System table CUSTFLDS must also be manually changed to accommodate changes to field Q703T2 of table C7LKSET.

0 Changing System Table OFCOPT

To align the H0H1 codes between the ANSI and CCITT specifications of CCS7, the H0H1 code for the routeset cluster prohibited (RCP) changes from hexadecimal #25 to the ANSI value of #35. The change is done by parameter CCS7_H0H1_RCP of system table OFCOPT. The RSR (signaling-route-set-test signal for restricted destination) changes its values automatically.

In-service networks can cut over to the RCP value by changing the parameter CCS7_H0H1_RCP. Only one parameter is needed because the two H0H1 codes interchange values.

0 Logs for MTP System Actions

The logs that are generated whenever maintenance actions occur to the MTP part of the CCS7 system are as follows:

AUDT616 indicates the front end is either an NT40 or an ECORE switch.

AUDT620 indicates the front end is either an NT40 or an ECORE switch.

AUDT401 indicates an audit has detected and corrected a mismatch between the CC or the CM and the peripheral (LIU7 or MSB7).

0 CCS178 indicates the parameter CCS7_H0H1_RCP of system table is changed.

0 CCS7-LEVEL STATUS DISPLAYS

0 General

0 The CCS7 subsystem display is accessed by entering the CCS command CCS7. This display level accesses the commands QUIT and DISALM and the lower display levels (C7RTESET, C7LKSET, SCCPRPC, SCCPLOC, and SEAS) as shown in Figure 5.1 on page 5-6. The layout of the CCS7 subsystem display is shown in Figure 5.2 on page 5-7.

0 The command DISALM displays the alarms generated by the CCS7 subsystem. The result of the command is placed in the DISALM display area as shown in Figure 5.2 on page 5-7. The meaning of the headings for the routeset, linkset, and SCCP fault states are described in Table 5.1 on page 5-5.

TABLE 5.1
CCS7 DISALM DISPLAY HEADINGS

CODE	DESCRIPTION
ALM	is the selected fault status
LINKSET	is the linkset Common Language Location Identifier
POINT CODE	is the point code CLLI
ROUTESET	is the CLLI of the routesets that have the selected fault status
STAT	is the current state of the subsystem that has the alarm
SUBSYSTEM	is the subsystem name assigned to the subsystem

Note: There are no display headings for SEAS.

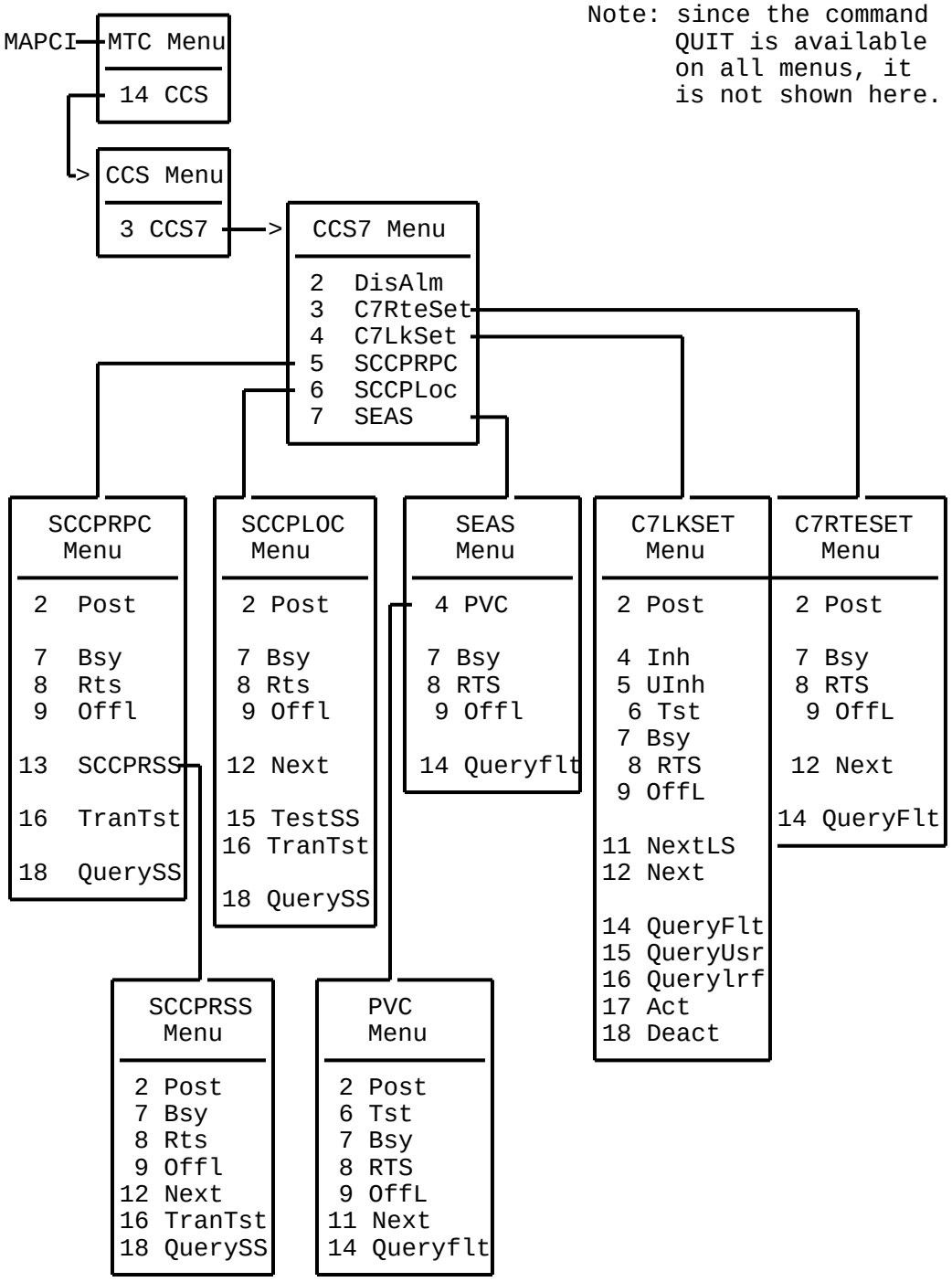


Figure 5.1 CCS7-Level Hierarchy and Menus of Commands

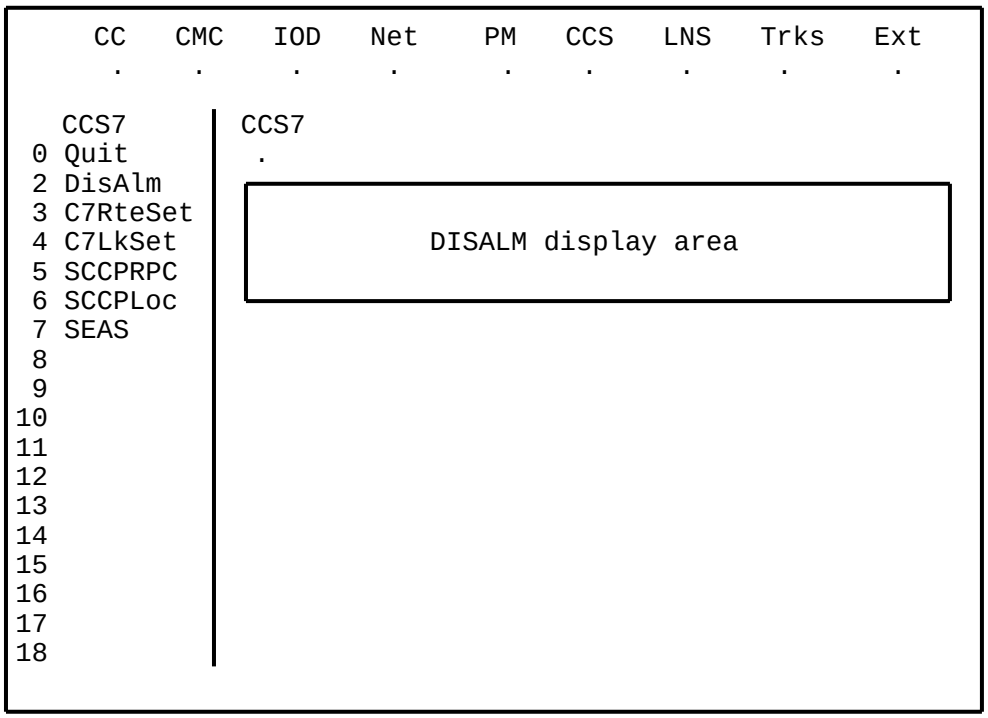


Figure 5.2 Position of CCS7 Subsystem Status Display

Routeset Level Status Display

The routeset level status display is accessed by entering the CCS7 command C7RTESET. The routeset level permits the user to query the status of selected routesets.

A routeset must be posted before any action is taken to view or change its status, or to view or change the status of a route in the routeset. A routeset is posted using the command POST together with a selector character and one of the following:

- routeset CLLI
- routeset alarm state
- routeset state

The last two methods post all routesets with the selected item. Although there is an unequipped state (displayed as UnEq) available for the routeset (see Table 5.2 on page 5-10), routesets cannot be posted using UNEQ as a parameter.

The command POST only selects the routesets and identifies them to the CCS7 MAP control position. Once posted, the status of the routes of the first routeset are displayed in the post display area (see Figure 5.3 on page 5-8). The next routeset in a posted set is displayed by using the command NEXT.

The format of the response to the command POST is shown in Figure 5.4 on page 5-9. The coding used for the routeset information under the headings in the display are listed in the following tables:

Routeset CLLI	system table C7RTESET
Routeset State	Table 5.2 on page 5-10
Route Number	system table C7RTESET
Route Traffic State	Table 5.3 on page 5-11
Signaling Mode	Table 5.5 on page 5-13
Relative Cost of Route	Table 5.7 on page 5-15
Linkset CLLI	system table C7RTESET
Linkset State	Table 5.4 on page 5-12
Routing Transfer State	Table 5.6 on page 5-14

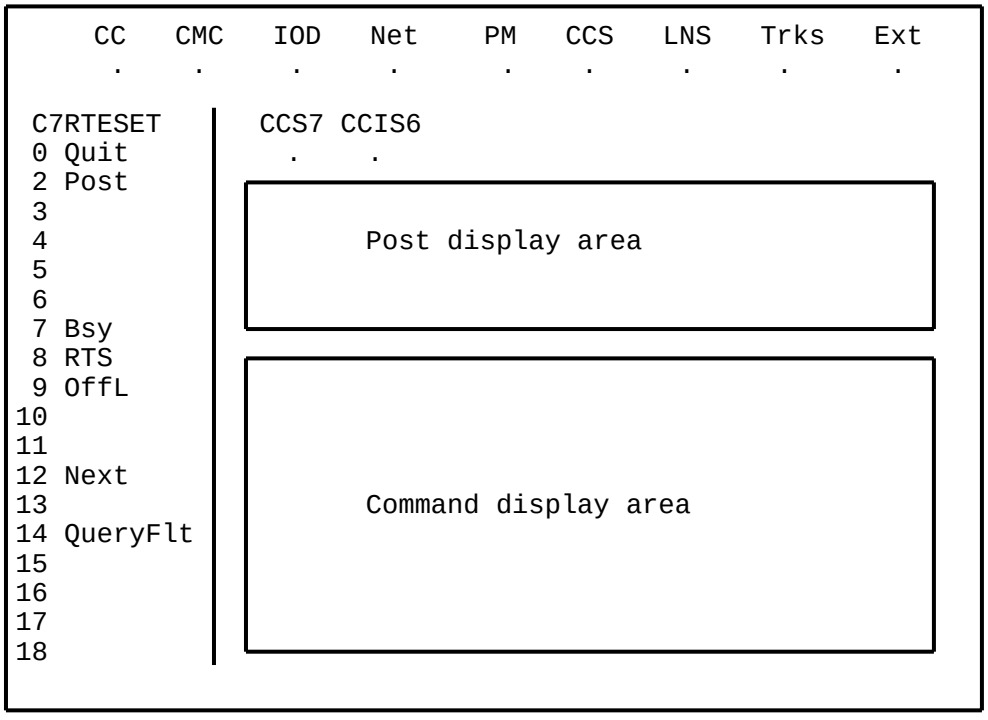


Figure 5.3 Position of Display Areas in Routeset Level Display

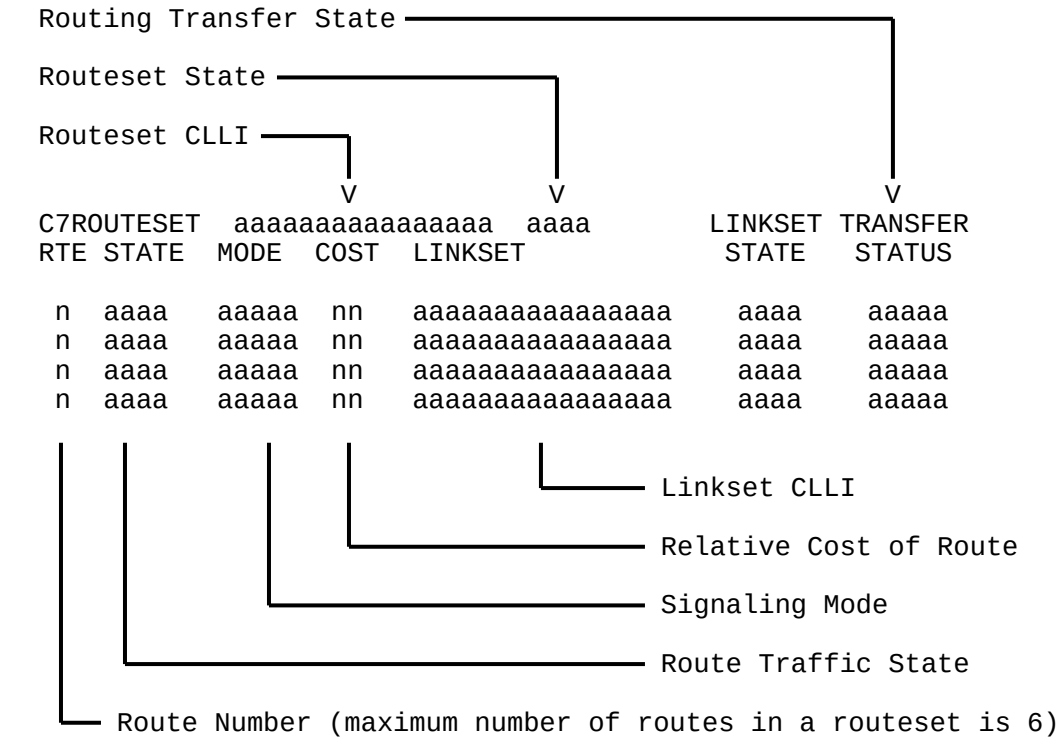


Figure 5.4 Generic Routeset Display Using Four Routes

TABLE 5.2
CCS7 ROUTESET STATES

CODE	DESCRIPTION
INSV	In service. The routeset is capable of signaling through all of its component routes, with no fault condition on any of the routes.
ISTB	In-service trouble. The routeset is capable of carrying traffic, but the service is degraded. The reasons for this state may be one or more of the following:
	Congestion — The routeset is congested locally, or in the signaling network, and only priority messages are allowed.
	Route Prohibited — Some but not all of the routes in the routeset have received a transfer prohibited signal and are not capable of carrying traffic.
	Route Restricted — Some or all of the routes in the routeset have received a transfer restricted signal and are capable of carrying traffic only at a degraded level of service.
	Linkset Failure — Some but not all of the linksets that comprise the routes are out of service.
SYSB	System busy. The routeset is unable to deliver messages to its destination. Each route in the routeset is either LINKSET OUT OF SERVICE (no local links towards the destination) or the route traffic state is out of service (no routes in the network). A failure of the route verification test also sets the SYSB state.
MANB	Manual busy. The routeset is out of service and under the control of operating company personnel.
OFFL	Offline. The routeset is datafilled, but is not available to the signaling system.
UNEQ	Unequipped. The routeset is not datafilled and cannot be used until it is.

TABLE 5.3
ROUTE TRAFFIC STATES

CODE	DESCRIPTION
INSV	In service. The network is able to route signaling traffic at a reliable grade of service.
ISTB	In-service trouble. The route can still be used for carrying signaling traffic, but at a degraded level of service. This level of service includes the following conditions: * route restricted. The network has faults in the normal routing paths and can only offer a degraded level of service * controlled rerouting. The level of service in the network has improved and traffic is being rerouted in an orderly manner * forced rerouting. The level of service in the network has been degraded and traffic is being rerouted in an orderly manner.
SYSB	System busy. The network is unable to route signaling traffic to their destinations. This may be caused by a number of transmission link faults in the network or by failures in the route verification test.

TABLE 5.4
LINKSET STATES

CODE	DESCRIPTION
INSV	In service. There are enough in-service links in the linkset to satisfy the call processing software requirements of the switch. The linkset is therefore able to provide a satisfactory traffic capability.
ISTB	In-service trouble. Some links are in service or have in-service trouble, but there are not enough in-service links to completely satisfy the call processing software requirements. The linkset is able to provide service, but possibly a degraded traffic capability.
SYSB	System busy. The switch does not have any links that have a status of in service or in-service trouble, and some links have a status of system busy. The linkset is unable to to provide any traffic capability.
LINH	Local inhibit. There are no links in the in service, in-service trouble, or system busy state, but some are in the local inhibit state. This is a transitory state, caused by a problem in the near end office. If a linkset is in the local inhibit state, the call processing software automatically attempts to uninhibit the affected links.
RINH	Remote inhibit. There are no links in the local inhibit, in service, in-service trouble, or system busy state, but there are some that are in the remote inhibit state. This is a transitory state, caused by a problem in the far end office. If a linkset is in the remote inhibit state, the call processing software automatically attempts to uninhibit the affected links.
MANB	Manual busy. There are no links in the in service, in-service trouble, or system busy state, but some links are in the manual busy state. The linkset is unable to provide any traffic capability.
OFFL	Offline. All the links within the linkset are not available for use by the call processing software.
UNEQ	Unequipped. All of the links in the linkset have been deleted from the system tables. The linkset is unknown to the call processing software.

TABLE 5.5
SIGNALING MODE

CODE	DESCRIPTION
ASSOC	Associated. The transmission links used by the route are connected to the far end office by links operating in the associated mode of operation (see 297-1001-141).
QUASI	Quasi-associated. The transmission links used by the route are connected to the far end office by links operating in the quasi-associated mode of operation (see 297-1001-141).

TABLE 5.6
ROUTING TRANSFER STATE

CODE	DESCRIPTION
Allowed	There is an acceptable grade of service on the route.
Rstrctd	Restricted. Service on the route is degraded, but the route is able to deliver messages. This status only applies to networks using the ANSI protocol.
Prohbtd	Prohibited. There is no service on the route and all messages are discarded if sent.

TABLE 5.7
RELATIVE COST OF ROUTE

CODE	DESCRIPTION
0-99	Is the relative cost of the route expressed as a number. The lower the number, the lower the cost of using the route. The working routes with the lowest numbers are selected for routing traffic.

0 Linkset Level Status Display

0 The Linkset level status display is accessed by entering the CCS7 command C7LKSET. This display level accesses another level of commands that permit the user to query and change the status of the links within a selected linkset.

0 To preserve the integrity of the system, a linkset must be posted before any action is taken to view or change its status. A linkset is posted by using the command POST together with a selector character and one of the following:

0 linkset CLLI
0 linkset state
0 linkset alarm state

0 The last two methods of posting a linkset posts all linksets with this status.

0 The command POST only selects the linksets and identifies them to the CCS7 MAP control position. Once posted the status of the various components of the first four links of the first linkset are displayed in the Linkset display area (see Figure 5.5 on page 5-19). To display the next four links of the linkset enter the command NEXT, and to display the next linkset in a posted set enter the command NEXTLS.

0 The default starting link for the command POST is the first equipped link starting at 0. If an equipped link is entered as an optional parameter, that link is the first link in the display, followed by the next three equipped links. If more than one link is entered as the optional parameter, only those links that are equipped are displayed.

0 Links entered as the optional parameter may be entered in any sequence, and they are displayed in that sequence.

0 The CCS7 resource is the signaling terminal (ST7) for switching offices and service switching points (SSP), and the link interface unit (LIU7) for signaling transfer points (STPs). LIU7s do not require transmission links (they connect directly to the carrier), therefore, the entry under Physical Access in the linkset display is the type of carrier. The options are DS0A or V.35.

0 If a link is not identified with a resource, it uses a pool resource when called upon to carry traffic.

0 The format of the response to the command POST is shown in Figure 5.6 on page 5-20. The coding used for the linkset information under the headings in the display are listed in the following tables:

TABLE 5.8
CCS7 LINKSET STATES

CODE	DESCRIPTION
INSV	In service. There are sufficient links to provide a complete service to all routes within the routesets.
ISTB	In-service trouble. The linkset is in service, but the system has been informed that one or more of the links are experiencing difficulties in carrying signaling traffic.
LINH	Local inhibit. This state is a transitory one. The linkset has no links in the in service, in-service trouble, or system busy state, but has some links in the local inhibit state.
RINH	Remote Inhibit. This state is a transitory one. The linkset has no links in the in service, in-service trouble, or system busy state, but has some links in the remote inhibit state.
SYSB	System busy. There are no links in service or in-service trouble, and at least one link is in the system busy state. The linkset is unable to provide signaling capability.
MANB	Manual busy. The linkset has no links in the inhibited, in service, in-service trouble, or system busy state, but at least one link is in the manual busy state. In this state the linkset is unable to provide signaling capability.
OFFL	Offline. The linkset has been removed from service.
UNEQ	Unequipped. The linkset is not equipped. Linksets in this state are not able to generate an alarm.

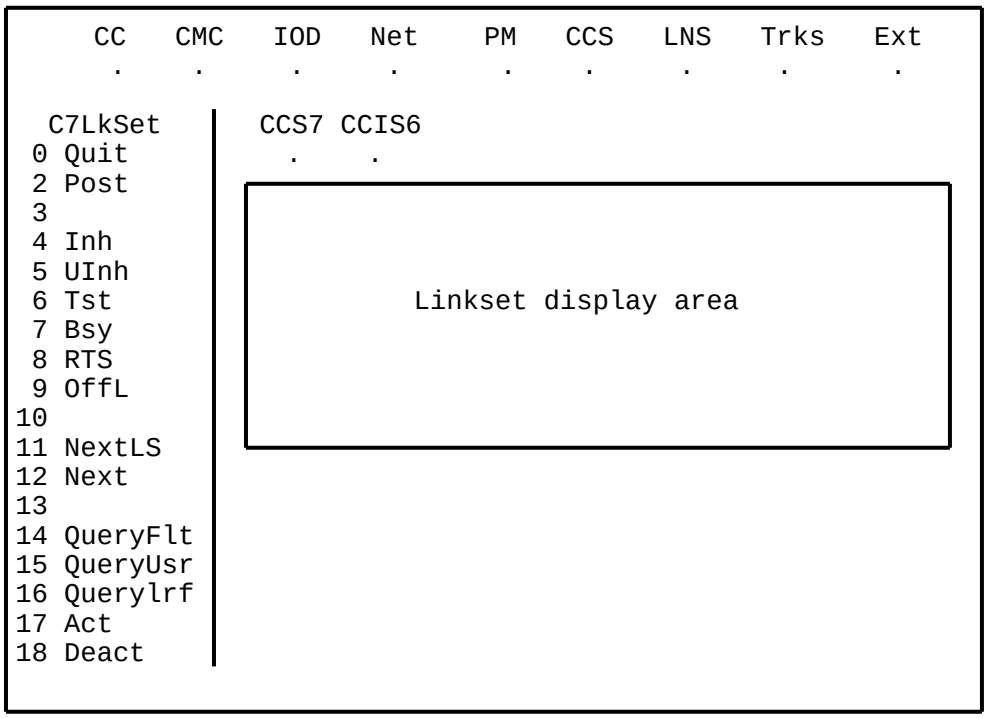


Figure 5.5 Position of CCS7 Linkset Level Status Display

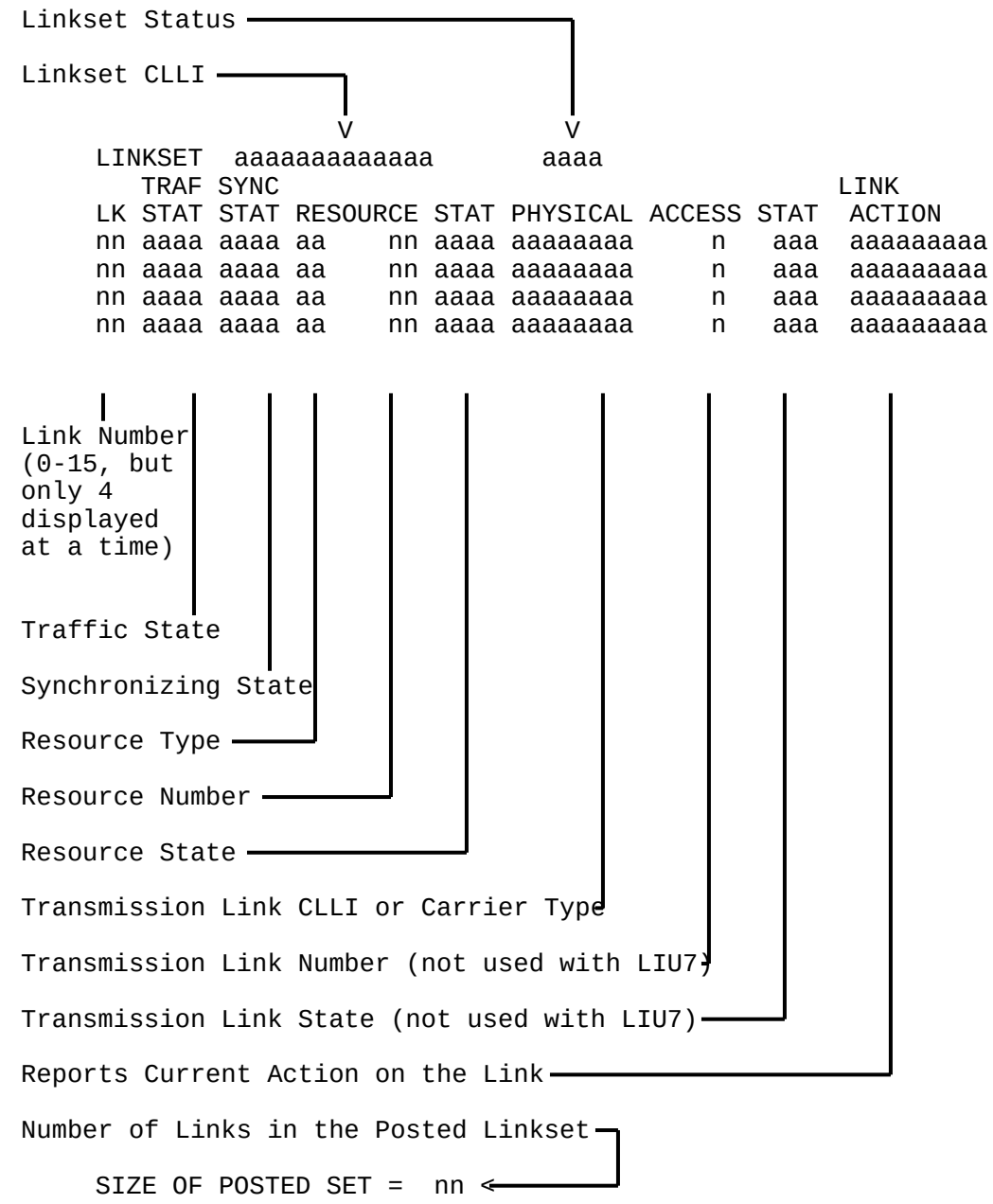


Figure 5.6 Explanation of a Generic Linkset Display

TABLE 5.9
CCS7 LINK TRAFFIC STATES

CODE	DESCRIPTION
INSV	In service. The link is able to carry traffic on its transmission link. It is presently being used for carrying signaling traffic.
ISTB	In-service trouble. The link is capable of having traffic routed on it, but the service is degraded. The types of degradation are:
	Changeback — The link is in a transition from the system busy to the in-service state. The link is undergoing the changeback procedure to restore traffic to the link in an orderly manner.
	Changeover — The link is in a transition from the in-service to the system busy state. The link is undergoing the changeover procedure to transfer traffic to alternate links in an orderly manner.
	Congestion — The link is congested and can only carry traffic with the highest priority.
SYSB	System busy. The link is unable to carry traffic. The link is either not synchronized or the signaling link test has failed.
RINH	Remote inhibit. The far end office on the transmission link has successfully initiated and completed a link-inhibiting procedure.
LINH	Local inhibit. The near end office on the transmission link has successfully initiated and completed a link-inhibiting procedure.
MANB	Manual busy. The link has been taken out of service by a craftsperson. The traffic previously carried by the link is being carried on another link.
OFFL	Offline. The link has been removed from software control. The link can only be deleted from system tables when it is in this state.
IDLE	Idle. The link is available for carrying traffic, but it is not required because the system has sufficient links in service.

TABLE 5.10
CCS7 LINK SYNCHRONIZATION STATES

CODE	DESCRIPTION
ALND	Aligned. The link is synchronized with the far end office, but the link traffic state is manual busy.
DACT	Deactivated. The link has been manually deactivated.
FTLK	Faulty link. The link was considered to have failed because synchronization was lost or there was an excessive error rate in data on the link.
IDLE	The link is available for synchronization by passing all proving periods, but is not required for carrying traffic. A linkset cannot have unused links in it and therefore an IDLE,IDLE state is not displayed. Once a link is data-filled in a linkset, activated, and returned to service, then it remains in a synchronized state (INSV,SYNC for example) and is not deactivated and idled.
INIT	Initialized. This is a temporary state of the link after a cold restart of the office software, or the MSB7 has just been returned to service. The link is still being placed in service.
INSV	In service. The link is currently carrying traffic or is capable of carrying traffic.
LPO	Local processor outage. Signaling messages cannot be transferred through the functional levels 3 and 4 of the switch. This may be because of a call processing failure or an MSB7 failure.
PRVD	The link at the near end office has synchronized and has met the error rate requirements of the appropriate proving period.
RPO	Remote processor outage. There are no faults in the near end office link, but signaling has been halted due to a failure at the far end office.
SYNC	Synchronized. The link has met all requirements of the appropriate proving period, and has achieved synchroniza-tion with the far end office.

Table Continued

TABLE 5.10 (Continued)
CCS7 LINK SYNCHRONIZATION STATES

CODE	DESCRIPTION
SYSB	System busy. The link is not synchronized with the far end office due to a fault condition.

TABLE 5.11
CCS7 RESOURCE (ST7) STATES

CODE	DESCRIPTION
CBSY	Central-side busy. The signaling terminal 7 (ST7) is out of service because the MSB7 to which it is connected is out of service.
INSV	In service. The ST7 is in service and available to support any intended process.
ISTB	In-service trouble. The ST7 is still in service but PM maintenance has detected one or more of the following situations: * the ST7 has failed a minor periodic audit test * the load file is not the same as the one specified in the system table STINV.
MANB	Manual busy. The ST7 was removed from service manually for maintenance actions.
OFFL	Offline. The ST7 is offline.
SYSB	System busy. The call processing system has detected a failure and has removed the ST7 from service.
UNEQ	Unequipped. The ST7 hardware is not provided, or the ST7 does not exist in system software.

TABLE 5.12
CCS7 RESOURCE (LIU7) STATES

CODE	DESCRIPTION
INSV	In service. The LIU7 is in service and available to support any intended process.
ISTB	In-service trouble. The LIU7 is still in service but PM maintenance has detected one or more of the following situations: * The LIU7 has failed a minor periodic audit test. * The load file is not the same as the one specified in the system table LIUINV.
MANB	Manual busy. The LIU7 was removed from service manually for maintenance actions.
OFFL	Offline. The LIU7 is offline.
SYSB	System busy. The call processing system has detected a failure and has removed the LIU7 from service.

TABLE 5.13
CCS7 PHYSICAL ACCESS STATES

CODE	DESCRIPTION
CFL	Carrier fail. The system has removed the transmission link from service because it has detected a failure.
IDL	Idle. The transmission link is synchronized, but not currently in use and is not connected to a ST7.
INB	Installation busy. The transmission link is not synchronized and has not been placed in service.
INI	Initialization. A transitional state to which all transmission links are set following a system restart.
MB	Manual busy. The transmission link is out of service due to manual intervention.
NEQ	Not equipped. There is no entry in system tables for the transmission link.
PMB	Peripheral module busy. The transmission link is out of service because the associated peripheral module is out of service.
SB	System busy. The system has detected a fault in the transmission link and has removed it from service.
SZD	Seized. The transmission link is in service, and has been selected to carry signaling traffic.

TABLE 5.14
LINK ACTION MESSAGES

MESSAGE	DESCRIPTION
OOS	Out of service. An error is detected on the link during an alignment procedure.
NotAln	Not Aligned. This message is the first stage of initial alignment. The resource is sending SIO messages and is waiting for an SIO (SIN or SIE) from the far end office.
Alnd	Aligned. The resource has received the SIO (SIN or SIE) from the far end office and is waiting to receive SIN or SIE.
Prvng	Proving. The link is aligned and proving has commenced. The resource is transmitting and receiving SIE or SIN.
AlnRdy	Aligned Ready. The Proving is completely successful. The resource is sending FISU messages, and is waiting to receive FISU, MSU, or SIPO messages from the far end office.
AlnNRd	Aligned Not Ready. The near end has proved, and the resource is waiting for FISU messages from far end office (indicating that the far end office has proved). The near end then has a local processor outage, the resource starts sending SIPO on the link. When the resource receives FISU, MSU, or SIPO from the far end office, the resource state goes to processor outage.
TEST	The link is undergoing a signaling link test.
ProOut	Processor Outage. There is a local processor outage or a remote processor outage valid on the link.

0 SCCP Remote Point Code Level Status Display

0 The SCCP remote point code level status display is accessed by entering the CCS7 command SCCPRPC. This display level is the entrance level to a number of commands that permit the user to query and change the status of the remote point code. This level also gives access to the commands of the remote subsystem SCCPRSS display level.

0 To preserve the integrity of the system a remote point code must be posted before any action is taken to view, change its status, or enter the next sublevel. A remote point code is posted using the command POST together with the CLLI of the remote point code. Only one remote point code may be posted at any one time.

0 The command POST only selects the remote point code and identifies it to the CCS7 MAP control position. Once posted the status of the remote point code and the number of associated subsystems are displayed in the SCCPRPC display area (see Figure 5.7 on page 5-30 and Figure 5.8 on page 5-30).

0 The coding used under the heading STATE in a command POST are listed in Table 5.15 on page 5-29.

TABLE 5.15
POINT CODE STATES

CODE	DESCRIPTION
INSV	The route to the point code is in service (ALLOWED) and is able to carry traffic.
ISTB	The route to the point code is in the in-service trouble state (RESTRICTED). The route to the point code is congested or there are errors in the transmitted data that also initiate a PC alarm.
MANB	The route to the point code has been placed in the manual busy state for maintenance or administration. Placing the point code in the manual busy state initiates a PCC alarm.
OFFL	The route to the point code is not datafilled and is out of service.
SYSB	The route to the point code is system busy (PROHIBITED) and out of service because of a fault condition. This state initiates a PCC alarm.

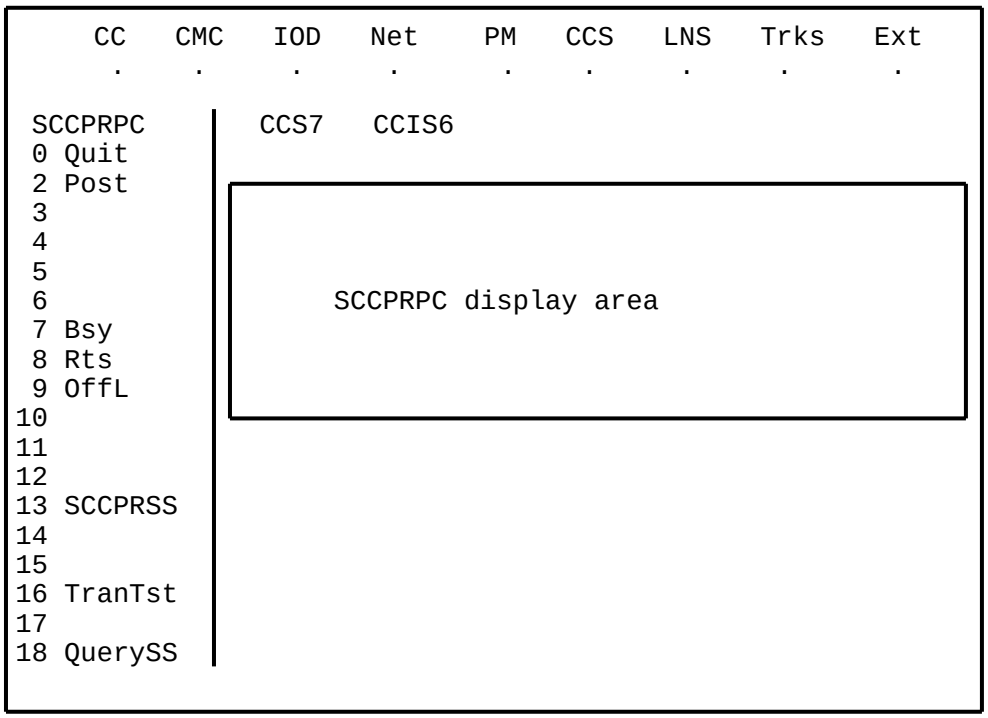


Figure 5.7 Position of SCCP Remote Point Code Status Display

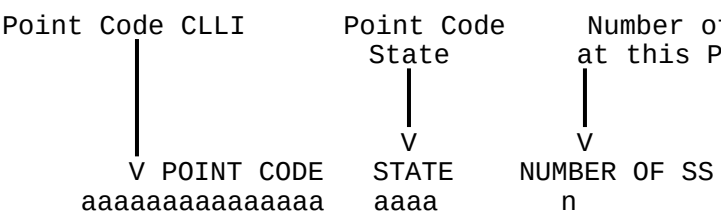


Figure 5.8 Generic Remote Point Code Status Display

SCCP Remote Subsystem Level Status Display

The SCCP remote subsystem level is accessed by entering the SCCPRPC command SCCPRSS. This display level is the entrance level to a number of commands that permit the user to query and change the state of subsystems singly or collectively. This level is dependant on the host remote point code being in the posted state.

The command POST only selects the subsystems and identifies them to the SCCP MAP control position. Once posted the status of the subsystem or subsystems are displayed in the SCCPRSS display area as shown in Figure 5.9.

The format of a command POST is shown in Figure 5.10 on page 5-32.

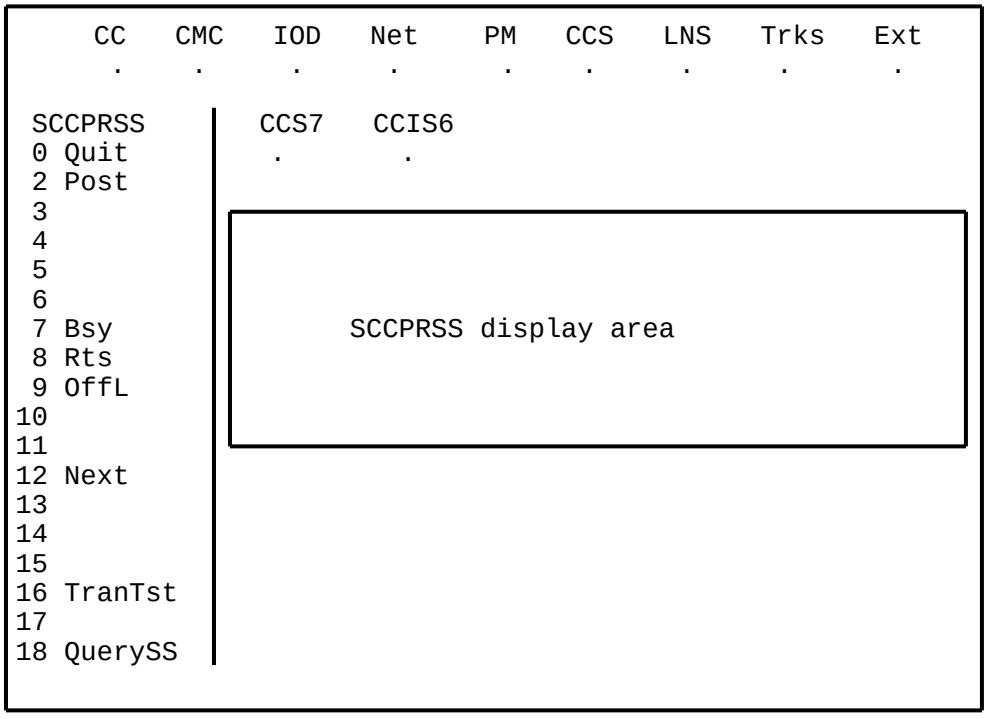
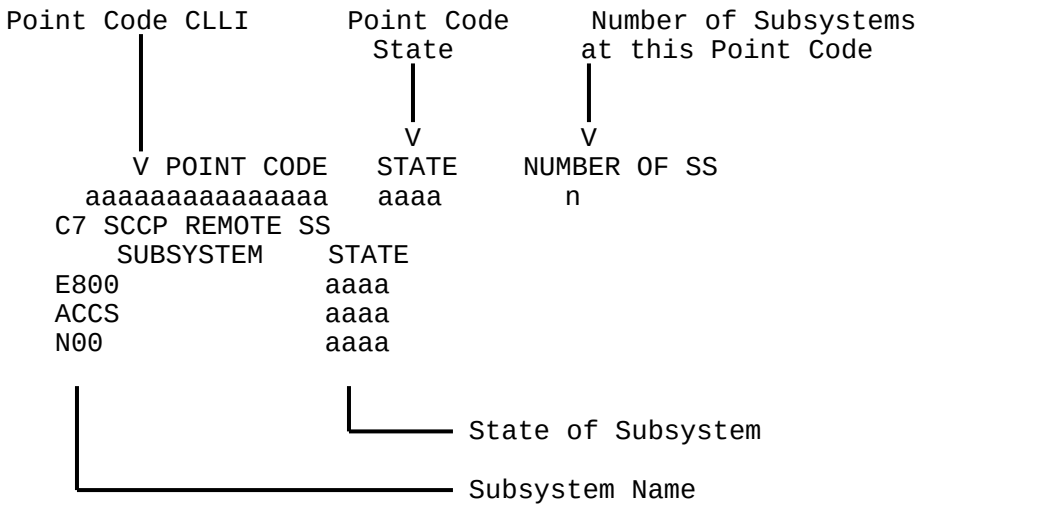


Figure 5.9 Position of SCCP Remote Subsystem Status Display



SIZE OF POSTED SET: n ← identifies the number of SS that are selected for display. If there are more than 7, the command NEXT displays the remainder.

Figure 5.10 Generic Remote Subsystem Status Display

SCCP Local Subsystem Level Status Display

The SCCP local subsystem level is accessed by entering the CCS7 command SCCPLOC. This display level is the entrance to a number of commands that permit the user to query and change the state of local subsystem names.

To preserve the integrity of the system a local subsystem must be posted before any action is taken to view or change its status. A local subsystem is posted using the command POST together with the names of the local application.

The command POST only selects the local subsystem and identifies it to the CCS7 MAP control position.

The format of the response to the command POST is shown in Figure 5.12 on page 5-34.

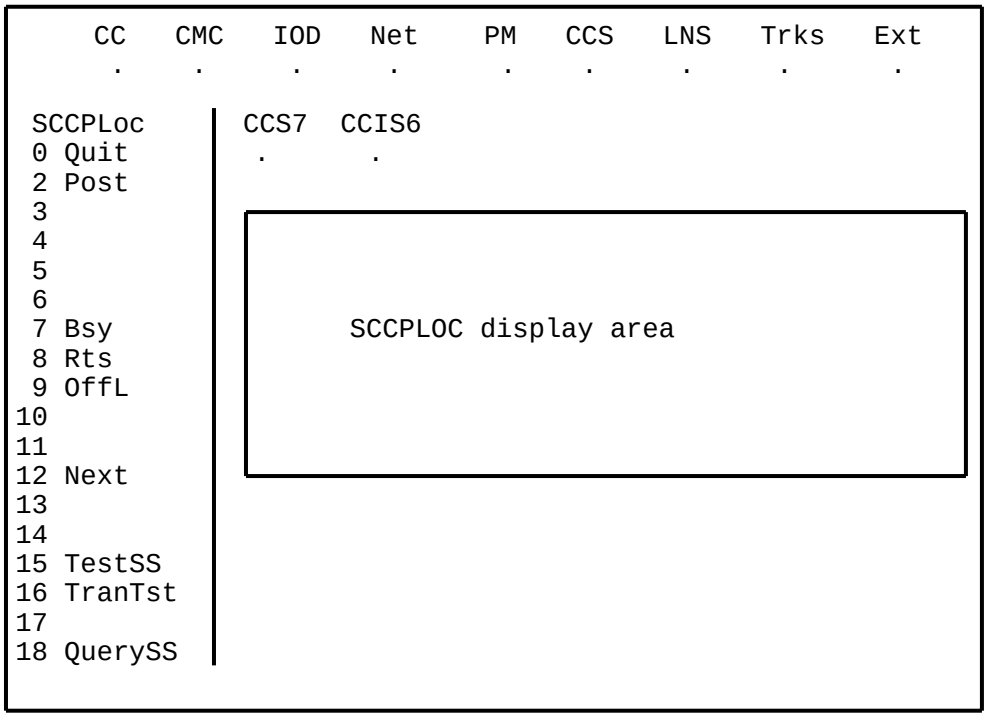


Figure 5.11 Position of SCCP Local Subsystem Status Display

```
        Subsystem                Available Subsystems
          Name                     with Status Code
                    Subsystem
                      State
                        |                  |
                        |                  |
                        |                  V
                        V                  111111 11112222 22222233
          SUBSYSTEM STATE 01234567 89012345 67890123 45678901
           E800     aaaa  .------- -------- -------- --------
           ACCS     aaaa  .------- -------- -------- --------
           N00      aaaa  -------- -------- -------- --------
           TCN      aaaa  -------- -------- -------- --------
           BNS      aaaa  -------- -------- -------- --------

           SIZE OF POSTED SET: 5
                       |
                       |
          Number of Subsystems in the posted set.  If more than 7
          subsystems are in the posted set, the command NEXT must
          be used to display the remainder of the posted set.
```

Figure 5.12 Generic Local Subsystem Display

SEAS-Level Status Display

The SEAS level is accessed by entering the CCS7 command SEAS. This display level is the entrance level to a number of commands that permit the user to query, test, and change the operating state of the signaling engineering and administration system (SEAS). This level also has access to the permament virtual circuits (PVCs) level of maintenance.

The command SEAS displays the status of the SEAS and the number of PVCs in the SEAS display area as shown in Figure 5.13.

The meanings of the SEAS states are described in Table 5.16 on page 5-36.

```
     CM   MS    IOD   Net    PM   CCS   Lns   Trks   Ext
      .    .     .     .      .    .     .     .      .

 SEAS        |    CCS7
 0 Quit      |     SSSB
 2           |SEAS        Msg Blk Vol             Buffer Vol
 3           |Offl    DOOOSEASBK UnAvail   DOOOSEASBF UnAvail
 4 PVC       |
 5           |PVCs   Offl   ManB   RMB    SysB   InSv  INI
 6           | 6       2      1     0      0      3     0
 7 Bsy       |
 8 RTS       |
 9 OffL      |
10           |
11           |
12           |
13           |
14 QueryFlt  |
15           |
16           |
17           |
18           |
```

Figure 5.13 SEAS Menu and Example of a Status Display

TABLE 5.16
SEAS STATES

CODE	DESCRIPTION
InSv	In the in-service state, SEAS responds to all user program layer (UPL), processes delayed activation commands, and sends all scheduled reports. Any buffered messages are transmitted. All non-offline PVCs are also in service.
ISTb	At least one non-offline PVC is not in service.
ManB	In the manual busy state, SEAS responds only to UPL test messages received from the PVCs. All other UPL messages are rejected because they may conflict with local craft operations. Delayed activation commands are rejected and returned to the SEAC. No scheduled reports are sent out. As this is not a protected state, SEAS attempts to return to the in-service state following a restart.
Offl	SEAS is inactive. No delayed activation commands are executed and no scheduled reports are sent to the SEAC. Any messages that are in the buffer volume are not transmitted to the SEAC. Any delayed activation commands scheduled while SEAS is in the offline state are lost.
SysB	SEAS is system busy when there are insufficient resources available to do the processing. The insufficient resources can be caused by no in-service PVCs being available or by no disk volumes being available for storage.

PVC Level Status Display

The PVC level status display is accessed by entering the SEAS command PVC. This display level is the entrance level to a number of commands that permit the user to query and change the status of the logical communication links between a signal transfer point (STP) and the signaling engineering and administration system (SEAS).

The format of the response to the PVC command is overlayed on the SEAS display and shown in Figure 5.14 on page 5-38.

The meanings of PVC states are shown in Table 5.17 on page 5-39.

A PVC must be posted before any action is taken to view or change its status.

The command POST only selects the PVCs and identifies them to the MAP control position. Once posted, the PVCs are displayed. If more than four PVCs are in the posted set, only the first four PVCs are displayed. To display the remainder of the posted set, use the command NEXT.

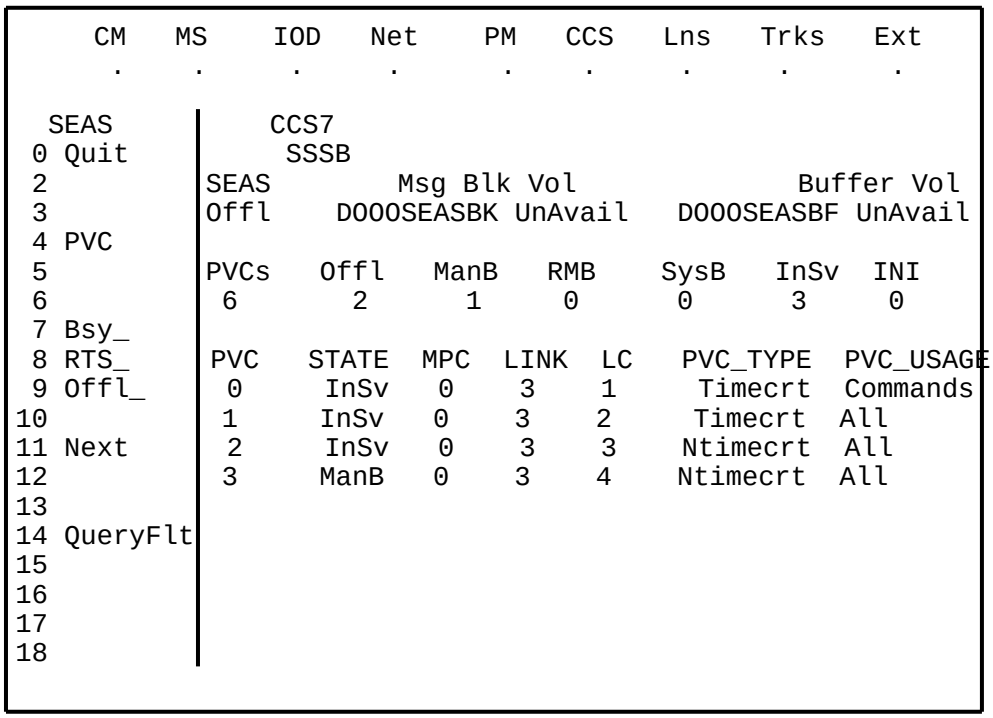


Figure 5.14 PVC Menu and Example of a Status Display

TABLE 5.17
PVC STATES

CODE	DESCRIPTION
INI	is a temporary state in which the PVC is attempting to enter the in-service state by exchanging GM messages with the far end.
INSV	is an in-service PVC which has successfully exchanged GM messages with the far end. The PVC is available for handling SEAS traffic.
MANB	is an inactive PVC in the manual busy state. This is not a protected state. It attempts to return to service after a restart.
OFFL	is a protected state in which the PVC has been defined in system tables but is not active. The PVC remains offline after a restart. The PVC must be in the offline state to make changes to its tuple in the table SEASMPC.
RMB	is not a protected state in which the PVC has received a GN5 message from the far end requesting removal from service. The PVC remains in this state until a GM1 message has been received from the far end, or a craftsperson manually busied the PVC. The PVC moves to the INI start after a restart.
SYSB	A fault has been detected in the PVC.

0 PRACTICE 297-1001-531
0 VINTAGE 06.01

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CHAPTER 6

CCS7 MAINTENANCE

0

0 PRACTICE 297-1001-531
0 VINTAGE 06.01

0 GENERAL

0 Maintenance for CCS7 in the DMS-100 and SuperNode Families, is done automatically by the system or manually at a MAP. The following chapters describe the commands and responses for the CCS7 subsystem. The commands are grouped according to the menus on which they are listed.

0 CCS7 PERIPHERAL MODULE MAINTENANCE

0 The CCS7 peripheral module maintenance is described in 297-1001-515.

0 CCS7 SUBSYSTEM IDENTIFICATION

0 The CCS7 peripheral module configuration is described in 297-1001-103.

0 PRACTICE 297-1001-531
0 VINTAGE 06.01

0

0 CHAPTER 7

0 CCS7 MAP LEVEL

0

0 PRACTICE 297-1001-531
0 VINTAGE 06.01

CCS7-LEVEL COMMANDS AND RESPONSES

The following commands and responses are available to the CCS7-level menu when the command CCS7 is entered from the CCS level of a MAP.

DISALM

The command DISALM displays the alarm status for the different functions of CCS7 in the DISALM display area (see Figure 5.2 on page 5-7). A single alarm status may be displayed or the status of all of a single functions that have faults may be displayed. The CCS7 functions with alarm status in order of severity are

* routesets
* point codes
* subsystems
* linksets
* signaling engineering and administration system (SEAS)

Where:

RSC displays the routesets that are causing a critical alarm.

PCC displays the SCCP point codes that are causing a critical alarm.

SSC displays the SCCP subsystems that are causing a critical alarm.

RSM displays the routesets that are causing a major alarm.

LKM displays the linksets that are causing a major alarm.

LK displays the linksets that are causing a minor alarm.

PC displays the SCCP point codes that are causing a minor alarm.

ALL displays all routesets and linksets that are causing an alarm and the type of alarm in a descending order of severity. ALL is the default parameter.

Responses:

C7ROUTESET	ALM	STAT
routeset_clli	alm	stat
routeset_clli	alm	stat

Explanation: The command DISALM has been given with a routeset alarm status code, all routesets with that code are displayed. In this example there are two routesets with the same alarm status code.

Where:

routeset_clli is the routeset CLLI

alm is the alarm status code

Value: RSC, RSM, or RS

stat is the routeset state

Value: see Table 5.2 on page 5-10

C7LINKSET	ALM	STAT
linkset_clli	alm	stat
linkset_clli	alm	stat

Explanation: The command DISALM has been given with a linkset alarm status code, all linksets with that code are displayed. In this example there are two linksets with the same alarm status code.

Where:

linkset_clli is the linkset CLLI

alm is the alarm status code

Value: LKM or LK

stat is the linkset state

Value: see Table 5.8 on page 5-18

POINT CODE	ALM	STAT
point_code_clli	alm	stat
point_code_clli	alm	stat

Explanation: The command DISALM has been given with a point code alarm status code, all point codes with that alarm status code are displayed. In this example there are two point codes with the same alarm status code.

Where:

point_code_clli	is the point code CLLI
alm	is the alarm status code Value: PCC or PC
stat	is one of the point code states listed in Table 5.15 on page 5-29

```
SUBSYSTEM          ALM       STAT
subsystem  subsys   SSC       stat
subsystem  subsys   SSC       stat
           subsys   SSC       stat
           subsys   SSC       stat
```

Explanation: The command DISALM has been given with a subsystem alarm status code of SSC (there are no other alarm status codes that apply to subsystems), all subsystems with that code are displayed. In this example there are four subsystems with an alarm status of SSC.

Where:

subsystem	is an alphanumeric code defining the point code CLLI
subsys	is the subsystem. A subsystem without a point code CLLI is a local subsystem Value: E800, ACCS, ISDNUP, TUP, or OAM
stat	is the subsystem state

```
C7ROUTESET         ALM       STAT
routeset_clli       alm       stat
routeset_clli       alm       stat
C7LINKSET          ALM       STAT
linkset_clli       alm       stat
linkset_clli       alm       stat
NO PCC ALARMS
NO SSC ALARMS
NO PC ALARMS
NO SEAS ALARMS
```

0 Explanation: The command DISALM has been given without
0 a parameter or the parameter ALL. Note that the SEAS
0 alarms are added in this display.

C7RTESET

The command C7RTESET displays the status titles for the next level of routeset information. Routesets that are still posted at a MAP are also displayed.

Responses:

```
C7ROUTESET                                  LINKSET  TRANSFER
  RTE STATE MODE  COST  LINKSET             STATE     STATUS
```

Explanation: The routeset headings are displayed and there are no routesets previously posted. For the description of the headings, see Figure 5.4 on page 5-9.

0 C7LKSET

The command C7LKSET displays the status titles for the next level of linkset information. Linksets that are still posted at the MAP are also displayed.

0 Responses:

```
LINKSET
   TRAF SYNC RESOURCE                              LINK
LK STAT STAT TYPE   NO STAT PHYSICAL ACCESS STAT ACTION
```

0 Explanation: The status titles are displayed. See Figure 5.6 on page 5-20 for an explanation of the display.

0 SCCPRPC

The command SCCPRPC displays the headings for the remote point code MAP level. Remote point codes that are still posted at the MAP are also displayed.

0 Responses:

C7 SCCP REMOTE PC
POINT CODE STATE NUMBER OF SS

0 Explanation: The remote point code headings are displayed and there are no posted point codes. For a description of the headings, see Figure 5.8 on page 5-30.

0 SCCPLOC

The command SCCPLOC displays the headings for the local point code MAP level. Local point codes that are still posted at the MAP are also displayed.

SCCPLOC	

0 Responses:

C7 SCCP LOCAL
SUBSYSTEM STATE

0 Explanation: The local subsystem headings are displayed. For a description of the headings, see Figure 5.12 on page 5-34.

0 SEAS

0 The command SEAS accesses the SEAS level of the MAP and displays
0 the headings for the signaling engineering and administration
0 system.

0
0 SEAS
0

0 Responses:

0 display

0 Explanation: The SEAS headings are displayed. For a
0 description of the headings, see POST on page 14-7.

0

CHAPTER 8

C7RTESET MAP LEVEL

0

0 PRACTICE 297-1001-531
0 VINTAGE 06.01

C7RTESET-LEVEL COMMANDS AND RESPONSES

The following commands and responses are available to the routeset level menu when the command C7RTESET is entered at the CCS7 level of a MAP.

BSY

The command BSY changes the current state of a posted routeset to the manual busy state.

```
BSY   [ FORCE ]
```

Where:

FORCE forces the routeset into the busy state immediately, with the possibility of losing traffic.

Responses:

FAILED, COMMAND ALREADY REQUESTED FROM ANOTHER MAP

Explanation: System is unable to complete the command as it is attempting to complete the command BSY from another MAP.

FAILED, NO ROUTESET POSTED

Explanation: There are no routesets posted at the MAP.

User Action: Post the required routeset and re-enter the command BSY.

MAINTENANCE COMMAND IN PROGRESS

Explanation: The system is unable to complete the command. This is a temporary state.

System Action: System cannot complete the command because another command is in progress, command is aborted.

User Action: Re-enter the command.

MAINTENANCE LEVEL ALREADY ACHIEVED

Explanation: Routeset is already in the desired state.

NO RESPONSE FROM SIGNALING NETWORK MANAGEMENT

Explanation: System has not been able to re-route traffic.

System Action: RSMan has not been able to set the routeset to the manual busy state,command is aborted.

User Action: Re-enter the command.

PASSED

Explanation: The routeset has been set to the manual busy state. The states in the POST display are also changed to reflect the new state of the routeset.

System Action: The system interprets the command and sends a message to level 3 routeset management (RSMan) for completion of the command. RSMan re-routes the traffic then sets the routeset to the manual busy state. If the parameter FORCE is used, RSMan does not attempt to re-route traffic, resulting in the loss of traffic on that routeset.

TRAFFIC RUNNING ON ROUTESET

Explanation: Traffic cannot be routed on to another routeset. Either there is only one routeset in the system, or all other routesets are not able to carry traffic. To manually busy this routeset the parameter FORCE must be used.

User Action: Re-enter the command using the parameter FORCE if it is essential that the routeset must be placed in the manual busy state.

NEXT

The command NEXT displays the routes of the next routeset in the posted set.

NEXT

Responses:

```
C7ROUTESET routeset_clli     state       LINKSET  TRANSFER
  RTE STATE MODE  COST  LINKSET           STATE    STATUS
   n  state mode   nn   linkset_clli       state    status
   n  state mode   nn   linkset_clli       state    status
   n  state mode   nn   linkset_clli       state    status
   n  state mode   nn   linkset_clli       state    status
```

Explanation: The display is updated with the data of the next posted linkset.

END OF POSTED SET

Explanation: There are no more routesets in the posted set that have not been displayed.

FAILED, NO ROUTESET POSTED

Explanation: There are no routesets posted.

NEXT NOT VALID WITH POSTING BY CLLI

Explanation: Only one routeset was posted, therefore after the initial display there are no more routesets to be displayed.

OFFL

The command OFFL removes a routeset from the system maintenance, to allow office data modifications for the routeset. An offline routeset cannot cause an alarm. Routesets must be in the manual busy state before routesets can be made offline.

OFFL	

Responses:

MAINTENANCE LEVEL ALREADY ACHIEVED

Explanation: The routeset is already in the Offline state.

PASSED

Explanation: The system has removed the routeset from use by the system.

ROUTESET NOT IN MAN BUSY STATE

Explanation: The routeset cannot be made offline because it is not in the manual busy state.

POST

The command POST selects a routeset for maintenance actions, and identifies all the routes within the routeset.

POST	C routeset A alarm S state

Where:

C posts by clli.

A posts by alarm state.

S posts by routeset state.

routeset is a unique routeset CLLI that is also unique throughout the CCS7 network.

alarm is the subsystem status code.

Values: RSC, RSM, or RS

state is the routeset state.

Values: ISTB, INSV, SYSB, MANB, or OFFL

Responses:

```
C7ROUTESET routeset_clli     state       LINKSET  TRANSFER
  RTE STATE MODE  COST  LINKSET           STATE    STATUS
   n  state mode   nn   linkset_clli       state    status
   n  state mode   nn   linkset_clli       state    status
   n  state mode   nn   linkset_clli       state    status
   n  state mode   nn   linkset_clli       state    status
```

Explanation: The post parameters have been accepted by the system. The system has displayed the first routeset of the posted set and the routes within that routeset. For the description of the headers, see Figure 5.4 on page 5-9.

User Action: If more than one routeset is expected, use the command NEXT to display remaining routesets.

END OF POSTED SET

Explanation: There are no alarms on the select routesets, or there are no more routesets in the posted set.

INVALID ALARM STATE ENTERED

Explanation: The system cannot find a routeset with the requested alarm state.

INVALID ROUTESET STATE ENTERED

Explanation: The system cannot find a routeset with the requested routeset state.

THIS CLLI NOT DATA FILLED IN C7 ROUTESET TABLE

Explanation: The entered character string is in the correct form for a routeset CLLI, but the system cannot find it in the C7 routeset table. The routeset may be unequipped or in the offline state.

0 QUERYFLT

0 The command QUERYFLT queries the fault status of the route or routes of the posted routeset.

0

QUERYFLT	n

0

0 Where:

0 n is the route number in a posted routeset.

0 Range: 0 - 3

0 Responses:

0 LINKSET IS NOT ABLE TO CARRY TRAFFIC

0 Explanation: The route is not able to carry traffic 0 because the associated linkset has failed.

0 User Action: Rectify the linkset fault.

0 LINKSET OFFERING DEGRADED LEVEL OF SERVICE

0 Explanation: The route is faulty because the linkset 0 is not able to provide sufficient links for the route.

0 User Action: Rectify the linkset fault.

0 NO FAULT EXISTS ON ROUTE AT THE MOMENT

0 Explanation: The query fault command was issued on a 0 route that was in service.

RTS

The command RTS returns the posted routeset to the in-service state. If all of the routes cannot be made in-service, the routeset is made ISTb indicating that the routeset can only supply a degraded service. If a route is faulty the result of the command still shows PASSED, but the routeset state is changed to system busy (SysB state).

RTS	

Responses:

FAILED, NO ROUTESET POSTED

Explanation: The command RTS can only be completed on a posted routeset.

User Action: Post the selected routeset, then re-enter the command.

LINKSET NOT ABLE TO CARRY TRAFFIC

Explanation: The linkset associated with the route is unable to carry traffic. There is probably an alarm state on the linkset or it is offline.

System Action: The system has successfully completed the command RTS, but because the linkset is unable to carry traffic the routeset stays system busy (SysB state).

User Action: Investigate the linkset problem.

MAINTENANCE COMMAND IN PROGRESS

Explanation: The system is unable to initiate the command as the system is busy completing a previous command.

User Action: Re-enter the command.

MAINTENANCE LEVEL ALREADY ACHIEVED

Explanation: The selected routeset has already been returned to service, and is either in the in-service, or in-service trouble state.

PASSED

0 Explanation: The system has tested the individual
0 routes and allows the routes to carry traffic. When
0 all routes have passed, the states in the POST display
0 are upgraded to show the states of the routes and the
0 routeset.

0 ROUTESET NOT IN MAN BUSY STATE

0 Explanation: The routeset can only be returned to ser-
0 vice from the manual busy state.

0 User Action: Set the routeset to the manual busy state
0 (displayed as ManB) then re-enter the command.

0

0 CHAPTER 9

0 C7LKSET MAP LEVEL

0

0 PRACTICE 297-1001-531
0 VINTAGE 06.01

C7LKSET-LEVEL COMMANDS AND RESPONSES

The following commands and responses are available at the linkset level menu when the command C7LKSET is entered at the CCS7 level of the MAP.

ACT

The command ACT initiates a synchronizing procedure to the selected link of the posted linkset.

ACT	link

Where:

link is the selected link number. Only one link or all links in a linkset can be selected.

Range: 0-15 or ALL

Responses:

IN PROGRESS

Explanation: The selected link is in the process of being synchronized When it is synchronized the response is removed from the display and the linkset status display is upgraded to show that the link is synchronized. If ALL was entered, the system synchronizes the links sequentially.

Where:

nn is the link number

Range: 0 - 15

System Action: If the link is in the manual busy state, the connection to the resource is made and a synchronization procedure initiated. When the synchronization procedure is complete, the synchronizing status (in the linkset display) is upgraded to Sync and the message is removed from the display.

LINK nn: COMMAND ALREADY IN PROGRESS

Explanation: The selected link is already in the process of being activated.

Where:

nn is the link number

Range: 0 - 15

LINK nn: FAILED, ABNORMAL BSN RECEIVED

Explanation: Two out of three signaling messages had invalid BSN.

Where:

nn is the link number

BSN backward sequence number

Range: 0 - 15

System Action: RSMan attempts to resynchronize the link, and at the same time sets the link to system busy.

User Action: The resource may be faulty. Access PM maintenance to verify the resource.

LINK nn: FAILED, ABNORMAL FIB RECEIVED

Explanation: Two out of three signaling messages had invalid FIB.

Where:

nn is the link number

Range: 0 - 15

FIB forward indicator bit

System Action: RSMan is attempting to resynchronize the link, and at the same time sets the resource to system busy.

User Action: The resource may be faulty. Access PM maintenance to verify the resource.

LINK nn: FAILED, CHANGEOVER ORDER RECEIVED FROM FAR END

Explanation: There have been signaling message failures detected by the far-end office. They have implemented a changeover procedure.

Where:

nn is the link number

Range: 0 - 15

System Action: RSMan is transferring traffic to another link as part of the changeover procedure. When traffic has been transferred the link synchronizing state is set to system busy.

User Action: Contact the far-end office to determine the reason for the changeover procedure.

LINK nn: FAILED, CONFIGURATION REJECTED BY ST

Explanation: The resource does not recognize the configuration data.

Where:

nn is the link number

Range: 0 - 15

User Action: Deactivate and activate the link to reconfigure the link.

LINK nn: FAILED, CORRUPT RECEIVE BUFFER

Explanation: The Data Link Processor (DLP) in the resource has detected an error in the receive buffer.

Where:

nn is the link number

Range: 0 - 15

System Action: RSMan transfers signaling to another link, sets the resource to system busy, and generates one of the following software error reports (SWERRs): RX UDRFLOW or RX OVRFLOW.

User Action: Enter the PM maintenance level to determine the cause of the resource going system busy.

LINK nn: FAILED, CORRUPT TRANSMIT BUFFER

Explanation: The Data Link Processor (DLP) in the resource has detected an error in its transmit buffer.

Where:

nn is the link number

Range: 0 - 15

System Action: RSMan transfers signaling to another link, sets the resource to system busy, and generates the software error report (SWERR) COR TX BUF.

User Action: Enter the PM maintenance level to determine the cause of the resource going system busy.

LINK nn: FAILED, CORRUPT TRANSMIT BUFFER READ POINTER

Explanation: RSMan is unable to use the link for signaling because of resource failures.

Where:

nn is the link number

Range: 0 - 15

System Action: RSMan transfers signaling to another link, sets the resource to system busy, and generates the software error report (SWERR) RETR DIED.

User Action: Enter the PM maintenance level to determine the cause of the resource going system busy.

LINK nn: FAILED, CORRUPT RETRANSMIT BUFFER READ POINTER

Explanation: RSMan is unable to use the link for signaling because of resource failures.

Where:

nn is the link number

Range: 0 - 15

System Action: RSMan transfers signaling to another link, sets the resource to system busy, and generates the software error report (SWERR) RETR DIED.

User Action: Enter the PM maintenance level to determine the cause of the resource going system busy.

LINK nn: FAILED, DLP RECEIVE BUFFER OVERRUN

Explanation: The DLP in the resource has detected an error in the receive buffer.

Where:

nn is the link number

Range: 0 - 15

DLP data link processor

System Action: RSMan transfers signaling to another link, sets the resource to system busy, and generates one of the followingsoftware error report (SWERR), RX OVERRUN or RX READ ER.

User Action: Enter the PM maintenance level to determine the cause of the resource going system busy.

LINK nn: FAILED, EXCESSIVE DELAY OF ACKNOWLEDGEMENT

Explanation: A MSU message has been sent, and the far-end office has failed to acknowledge within a specified time.

Where:

nn is the link number

Range: 0 - 15

User Action: Contact far-end office to determine the cause of the fault.

LINK nn: FAILED, EXCESSIVE ERROR RATE

Explanation: The resource is not receiving error free data. This message is also displayed if the far-end office does not activate their end of the link within 90 seconds of the command ACT.

Where:

nn is the link number

Range: 0 - 15

System Action: The resource has informed RSMan that it is not receiving data. The command is terminated.

User Action: Re-enter the command

LINK nn: FAILED, INVALID INTERNAL ST NUMBER

Explanation: Address register is corrupted in the resource, call processing is unable to seize the resource.

Where:

nn is the link number

Range: 0 - 15

User Action: Establish the number of the resource, enter the resource level of PM maintenance to determine the cause of the failure.

LINK nn: FAILED, INVALID LINK STATE

Explanation: The command failed because the link is in the wrong traffic state for activation.

Where:

nn is the link number

Range: 0 - 15

User Action: Post the linkset and check the traffic state of the selected link. Rectify any faults, and return the link to service, then input the command ACT.

LINK nn: FAILED, LINK IS NOT IN MAN BUSY STATE

Explanation: The selected link was not in the manual busy state when the activate command was entered.

Where:

nn is the link number

Range: 0 - 15

User Action: Input the command BSY to manually busy the link (post the linkset first if necessary), then re-enter the command.

LINK nn: FAILED, LIU7 DLP FIFO LENGTH ERROR

Explanation: The link failed to synchronize as a result of an interface problem between the signaling terminal and the link general processor (LGP).

Where:

nn is the link number

Range: 0 - 15

System Action: The system attempts to recover the link by continuing the synchronizing procedure. If the procedure cannot terminate correctly, the link is set system busy.

User Action: Check log reports for additional information. Check hardware for correct operation.

LINK nn: FAILED, LIU7 DLP RECEIVE FIFO FULL

Explanation: The link failed to synchronize as a result of an interface problem between the signaling terminal and the LGP.

Where:

nn is the link number

Range: 0 - 15

System Action: The system attempts to recover the link by continuing the synchronizing procedure. If the procedure cannot terminate correctly, the link is set system busy.

User Action: Check log reports for additional information. Check hardware for correct operation.

LINK nn: FAILED, LIU7 INACCESSIBLE

Explanation: Communications between the computing module (CM) and the LIU7 were severed during the link synchronization procedure.

Where:

nn is the link number

Range: 0 - 15

System Action: The system waits for the LIU7 to be re-connected, then initiates a recovery procedure.

User Action: Check log reports for additional information.

LINK nn: FAILED, LIU7 IS IN LOOPBK

Explanation: The link traffic is not in the in-service state, and the link activation procedure has failed because the system could not allocate an LIU7. This message will also appear if the LIU7 is in loopback mode.

Where:

nn is the link number

Range: 0 - 15

System Action: System continually tries to complete an activation procedure.

User Action: If the LIU7 is in loopback mode, enter LIU7 level of the MAP and remove the LIU7 from loopback mode.

LINK nn: FAILED, LIU7/ST RECEIVE ENQUEUE FAILED

Explanation: The link failed to synchronize as a result of an interface problem between the signaling terminal and the LGP.

Where:

nn is the link number

Range: 0 - 15

System Action: The system attempts to recover the link by continuing the synchronizing procedure. If the procedure cannot terminate correctly, the link is set system busy.

User Action: Check log reports for additional information. Check hardware for correct operation.

LINK nn: FAILED, LIU7/ST RECEIVE PROC UNINITIALIZED

Explanation: The link failed to synchronize because the signaling terminal on the LIU7 link resource detected software errors.

Where:

nn is the link number

Range: 0 - 15

System Action: The system attempts to recover the link by continuing the synchronizing procedure. If the procedure cannot terminate correctly, the link is set system busy.

User Action: Check log reports for additional information. Check hardware for correct operation.

LINK nn: FAILED, LIU7/ST TRANSMIT PROC UNINITIALIZED

Explanation: The link failed to synchronize because the signaling terminal on the LIU7 link resource detected software errors.

Where:

nn is the link number

Range: 0 - 15

System Action: The system attempts to recover the link by continuing the synchronizing procedure. If the procedure cannot terminate correctly, the link is set system busy.

User Action: Check log reports for additional information. Check hardware for correct operation.

LINK nn: FAILED, LOST FSN

Explanation: RSMan could not identify the FSN, and rejected the message.

Where:

nn is the link number

Range: 0 - 15

FSN forward sequence number

System Action: RSMan sets the traffic state of the link to system busy, and transfers signaling to another link, sets the resource to system busy, and generates the software error report (SWERR) RETR DIED.

User Action: Enter the PM maintenance level to determine the cause of the resource going system busy.

LINK nn: FAILED, NO REAL TIME IN LIU7

Explanation: The link failed to synchronize because the application code in the signaling terminal was occupying the computing real-time for an unacceptable length of time.

Where:

nn is the link number

Range: 0 - 15

System Action: The system attempts to recover the link by continuing the synchronizing procedure. If the procedure cannot terminate correctly, the link is set system busy.

User Action: Check log reports for additional information. Check hardware for correct operation.

LINK nn: FAILED, NO RESPONSE FROM MSB7

Explanation: The system is unable to communicate with the MSB7. Because the MSB7 serves all the links in a linkset, there may be a system alarm with this message.

Where:

nn is the link number

Range: 0 - 15

User Action: Silence alarm (if necessary), and enter the PM maintenance level to determine the reason for the MSB7 fault.

LINK nn: FAILED, NO RESPONSE FROM ST

Explanation: The system is unable to seize the resource.

Where:

nn is the link number

Range: 0 - 15

System Action: RSMan is unable to seize the resource because it is in the wrong state.

User Action: Enter the PM maintenance level to determine why the resource is in the wrong state.

LINK nn: FAILED, PROVING FAILED

Explanation: The link is undergoing an alignment procedure, has reached the proving phase, but is unable to complete because of an excessive error rate.

Where:

nn is the link number

Range: 0 - 15

System Action: RSMan sets the link synchronizing state to system busy and attempts to resynchronize the link.

LINK nn: FAILED, REMOTE LEVEL 2 CONGESTION

Explanation: The far-end office has stayed congested too long.

Where:

nn is the link number

Range: 0 - 15

System Action: RSMan sends a message to the far-end office requesting them to restrict messages, and then sets the resource to system busy.

LINK nn: FAILED, RETRIEVAL BUFFER ENQUEUE FAILED

Explanation: RSMan is unable to use the link for signaling because the resource failed.

Where:

nn is the link number

Range: 0 - 15

System Action: RSMan transfers signaling to another link, sets the resource to system busy, and generates the software error report (SWERR) RETR DIED.

User Action: Enter the PM maintenance level to determine the cause of the resource going system busy.

LINK nn: FAILED, RETRIEVAL TRANSMIT BUFFER PROBLEM

Explanation: The Data Link Processor (DLP) in the resource has detected an error in its transmit buffer.

Where:

nn is the link number

Range: 0 - 15

System Action: RSMan transfers signaling to another link, sets the resource to system busy, and generates the software error report (SWERR) COR TX BUF.

User Action: Enter the PM maintenance level to determine the cause of the resource going system busy.

LINK nn: FAILED, SEQUENCE NUMBER ERROR

Explanation: RSMan is unable to use the link for signaling because of resource failures.

Where:

nn is the link number

Range: 0 - 15

System Action: RSMan transfers signaling to another link, sets the resource to system busy, and generates the software error report (SWERR) RETR DIED.

User Action: Enter the PM maintenance level to determine the cause of the resource going system busy.

LINK nn: FAILED, SIE RECEIVED FROM FAR END

Explanation: The resource has received a SIE message from the far-end office on a link that is in service.

Where:

nn is the link number

Range: 0 - 15

SIE emergency alignment status indication

System Action: Linkset management sets the link synchronizing state to system busy and attempts to resynchronize the link.

LINK nn: FAILED, SIN RECEIVED FROM FAR END

Explanation: The resource has received a SIN message from the far-end office on a link that is in service.

Where:

nn is the link number

Range: 0 - 15

SIN normal alignment status indication

System Action: Linkset management sets the link synchronizing state to system busy and attempts to resynchronize the link.

LINK nn: FAILED, SIO RECEIVED FROM FAR END

Explanation: A failure has been detected at the far-end office.

Where:

nn is the link number

Range: 0 - 15

SIO out of alignment status indicator

LINK nn: FAILED, SIOS RECEIVED FROM FAR END

Explanation: A failure has been detected at the far end office.

Where:

nn is the link number

Range: 0 - 15

SIOS out of service status indication

System Action: Access the PM maintenance to determine whether the resource is at fault.

LINK nn: FAILED, ST AUDIT FAILED IN LIU7

Explanation: Link synchronization failed due to a hardware or software fault. The error was detected during an audit procedure.

Where:

nn is the link number

Range: 0 - 15

System Action: The system attempts recovery action. Link synchronization continues to initiate until it times out, at this time the link is set to the system busy state.

User Action: Check log reports for additional information. Check hardware for problems.

LINK nn: FAILED, ST IS OUT OF SERVICE

Explanation: The resource has gone system busy, either as a result of a command from the MAP or a fault in the resource.

Where:

nn is the link number

Range: 0 - 15

System Action: RSMan attempts to retrieve signaling messages from the resource. At the same time it prevents further signaling messages from using the link.

User Action: Establish the number of the faulty resource, enter the resource status level of PM maintenance, determine the cause of failure.

LINK nn: FAILED, STOP RECEIVED BY ST

Explanation: RSMan has told the resource to go to the system busy state because of some irregularity.

Where:

nn is the link number

Range: 0 - 15

System Action: RSMan sets the traffic state of the affected link to system busy.

LINK nn: FAILED, TRANSMISSION LINK OUT OF SERVICE

Explanation: The transmission link is in the wrong state for the command ACT.

Where:

nn is the link number

Range: 0 - 15

User Action: Enter the trunks maintenance level to determine why the transmission link is in the wrong state.

LINK nn: FAILED, TRANSMIT/RETRANSMIT BUFFER PROBLEM

Explanation: The DLP in the resource has detected an error in its transmit buffer.

Where:

nn is the link number

Range: 0 - 15

System Action: RSMan transfers signaling to another link, sets the resource to system busy, and generates the software error report (SWERR) COR TX BUF.

User Action: Enter the PM maintenance level to determine the cause of the resource going system busy.

LINK nn: FAILED, UNABLE TO ALIGN WITH FAR END

Explanation: The link was activated, but RSMan did not receive acknowledgements from the far-end office, or the acknowledgements were incorrect.

Where:

nn is the link number

Range: 0 - 15

System Action: The system is in the synchronization procedure, and did not receive one of the synchronizing messages from the far-end office. The procedure is terminated and the link is set to the not aligned state.

LINK nn: FAILED, UNABLE TO GET NETWORK CONNECTION

Explanation: See the command QUERYFLT on page 9-37 for an explanation.

Where:

nn is the link number

Range: 0 - 15

LINK nn: FAILED, UNABLE TO ALLOCATE AN LIU7

Explanation: The link traffic state is not in service. The activation procedure has failed because the system could not allocate an LIU7.

Where:

nn is the link number

Range: 0 - 15

System Action: The system continues to attempt synchronization until timed out.

User Action: Return the LIU7 to the in-service state.

LINK nn: FAILED, UNABLE TO SEIZE AN ST

Explanation: See the command QUERYFLT on page 9-37 for an explanation.

Where:

nn is the link number

Range: 0 - 15

LINK nn: FAILED, UNABLE TO SEIZE A TRANSMISSION LINK

Explanation: See the command QUERYFLT on page 9-37 for an explanation.

Where:

nn is the link number

Range: 0 - 15

LINK nn: FAILED, WAITING FOR FISU/MSU TIMEOUT

Explanation: The link is undergoing an alignment procedure, has reached the aligned ready state, and is waiting for a FISU or a MSU but a timeout has occurred.

Where:

nn is the link number

Range: 0 - 15

FISU fill-in signal unit

MSU message signal unit

System Action: RSMan sets the link synchronizing state to system busy and attempts to resynchronize the link.

LINK nn: FAILED, WAITING FOR SIN/SIE TIMEOUT

Explanation: The link is undergoing an alignment procedure, has reached the aligned state, and is waiting for a SIN or a SIE but a timeout has occurred.

Where:

nn is the link number

Range: 0 - 15

SIN normal alignment status indication

SIE emergency alignment status indication

System Action: RSMan sets the link synchronizing state to system busy and attempts to resynchronize the link.

LINK nn: FAILED, WAITING FOR SIO/SIN TIMEOUT

Explanation: The link is undergoing an alignment procedure, has reached the not aligned state, and is waiting for a SIO or a SIN but a timeout has occurred.

Where:

nn is the link number

Range: 0 - 15

SIO out of alignment status indication

SIN normal alignment status indication

System Action: RSMan sets the link synchronizing state to system busy and attempts to resynchronize the link.

LINK nn: FAR END PROCESSOR OUTAGE

Explanation: The far-end office is unable to provide call processing on the link. Its level 2 function is sending link status signal units indicating processor outage.

Where:

nn is the link number

Range: 0 - 15

System Action: On receipt of the processor outage signals, the resource sends fill-in signal units, and informs RSMan that the link cannot be used.

User Action: The problem has to be solved at the far end office, contact the far-end office to establish the cause of the failure.

LINK nn: LINK SYNCHRONIZATION HAS ALREADY BEEN ACHIEVED

Explanation: The activate command has been given to a link that is either in service or in the idle traffic state.

LINK nn: LINK WILL STAY IN ALIGNED STATE
DUE TO MAN BUSY CONDITION

Explanation: The traffic state of the link is in the manual busy state and the activate command was completed successfully. The link stays in this state until the link is returned to service.

Where:

nn is the link number

Range: 0 - 15

User Action: Input the command RTS to return the link to service.

LINK nn: LINK DEACTIVATED BY OTHER MAINTENANCE

Explanation: The link was deactivated at another MAP.

Where:

nn is the link number

Range: 0 - 15

User Action: Establish why the link was deactivated.

LINK nn: MSB NOT IN SERVICE

Explanation: The MSB7 is not in the correct state for the link to be activated.

Where:

nn is the link number

Range: 0 - 15

User Action: Enter the PM maintenance level and investigate the state of the MSB7.

LINK nn: OTHER MAINTENANCE IN PROGRESS

Explanation: The system is unable to complete the command because it is engaged in another command (from the same MAP).

Where:

nn is the link number

Range: 0 - 15

User Action: This state is a temporary one, wait until the current command completes then re-enter the command.

LINK nn: PASSED

Explanation: The selected link has been activated.

Where:

nn is the link number

Range: 0 - 15

LINK nn: PASSED, ENOUGH LINKS ACTIVE - LINK STAYS IDLE

Explanation: The link has passed the proving periods and is synchronized with the far-end office. The link is placed in the idle state until required by RSMan.

Where:

nn is the link number

Range: 0 - 15

System Action: The command was completed normally.

LINK nn: PASSED, LINK WILL BE IDLE

Explanation: The activate command was successfully completed, but RSMan has enough links in service. The

link is put in the synchronized and idle state.

Where:

nn is the link number

Range: 0 - 15

LINK nn: SIGNALING LINK TEST FAILED

Explanation: The link has failed a test that was initiate the command.

Where:

nn is the link number

Range: 0 - 15

System Action: RSMan has sent a test message and has not received a signaling link test acknowledgement from the far-end office within the correct time period, or the acknowledgement was received with an incorrect test pattern. RSMan removes the link from service and initiates a changeover procedure. The traffic state of the link goes to system busy.

User Action: Enter the PM maintenance level and check the MSB7 and resource for faults.

LINK nn: SOFTWARE PROBLEM - SEE LOGS

Explanation: The system has detected a fault that cannot be identified.

Where:

nn is the link number

Range: 0 - 15

System Action: RSMan has detected a fault, but it cannot trace the fault to hardware.

User Action: Check the log reports to find the sequence of events that led up to the failure.

LINK nn: FAILED, DLP OUT OF SERVICE

Explanation: The resource has been taken out of service because the DLP has detected too many errors in the signaling messages.

0 Where:

0 nn is the link number

0 Range: 0 - 15

0 DLP data link processor

0 System Action: RSMan has deallocated the resource and
0 started a test. When the resource has been returned to
0 service, link activation is re-attempted.

0 User Action: Enter the RTS command to return the link
0 to service and therefore start the Activation.

BSY

The command BSY transfers a link or links to the manual busy state to do maintenance actions or as a first step to returning a link to service.

BSY	link [FORCE]

Where:

link is the link number.

Values: 0 - 15, or ALL

FORCE unilaterally puts the identified link in the manual busy state with no cautionary messages. Signaling messages may be lost when this parameter is invoked.

DEACT

The command DEACT deactivates an active link of a posted linkset.

DEACT	link

Where:

link is the link number.

Range: 0 to 15

Responses:

LINK nn: COMMAND ALREADY DONE

Explanation: The link is already in the deactivated state.

Where:

nn is the link number

Range: 0 - 15

LINK nn: COMMAND ALREADY IN PROGRESS

Explanation: RSMan is already in the process of deactivating the link.

Where:

nn is the link number

Range: 0 - 15

LINK nn: NO RESPONSE TO QUERY OF TRAFFIC STATES

Explanation: RSMan is not able to communicate with the far-end office to establish the traffic state on the link. The command is denied.

Where:

nn is the link number

Range: 0 - 15

User Action: To deactivate the link, place the link in the offline state then re-enter the command.

LINK nn: PASSED

Explanation: The selected link is deactivated.

Where:

nn is the link number

Range: 0 - 15

System Action: The connection to the resource is broken and the synchronizing state is changed to deactivated.

LINK nn: TRAFFIC RUNNING ON LINK (SHOULD INHIBIT LINK FIRST)

Explanation: The link is in the in-service state, carrying traffic. The link must be inhibited to allow both offices to transfer traffic to another link.

Where:

nn is the link number

Range: 0 - 15

User Action: Inhibit the selected link then re-enter the command.

INH

The command INH diverts traffic from a link or all of the links of a posted linkset. A request message is sent to the far end office to inhibit use of the link for signaling traffic. An affirmative reply received from the far-end office enables the near-end office to also inhibit signaling traffic. The traffic state of the link is then placed in the inhibited state, and all traffic is diverted to an alternate link. If there is only one in-service link available for use by a routeset, it cannot be inhibited. Inhibiting the last link stops traffic and puts the routeset into the system busy state (SysB).

INH	link

Where:

link is the link number of the link to be inhibited.

Value: 0 - 15, or ALL

Responses:

LINK nn: COMMAND ALREADY DONE

Explanation: The link is already in the inhibit state.

Where:

nn is the link number

Range: 0 - 15

LINK nn: FAILED, COMMAND ALREADY IN PROGRESS

Explanation: The system is in the process of completing the command INH that has been entered by the user or at another MAP.

Where:

nn is the link number

Range: 0 - 15

LINK nn: FAILED, FAR END OFFICE DENIED REQUEST

Explanation: The far-end office cannot find a link

that can be used for the changeover procedure. The far-end office sends a LID message. The message is displayed when RSMan receives the LID.

Where:

nn is the link number

Range: 0 - 15

LID link inhibit denied

User Action: Contact the far-end office to determine the reason for the refusal.

LINK nn: FAILED, FAR END DID NOT REPLY TO REQUEST

Explanation: The far-end office did not reply to the inhibit message within the prescribed time limits.

Where:

nn is the link number

Range: 0 - 15

User Action: Contact the far-end office to determine the cause of the fault.

LINK nn: FAILED, LINK IS OFFLINE

Explanation: An offline link is not carrying traffic and therefore cannot be inhibited.

Where:

nn is the link number

Range: 0 - 15

LINK nn: FAILED, MAINTENANCE COMMAND IN PROGRESS

Explanation: The MAP is already engaged in processing a command. Only one command at a time can be processed at the MAP.

Where:

nn is the link number

Range: 0 - 15

User Action: Wait until the current command has finished then enter the inhibit command.

LINK nn: FAILED, THIS IS LAST AVAILABLE LINK IN ROUTESET

Explanation: The system has refused the command because there is only one link in the in-service state, and if this link is inhibited the routeset goes system busy.

Where:

nn is the link number

Range: 0 - 15

User Action: Synchronize other links, then inhibit the selected link.

LINK nn: FAILED, UNABLE TO COMMUNICATE WITH FAR END OFFICE

Explanation: RSMan is unable to communicate with the far-end office to transfer traffic to another link. Either the link is down or the far-end office is down.

Where:

nn is the link number

Range: 0 - 15

User Action: Contact the far-end office to determine the cause of the fault.

LINK nn: PASSED

Explanation: The link has been inhibited and the traffic transferred to another link.

Where:

nn is the link number

Range: 0 - 15

LINK nn: SYSTEM PROBLEM - CHECK LOGS

Explanation: RSMan is unable to complete the inhibit command because of a system fault.

Where:

nn is the link number

Range: 0 - 15

System Action: The system has detected a fault, but it cannot trace the fault to hardware.

User Action: Check the log reports to find the sequence of events that led up to the failure.

LINK nn: WRONG INPUT PARAMETER

Explanation: The parameter entered with the command is greater than 3, or is a character.

Where:

nn is the link number

Range: 0 - 15

User Action: Verify the entered parameter and re-enter the command.

LINK nn: WRONG NUMBER OF PARAMETERS

Explanation: The data input with the command consists of more than one parameter.

Where:

nn is the link number

Range: 0 - 15

User Action: Verify the entered parameter and re-enter the command.

0 NEXT

0 The command NEXT displays the next four links (or those that are remaining if there are less than four) of the posted linkset. The order in which the links are displayed is the same as the order in system tables.

0
0 NEXT
0

0 Responses:

0 NO MORE LINKS TO BE VIEWED IN THE LINKSET

0 Explanation: The system has reached the end of the
0 posted linkset.

NEXTLS

The command NEXTLS displays the first four links of the next linkset in the posted set.

Responses:

END OF POSTED SET

Explanation: There are no more linksets in the posted set.

OFFL

The command OFFL transfers a link or links to the offline state. In this state the links are not available for signaling, and do not cause alarms.

OFFL	link

Where:

link is the link number.

Values: 0 - 15, or ALL

Responses:

LINK nn: FAILED, LINK IS NOT IN MAN BUSY STATE

Explanation: The link must be in the manual busy state to be placed in the offline state.

User Action: Enter the command BSY to put link in the manual busy state, then re-enter the command.

LINK nn: PASSED

Explanation: The link has been placed in the offline state.

Where:

nn is the link number

Range: 0 - 15

System Action: The link is disconnected from the transmission link

POST

The command POST selects a linkset for maintenance actions. The act of posting a linkset does not affect the operation of the linkset.

POST	C clli A alarm link S state

Where:

C is the selector for posting by CLLI.

A is the selector for posting by alarm state.

S is the selector for posting by linkset state.

clli is the linkset CLLI.

alarm is a linkset alarm state.

Value: LKM or LK

state is the linkset state.

Value: SYSB, ISTB, INSV, CONG, MANB, or OFFL

link is the starting link, up to four links may be defined.

Value: 0-15

Responses:

```
LINKSET linkset_clli     state
   TRAF SYNC RESOURCE                          LINK
LK STAT STAT TYPE  NO STAT PHYSICAL ACCESS STAT ACTION
nn t_st s_st rt    xx r_st link_id      n  stat action
nn t_st s_st rt    xx r_st link_id      n  stat action
nn t_st s_st rt    xx r_st link_id      n  stat action
nn t_st s_st rt    xx r_st link_id      n  stat action

SIZE OF POSTED SET = s
```

Explanation: The system responds with a display of the four links of the posted linkset.

Where:

nn	is the link number
	Range: 0 to 15
t_st	is the link traffic status
s_st	is the synchronization status
rt	is the resource type
	Value: ST7 or LIU7
xx	is the number given to the resource by system tables
r_st	is the status of the resource
link_id	is the transmission-link identification
	Value for ST7: CLLI
	Value for LIU7: DS0A or V.35
n	is the transmission-link number identified in system tables
stat	is the status of the transmission link
action	is a six-character code describing the current action on the link
s	is the quantity of links in the posted linkset.

For the description of the headers, see Figure 5.6 on page 5-20.

FAILED, NO LINKSET POSTED

Explanation: The selector code or other parameters are missing or incorrect. No linkset is posted.

User Action: Check command format and re-enter the command.

INVALID ALARM STATE ENTERED

Explanation: There are no linksets with the required alarm state. No linkset is posted.

INVALID LINKSET STATE ENTERED

Explanation: There are no linksets with the required linkset state. No linkset is posted.

INVALID STATE NAME

Explanation: The system does not recognize the input as a valid linkset state. No linkset is posted.

NOT A VALID CLLI

Explanation: The linkset CLLI entered is not of the required format. No linkset is posted.

THIS CLLI IS NOT DATAFILLED

Explanation: The CLLI entered is of the correct format but RSMan cannot find it in system tables. No linkset is posted.

User Action: Re-enter command with a valid CLLI.

THIS IS NOT A LINKSET

Explanation: The data entered is not recognized as a linkset CLLI. No linkset is posted.

WRONG INPUT PARAMETER

Explanation: The command POST has been entered with the wrong combination of parameters. If the selector code is missing this error message is displayed.

User Action: Re-enter command with the correct combination of parameters.

WRONG NUMBER OF PARAMETERS

Explanation: The command POST is entered with an incorrect number of parameters. System may prompt with the command POST format.

User Action: Re-enter the command using the correct format.

BCS34 CHANGES TO POST COMMAND

This feature provides the C7LINK table changes and Linkset Management support for the LIU7 Channelized Access product. New allocation scheme is introduced to support LIU7 channelized access. Channelized access is provided by the Network Interface Unit (NIU), a DMS Supernode Peripheral Module (PM).

CHANNELIZED ACCESS

LIU7's currently connect to the outside world only through a channel bank (see --Figid='config1'--) that is not maintained by the switch. Channelized Access and the Network Interface Unit (NIU) allow the LIU7 to communicate via the network, a maintainable entity.

The POST command at the C7LKSET level is used to post links defined in the C7LINK table by linkset name, linkset state, or alarm state. With the introduction of a new allocation scheme, LIUCHANNEL, the display resulting from the POST command is altered slightly.

The POST command displays the resources associated with a particular link in a linkset. For LIUCHANNEL links, a transmission link and its state is displayed. LIUCHANNEL links also display the LIU7 associated with the link.

No changes are made to any of the prompts, messages, directives, error or failure messages. The MAP status display is altered to display the relevant information for links with the new allocation schemes.

```
   CC     CMC     IOD     Net      PM     CCS     Lns     Trks    Ext
   .       .       .       .     1LIU7  1  RSC    .        .    1 Maj
                                 *C*     *C*                     M
 C7LKSET         CCS7     SCP
  0 Quit       1   RSC     .
  2 Post_     Linkset  MGTSLS01        ISTb
  3             Traf Sync                                        Link
  4 Inh_      LK Stat Stat Resource  Stat Physical Access       Stat Action
  5 UInh_     1  InSv Sync LIU7 101  InSv DS0A
  6 Tst_      2  InSv Sync LIU7 120  InSv ESTP_C7TL       1    SZD
  7 Bsy_      3  ManB DAct               ESTP_C7TL       2    IDL
  8 RTS_
  9 OffL_     Size of Posted Set = 3
 10
 11 NextLS
 12 Next
 13
 14 QueryFlt
 15 QueryUsr
 16 QueryTrf
 17 Act_
 18 Deact
   TEAM2
 Time  16:43  >
```

QUERYFLT

The command QUERYFLT displays the reasons why the link of a posted linkset is faulty. The display does not show states that are already listed by the command POST.

QUERYFLT	link

Where:

link is the number of the selected link, or all of the links in the posted linkset.

Value: 0 - 15, or ALL

Responses:

LINK nn: ABNORMAL BSN RECEIVED

Explanation: The resource has received an incorrect BSN from the far-end office.

Where:

nn is the link number

Range: 0 - 15

BSN backward sequence number

System Action: RSMan has received 2 out of 3 consecutive BSN error messages. The link synchronizing state is changed to system busy, and routeset management is requested to initiate a changeover procedure.

User Action: Observe the condition and if the condition persists check PM maintenance to see if the resource is faulty.

LINK nn: ABNORMAL FIB RECEIVED

Explanation: The resource has received an incorrect FIB from the far-end office.

Where:

nn is the link number

Range: 0 - 15

FIB forward indicator bit

System Action: RSMan has received 2 out of 3 consecutive FIB error messages. The link synchronizing state is changed to system busy, and routeset management is requested to initiate a changeover procedure.

User Action: Observe the condition and if the condition persists check PM maintenance to see if the resource is faulty.

LINK nn: CHANGEOVER ORDER RECEIVED FROM FAR END

Explanation: There has been signaling message failures detected by the far-end office. They have implemented a changeover procedure.

Where:

nn is the link number

Range: 0 - 15

System Action: RSMan is transferring traffic to another link as part of the changeover procedure.

LINK nn: CONFIG REPLY CFA TIMEOUT

Explanation: The resource is seized, but there was no reply from the resource when the system attempted to configure it.

Where:

nn is the link number

Range: 0 - 15

CFA configuration acknowledge

System Action: RSMan deallocates the resource which goes system busy and runs tests. When the resource is returned to service, RSMan attempts to activate the link again.

User Action: Enter the command RTS (post the linkset if necessary) to get RSMan to activate the link.

LINK nn: CONFIG REPLY CPA TIMEOUT

Explanation: The resource is seized, but there was no acknowledgement from the resource when RSMan attempts to send it congestion parameters.

Where:

nn is the link number

Range: 0 - 15

CPA congestion parameter acknowledge

System Action: RSMan deallocates the resource which goes system busy and runs tests. When the resource is returned to service, RSMan attempts to activate the link again.

User Action: Enter the command RTS (post the linkset if necessary) to get RSMan to activate the link.

LINK nn: CONFIG REPLY LNA TIMEOUT

Explanation: The resource is seized, but it does not reply when the RSMan attempts to address it.

Where:

nn is the link number

Range: 0 - 15

LNA link number acknowledge

System Action: RSMan deallocates the resource which goes system busy and runs tests. When the resource is returned to service, RSMan attempts to activate the link again.

User Action: Enter the command RTS (post the linkset if necessary) to get RSMan to activate the link.

LINK nn: CONFIG REPLY LSM PARM TIMEOUT

Explanation: RSMan did not send the complete set of messages, configuration, and congestion parameters to the MSB7 for relaying to the resource.

Where:

nn is the link number

Range: 0 - 15

LSM linkset management

System Action: RSMan deallocates the resource which goes system busy and runs tests. When the resource is returned to service, RSMan attempts to activate the link again.

User Action: Enter the command RTS (post the linkset if necessary) to get RSMan to activate the link.

LINK nn: CORRUPT RECEIVE BUFFER

Explanation: The Data Link Processor (DLP) in the resource has detected an error in the receive buffer.

Where:

nn is the link number

Range: 0 - 15

System Action: The system transfers signaling to another link, sets the resource to system busy, and generates one of the followingsoftware error report (SWERR), RX UDRFLOW or RX OVRFLOW.

User Action: Enter the PM maintenance level to determine the cause of the resource going system busy.

LINK nn: CORRUPT RETRANSMIT BUFFER READ POINTER

Explanation: The system is unable to use the link for signaling because of resource failures.

Where:

nn is the link number

Range: 0 - 15

System Action: The system transfers signaling to another link, sets the resource to system busy, and generates the software error report (SWERR) RETR DIED.

User Action: Enter the PM maintenance level to determine the cause of the resource going system busy.

LINK nn: CORRUPT TRANSMIT BUFFER

Explanation: The DLP in the resource has detected an error in its transmit buffer.

Where:

nn is the link number

Range: 0 - 15

System Action: The system transfers signaling to another link, sets the resource to system busy, and generates the software error report (SWERR) COR TX BUF.

User Action: Enter the PM maintenance level to determine the cause of the resource going system busy.

LINK nn: CORRUPT TRANSMIT BUFFER READ POINTER

Explanation: The system is unable to use the link for signaling because of resource failures.

Where:

nn is the link number

Range: 0 - 15

System Action: The system transfers signaling to another link, sets the resource to system busy, and generates the software error report (SWERR) RETR DIED.

User Action: Enter the PM maintenance level to determine the cause of the resource going system busy.

LINK nn: DLP OUT OF SERVICE

Explanation: The resource has been taken out of service because the DLP has detected too many errors in the signaling messages.

Where:

nn is the link number

Range: 0 - 15

DLP data link processor

System Action: RSMan has deallocated the resource and started a test. When the resource is returned to service, link activation is re-attempted.

User Action: Input RTS to return the link to service to start Activation.

LINK nn: DLP RECEIVE BUFFER OVERRUN

Explanation: The DLP in the resource has detected an error in the receive buffer.

Where:

nn is the link number

Range: 0 - 15

DLP data link processor

System Action: The system transfers signaling to another link, sets the resource to system busy, and generates one of the followingsoftware error report (SWERR), RX OVERRUN or RX READ ER.

User Action: Enter the PM maintenance level to determine the cause of the resource going system busy.

LINK nn: EXCESSIVE DELAY OF ACKNOWLEDGEMENT

Explanation: A MSU message has been sent, and the far-end office has failed to acknowledge within a specified time.

Where:

nn is the link number

Range: 0 - 15

System Action: The command was terminated.

User Action: Contact the far-end office to determine the cause of the fault.

LINK nn: EXCESSIVE SU ERROR ON LINK

Explanation: The resource found too many transmission errors.

Where:

nn is the link number

Range: 0 - 15

SU signaling unit

System Action: RSMan is trying to re-activate the link.

LINK nn: FAILED TO NAIL UP LINK

Explanation: The link is not nailed up because of network module problems.

Where:

nn is the link number

Range: 0 - 15

User Action: Enter the NET maintenance level and investigate the network module problems.

LINK nn: FAILED TO NAIL UP ST

Explanation: The link cannot be nailed up because the resource is either system busy, manual busy, or off-line.

Where:

nn is the link number

Range: 0 - 15

User Action: Enter the PM maintenance level to investigate the ST problems.

LINK nn: FAILED, UNABLE TO COMMUNICATE WITH FAR END

Explanation: The link was activated , but it never received an SIO message from the far-end office. The link remains in the not aligned state.

Where:

nn is the link number

Range: 0 - 15

System Action: RSMan is synchronizing the link, and did not receive the SIO message from the far-end office within the correct time period. The synchronization procedure is terminated and the link is set to the not aligned state.

User Action: Contact the far-end office to determine the state of the link.

LINK nn: FAILED, UNABLE TO GET NETWORK CONNECTION

Explanation: The network module is either system busy, or manual busy.

Where:

nn is the link number

Range: 0 - 15

System Action: RSMan is unable to seize a network connection at the commencement of an activation procedure.

User Action: Access the NET maintenance level to determine the cause of the fault.

LINK nn: FAILED, UNABLE TO SEIZE A TRANSMISSION LINK

Explanation: The transmission link is in the wrong state for the command ACT.

Where:

nn is the link number

Range: 0 - 15

System Action: RSMan is unable to seize a transmission link at the commencement of an activation procedure.

User Action: Access trunks maintenance to determine the cause of the problem.

LINK nn: FAILED, UNABLE TO SEIZE AN ST

Explanation: The resource is in the wrong state for the command ACT.

Where:

nn is the link number

Range: 0 - 15

System Action: RSMan is unable to seize a resource at the commencement of an activation procedure.

User Action: Access the PM maintenance to determine the cause of the failure.

LINK nn: IN PROCESS OF ALIGNING LINK

Explanation: The link is being activated.

Where:

nn is the link number

Range: 0 - 15

System Action: RSMan is trying to synchronize the link

LINK nn: INVALID STATE FOR FAULT QUERY, MUST BE SYSB OR ISTB

Explanation: The link is not in the correct state for the command QUERYFLT.

Where:

nn is the link number

Range: 0 - 15

User Action: If the link is offline, post it, then return it to service. If the link is faulty it goes system busy, and the query fault command can be repeated. If the link is in-service there is no fault to query.

LINK nn: LINK IS INITIALIZING

Explanation: The link is in the process of being initialized.

Where:

nn is the link number

Range: 0 - 15

LINK nn: LINK IS MAN BUSY

Explanation: The link is not in service and synchronized because the traffic state is manual busy.

Where:

nn is the link number

Range: 0 - 15

User Action: Return the link to service using the command RTS.

LINK nn: LINK IS MAN BUSY, COULD NOT NAIL UP LINK

Explanation: The link is synchronized but cannot go to the synchronized state because the traffic state is manual busy, and the link therefore, remains in the manual busy state. There is also an additional fault in that the link is not nailed up.

Where:

nn is the link number

Range: 0 - 15

User Action: Enter the command RTS to return the link to service, and investigate the network module problem.

LINK nn: LINK TEST FAILED

Explanation: The link has failed a test that was initiated by the command TEST or the command ACT.

Where:

nn is the link number

Range: 0 - 15

System Action: RSMan has sent a test message and has not received a signaling link test acknowledgement from the far-end office within the correct time period, or the acknowledgement was received with an incorrect test pattern. RSMan removes the link from service and initiates a changeover procedure. The traffic state of the link goes to system busy.

User Action: Enter the PM maintenance level and check the resource for faults.

LINK nn: LINK TEST TIMEOUT

Explanation: There was no reply to a request for a test from the MSB7.

Where:

nn is the link number

Range: 0 - 15

System Action: The MSB7 has sent a request for a test of the link to RSMan. RSMan did not acknowledge the request and a timeout occurred.

LINK nn: LINK TOO LONG INITIALIZING

Explanation: The link has failed to synchronize, and RSMan has deactivated the link.

Where:

nn is the link number

Range: 0 - 15

System Action: RSMan has repeated one of the activate procedures too often and a timeout has occurred. RSMan deactivates the link and sets the link traffic state to system busy.

LINK nn: LINK UNDERGOING CHANGEBACK

Explanation: A link has been returned to service and the traffic that had been routed to an alternate route is being routed back to the newly available link.

Where:

nn is the link number

Range: 0 - 15

System Action: RSMan has agreed with the far-end office to engage in a changeback procedure. RSMan is moving traffic back to the original link (with a minimum of traffic disruption) in conjunction with the far-end office. The procedure allows RSMan to hold up new traffic temporarily in buffers, while trying to retrieve any untransmitted signaling messages that are waiting in the resource. The untransmitted messages are the first to be sent through the original route, they are followed by the messages in the buffers.

LINK nn: LINK UNDERGOING CHANGEOVER

Explanation: The link has failed and RSMan has initiated a changeover procedure to transfer the traffic to other links.

Where:

nn is the link number

Range: 0 - 15

LINK nn: LOCAL PROCESSOR OUTAGE

Explanation: Signaling is not possible on the link, due to a failure or the link has been inhibited.

Where:

nn is the link number

Range: 0 - 15

System Action: The resource transmits link status signal units indicating a processor outage and discards the signaling messages that it receives. The level 2 function at the far-end office informs its own RSMan of the problem, and starts to transmit fill-in signal units. When the local processor outage condition ceases, normal transmission is resumed.

User Action: Check maintenance MAP levels for alarm states, and rectify.

LINK nn: LIU7 DLP FIFO LENGTH ERROR

Explanation: The link failed to synchronize as a result of an interface problem between the signaling terminal and the link general processor (LGP).

Where:

nn is the link number

Range: 0 - 15

System Action: The system attempts to recover the link by continuing the synchronizing procedure. If the procedure cannot terminate correctly, the link is set system busy.

User Action: Check log reports for additional information. Check hardware for correct operation.

LINK nn: LIU7 DLP RECEIVE FIFO FULL

Explanation: The link failed to synchronize as a result of an interface problem between the signaling terminal and the LGP.

Where:

nn is the link number

Range: 0 - 15

System Action: The system attempts to recover the link by continuing the synchronizing procedure. If the procedure cannot terminate correctly, the link is set system busy.

User Action: Check log reports for additional information. Check hardware for correct operation.

LINK nn: LIU7 FAILED

Explanation: A failure has been detected in the signaling terminal processor or LGP processor, or there has been a loss of integrity in the LIU7.

Where:

nn is the link number

Range: 0 - 15

System Action: The system attempts to recover from the error by entering the synchronization procedure.

User Action: If the system is unable to recover, check hardware. Also check log reports for additional information.

LINK nn: LIU7 IS IN LOOPBK

Explanation: The activation procedure has failed because the system could not allocate a LIU7 for the link. This response will be received if the link resource is in a loopback (loopbk) mode.

Where:

nn is the link number

Range: 0 - 15

System Action: The system attempts to recover the link.

User Action: If the resource is in the INSV or ISTB state and in loopback mode, then the LIU7 must be removed manually from the loopback state.

LINK nn: LIU7 NOT ACCESSIBLE

Explanation: Communications between the computing module (CM) and the LIU7 have stopped.

Where:

nn is the link number

Range: 0 - 15

System Action: If the link was synchronized when the LIU7 became inaccessible, then the link synchronizing state is displayed as LPO, and the system waits for the LIU7 to recover. When communications are resumed, the system will enter the recovery process without operator intervention. If the LIU7 became inaccessible during the link synchronizing process the system will continually attempt to complete the process. When communications are resumed, the link synchronizing continues to completion.

User Action: The LIU7 may require manual action to restore communications between it and the Communications Module.

LINK nn: LIU7/ST RECEIVE ENQUEUE FAILED

Explanation: The link failed to synchronize as a result of an interface problem between the signaling terminal and the LGP.

Where:

nn is the link number

Range: 0 - 15

System Action: The system attempts to recover the link by continuing the synchronization. If the procedure cannot terminate correctly, the link is set system busy.

User Action: Check log reports for additional information. Check hardware for correct operation.

LINK nn: LIU7/ST RECEIVE PROC UNINITIALIZED

Explanation: The link failed to synchronize because the signaling terminal on the LIU7 link resource detected software errors.

Where:

nn is the link number

Range: 0 - 15

System Action: The system attempts to recover the link by continuing the synchronizing procedure. If the procedure cannot terminate correctly, the link is set system busy.

User Action: Check log reports for additional information. Check hardware for correct operation.

LINK nn: LIU7/ST TRANSMIT PROC UNINITIALIZED

Explanation: The link failed to synchronize because the signaling terminal on the LIU7 link resource detected software errors.

Where:

nn is the link number

Range: 0 - 15

System Action: The system attempts to recover the link by continuing the synchronizing procedure. If the procedure cannot terminate correctly, the link is set system busy.

User Action: Check log reports for additional information. Check hardware for correct operation.

LINK nn: LOST FSN

Explanation: The system could not identify the FSN, and rejected the message.

Where:

nn is the link number

Range: 0 - 15

FSN forward sequence number

System Action: RSMan sets the traffic state of the link to system busy, and transfers signaling to another link, sets the resource to system busy, and generates the software error report (SWERR) RETR DIED.

User Action: Enter the PM maintenance level to determine the cause of the resource going system busy.

LINK nn: NO FAULT DETECTED AT PRESENT

Explanation: There are no faults on the link. This is the message that is shown if an in-service link is questioned.

Where:

nn is the link number

Range: 0 - 15

System Action: RSMan has agreed with the far-end office to engage in a changeover procedure. RSMan is moving traffic to other available links (with a minimum of traffic disruption) in conjunction with the far-end office. The procedure allows RSMan to hold up new traffic temporarily in buffers, while trying to retrieve any untransmitted signaling messages that are waiting in the resource. The untransmitted messages are the first to be sent through the alternate route, they are followed by the messages in the buffers.

LINK nn: NO REAL TIME IN LIU7

Explanation: The link failed to synchronize because the application code in the signaling terminal was occupying the computing real-time for an unacceptable length of time.

Where:

nn is the link number

Range: 0 - 15

System Action: The system attempts to recover the link by continuing the synchronizing procedure. If the procedure cannot terminate correctly, the link is set system busy.

User Action: Check log reports for additional information. Check hardware for correct operation.

LINK nn: PERIODIC TEST FAILED

Explanation: The link has failed the link test.

Where:

nn is the link number

Range: 0 - 15

System Action: RSMan has sent a periodic test and has not received a signaling link test acknowledgement from the far-end office within the correct time period, or the acknowledgement was received with an incorrect test pattern. RSMan removes the link from service and initiates a changeover procedure. The traffic state of the link goes to system busy.

User Action: Enter the PM maintenance level and check the resource for faults.

LINK nn: PROVING FAILED

Explanation: The link is undergoing an alignment procedure, has reached the proving phase, but is unable to complete because of an excessive error rate.

Where:

nn is the link number

Range: 0 - 15

System Action: RSMan sets the link synchronizing state to system busy and attempts to resynchronize the link.

LINK nn: REMOTE CONGESTION TIMEOUT

Explanation: The far-end office has stayed congested too long.

Where:

nn is the link number

Range: 0 - 15

System Action: System sends a message to the far-end office requesting them to restrict messages, and then sets the resource to system busy.

LINK nn: REMOTE PROCESSOR OUTAGE

Explanation: The far-end office is unable to provide call processing on the link. Its level 2 function is sending link status signal units indicating processor outage.

Where:

nn is the link number

Range: 0 - 15

System Action: On receipt of the processor outage signals, the resource sends fill-in signal units, and informs RSMan that the link cannot be used.

User Action: The problem has to be solved at the far end office, contact the far-end office to establish the cause of the failure.

LINK nn: RETRIEVAL BUFFER ENQUEUE PROBLEM

Explanation: The system is unable to use the link for signaling because the resource failed.

Where:

nn is the link number

Range: 0 - 15

System Action: RSMan transfers signaling to another link, sets the resource to system busy, and generates the software error report (SWERR) RETR DIED.

User Action: Enter the PM maintenance level to determine the cause of the resource going system busy.

LINK nn: RETRIEVAL CORRUPT AUDIT BYTE

Explanation:

Where:

nn is the link number

Range: 0 - 15

System Action: The system transfers signaling to another link, sets the resource to system busy, and generates the software error report (SWERR) RETR DIED.

User Action: Enter the PM maintenance level to determine the cause of the resource going system busy.

LINK nn: RETRIEVAL TRANSMIT BUFFER PROBLEM

Explanation: The DLP in the resource has detected an error in its transmit buffer.

Where:

nn is the link number

Range: 0 - 15

System Action: The system transfers signaling to another link, sets the resource to system busy, and generates the software error report (SWERR) COR TX BUF.

User Action: Enter the PM maintenance level to determine the cause of the resource going system busy.

LINK nn: SEQUENCE NUMBER ERROR

Explanation: The system is unable to use the link for signaling because of resource failures.

Where:

nn is the link number

Range: 0 - 15

System Action: The system transfers signaling to another link, sets the resource to system busy, and generates the software error report (SWERR) RETR DIED.

User Action: Enter the PM maintenance level to determine the cause of the resource going system busy.

LINK nn: SIE RECEIVED

Explanation: The resource has received a SIE message from the far-end office on a link that is in service.

Where:

nn is the link number

Range: 0 - 15

SIE emergency alignment status indication

System Action: Linkset management sets the link synchronizing state to system busy and attempts to resynchronize the link.

LINK nn: SIN RECEIVED

Explanation: The resource has received a SIN message from the far-end office on a link that is in service.

Where:

nn is the link number

Range: 0 - 15

SIN normal alignment status indication

System Action: Linkset management sets the link synchronizing state to system busy and attempts to resynchronize the link.

LINK nn: SIO RECEIVED

Explanation: The resource has received an SIO message from the far-end office on a link that is in service.

Where:

nn is the link number

Range: 0 - 15

SIO out of alignment status indication

System Action: RSMan sets the link synchronizing state to system busy and attempts to resynchronize the link.

LINK nn: SIOS RECEIVED

Explanation: The resource has received an SIOS message from the far-end office indicating that link alignment has failed.

Where:

nn is the link number

Range: 0 - 15

SIOS out of service status indication

System Action: RSMan sets the link synchronizing state to system busy and attempts to resynchronize the link.

LINK nn: ST AUDIT FAILED IN LIU7

Explanation: Link synchronization failed due to a hardware or software fault. The error was detected during an audit procedure.

System Action: The system attempts recovery action. Link synchronization continues to initiate until it times out, at this time the link is set to the system

busy state.

User Action: Check log reports for additional information. Check hardware for problems.

LINK nn: ST FAILURE ON THE LINK

Explanation: The resource is in the manual busy or the system busy state.

Where:

nn is the link number

Range: 0 - 15

System Action: RSMan is unable to seize the resource at the commencement of an activate procedure, or the resource has failed during the procedure.

User Action: Access the PM maintenance level to determine the cause of the fault.

LINK nn: STOP RECEIVED

Explanation: The resource has been told to stop because of some irregularity.

Where:

nn is the link number

Range: 0 - 15

System Action: RSMan has set the resource to the system busy state which runs tests. When the resource is returned to service, RSMan attempts to activate the link again.

User Action: Enter the command RTS (post the linkset if necessary) to get RSMan to activate the link.

LINK nn: STOP RECEIVED, ALREADY STOPPED

Explanation: The resource has been told to stop but it is already in the system busy state.

Where:

nn is the link number

Range: 0 - 15

LINK nn: SYSTEM PROBLEM - CHECK LOGS

Explanation: RSMan has detected an error which cannot be associated with the components of the signaling link.

Where:

nn is the link number

Range: 0 - 15

System Action: RSMan is unable to isolate the fault, and prompts the user to use other methods.

User Action: Check all other MAP levels for alarms, and check the log reports for irregularities. If the fault is CCS7 associated the log reports are prefixed with C7.

LINK nn: TL OUT OF SERVICE

Explanation: The traffic state of the link is system busy because the transmission link is out of service.

Where:

nn is the link number

Range: 0 - 15

TL transmission link

User Action: Enter the trunks maintenance level and investigate the TL problem.

LINK nn: TRANSMIT/RETRANSMIT BUFFER PROBLEM

Explanation: The DLP in the resource has detected an error in its transmit buffer.

Where:

nn is the link number

Range: 0 - 15

System Action: The system transfers signaling to another link, sets the resource to system busy, and generates the software error report (SWERR) COR TX BUF.

User Action: Enter the PM maintenance level to determine the cause of the resource going system busy.

LINK nn: UNABLE TO DETERMINE FAULT

Explanation: The fault on the link is either a transient fault or a multiple fault.

Where:

nn is the link number

Range: 0 - 15

User Action: Check the maintenance levels on the MAP, and rectify any faults found.

LINK nn: UNABLE TO ALLOCATE AN LIU7

Explanation: The link traffic is not in the in-service state. The activation procedure has failed because a LIU7 resource could not be allocated.

Where:

nn is the link number

Range: 0 - 15

System Action: The system continues to attempt synchronization until it is timed out.

User Action: Return the LIU7 to the in-service state.

LINK nn: WAITING FOR FISU/MSU TIMEOUT

Explanation: The link is undergoing an alignment procedure, has reached the aligned ready state, and is waiting for a FISU or a MSU but a timeout has occurred.

Where:

nn is the link number

Range: 0 - 15

FISU fill-in signal unit

MSU message signal unit

System Action: Linkset management sets the link synchronizing state to system busy and attempts to resynchronize the link.

0 LINK nn: WAITING FOR SIN/SIE TIMEOUT

0 Explanation: The link is undergoing an alignment pro-
0 cedure, has reached the aligned state, and is waiting
0 for a SIN or a SIE but a timeout has occurred.

0 Where:

0 nn is the link number

0 Range: 0 - 15

0 SIN normal alignment status indication

0 SIE emergency alignment status indication

0 System Action: RSMan sets the link synchronizing state
0 to system busy and attempts to resynchronize the link.

0 LINK nn: WAITING FOR SIO/SIN TIMEOUT

0 Explanation: The link is undergoing an alignment pro-
0 cedure, has reached the not aligned state, and is wait-
0 ing for a SIO or a SIN but a timeout has occurred.

0 Where:

0 nn is the link number

0 Range: 0 - 15

0 SIO out of alignment status indication

0 SIN normal alignment status indication

0 System Action: RSMan sets the link synchronizing state
0 to system busy and attempts to resynchronize the link.

QUERYUSR

The command QUERYUSR lists all routesets that use the posted linkset as their connection to this office.

Responses:

```
ROUTESET CLLI      NETWORK NAME      POINT CODE
full_routeset_clli network_name      nnn nnn nnn
full_routeset_clli network_name      nnn nnn nnn
full_routeset_clli network_name      nnn nnn nnn
full_routeset_clli network_name      nnn nnn nnn
```

Explanation: The variables are described as follows:

Where:

full_routeset_clli is the full CLLI of the routeset.

network_name is the name assigned to the network in system table C7RTESET.

nnn nnn nnn is a unique numerical address given to each signaling point in the network.

RTS

The command RTS returns to service the selected link of a posted linkset. If ALL is used, all links in the posted linkset are returned to service.

RTS	link

Where:

link is the link number.

Values: 0 - 15, or ALL

Responses:

LINK nn: FAILED, LINK IS NOT IN MAN BUSY STATE

Explanation: The link must be in the manual busy state to be able to return the link to service.

Where:

nn is the link number

Range: 0 - 15

LINK nn: MAINTENANCE COMMAND IN PROGRESS

Explanation: Another command is being processed at the MAP. As only one command can be acted on at any one time from the MAP, the command TST was not initiated.

Where:

nn is the link number

Range: 0 - 15

LINK nn: PASSED

Explanation: RSMan has tested the links and returned them to service.

Where:

nn is the link number

Range: 0 - 15

TST

The command TST initiates a go/no go test on a signaling link. The test involves sending a preformatted message to the far-end office and expecting the same message back as an acknowledgement. The link or links must be in the synchronized state before the command can be initiated.

TST	link

Where:

link is the link number

Values: 0 - 15, or ALL

Note: If ALL is used, only those links that are in the synchronized state are tested. If there are no links in the sync state the command is be aborted.

Responses:

LINK nn: FAILED, FAR END DID NOT REPLY TO REQUEST

Explanation: The far-end office failed to respond to the request for a test transmission. The far-end office is either in the manual busy, system busy, or offline state.

Where:

nn is the link number

Range: 0 - 15

System Action: Command is terminated after the command TST has timed out.

User Action: Contact the far-end office to determine the cause of the fault.

LINK nn: FAILED, NO RESPONSE FROM MSB7

Explanation: The MSB7 did not respond to the command TST. The MSB7 may be manual busy, system busy, or off-line.

Where:

nn is the link number

Range: 0 - 15

User Action: Use PM maintenance to check the MSB7.

LINK nn: LINK MUST BE SYNCHRONIZED

Explanation: The link synchronization state is not in the in-service, or synchronized state.

Where:

nn is the link number

Range: 0 - 15

User Action: Activate and return the link to service, then re-enter the command TST.

LINK nn: MAINTENANCE COMMAND IN PROGRESS

Explanation: Another command is being processed at the MAP. As only one command can be acted on at any one time from the MAP, the command TST was not initiated.

Where:

nn is the link number

Range: 0 - 15

LINK nn: TEST ALREADY REQUESTED

Explanation: The test procedure has already started.

Where:

nn is the link number

Range: 0 - 15

LINK nn: TEST CANCELLED BY OTHER MAINTENANCE COMMAND

Explanation: Another command using the parameter FORCE has been entered forcing the premature completion of the command TST.

Where:

nn is the link number

Range: 0 - 15

LINK nn: TEST FAILED

Explanation: An acknowledgement was not received (within one second) from the far-end office, or the test pattern received was different from that sent.

Where:

nn is the link number

Range: 0 - 15

System Action: System repeated the test pattern once and it failed again. The link traffic state and the synchronization state are set to system busy.

User Action: The signaling link may be noisy, or there is a fault in the resource. Use PM maintenance to check the resource, and trunks maintenance to check the signaling link.

LINK nn: TEST PASSED

Explanation: RSMan sends a message containing a special test pattern to the far-end office on the selected link and waits for an acknowledgement. The test is considered to be successful if the received test pattern corresponds with the one sent. No further action is taken on the link.

Where:

nn is the link number

Range: 0 - 15

UNIH

The command UNIH restores traffic back to previously inhibited links. An request to uninhibit is sent to the far-end office. Reception of an uninhibit acknowledgement allows the system to return the links to service.

UNIH	link

Where:

link is the link number of the link to be uninhibited.

Value: 0 - 15, or ALL

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CHAPTER 10

SCCPRPC MAP LEVEL

0 PRACTICE 297-1001-531
0 VINTAGE 06.01

SCCPRPC-LEVEL COMMANDS AND RESPONSES

The following commands and responses are available at the SCCPRPC level of the MAP.

BSY

The command BSY stops routing of data to the posted point code, and sets the point code to the manual busy state (displayed as ManB).

```
BSY   [ FORCE ]
```

Where:

FORCE forces the posted point code into the manual busy state.

Responses:

BSY FAILED
FAILED, NO POINT CODE POSTED

Explanation: The command was entered for a point code that is not in the posted set.

User Action: Post the point code and re-enter the command.

BSY FAILED
THE ONLY OPTIONAL PARAMETER IS FORCE

Explanation: The command was entered with a parameter that was not FORCE.

User Action: Enter the command without a parameter or the parameter FORCE.

BSY FAILED
WARNING GLOBAL TITLE TRANSLATIONS ARE ASSOCIATED
WITH pc_clli

Explanation: The point code is in the in-service trouble state, and global translations may be transferred to the backup point code.

Where:

pc_clli is the point code CLLI

BSY FAILED
WARNING GLOBAL TITLE TRANSLATIONS ARE ASSOCIATED
WITH pc_clli. NO AVAILABLE BACKUP.

Explanation: The point code is in the in-service trouble state. There is no backup point code.

Where:

pc_clli is the point code CLLI

BSY FAILED
WARNING THERE ARE INSERVICE SUBSYSTEMS AT pc_clli
SERVICE WILL BE AFFECTED AT THESE SUBSYSTEMS.

Explanation: The command was not completed because there are in-service subsystems at this point code.

Where:

pc_clli is the point code CLLI

BUSY PASSED

Explanation: The point code has been placed in the manual busy state.

System Action: The status display of the posted point code changes to ManB, a PCC alarm is initiated, and log CCS209 is generated.

OFFL

The command OFFL removes the point code from service, effectively erasing any knowledge of routing to the posted point code.

Responses:

OFFL FAILED
ALL THE SUBSYSTEMS MUST BE OFFLINED BEFORE pc_clli CAN BE OFFLINED.

Explanation: At least one of the subsystems resident at the coint code is not in the offline state.

Where:

pc_clli is the point code CLLI

User Action: Access the SCCPRSS level of the MAP, set all subsystems to the offline state, return to the SCCPRPC level and re-enter the command.

OFFL FAILED
FAILED, pc_clli NOT IN A MANB STATE.

Explanation: The point code is not in the correct state for the system to complete the command.

Where:

pc_clli is the point code CLLI

User Action: Place the point code in the manual busy state and re-enter the command.

OFFL FAILED
FAILED, NO POINT CODE POSTED.

Explanation: There are no point codes posted.

User Action: Post the selected point code and re-enter the command.

OFFL PASSED

Explanation: The point code has been placed in the offline state.

System Action: The system sets the posted point code to the offline state (displayed as SysB), generates log CCS208, and removes the PCC alarm for this point code.

POST

The command POST selects a point code for maintenance actions. The act of posting a point code does not affect the system operation on the point code.

POST	pc_clli

Where:

pc_clli is the point code CLLI.

Responses:

INVALID CLLI

Explanation: The parameter input with the command is not a valid point code CLLI.

User Action: Correct the point code CLLI, then re-enter the command.

INVALID SCCP POINT CODE

Explanation: The parameter input with the command is a valid MTP point code CLLI, but not a valid SCCP point code CLLI.

User Action: Re-enter the command using a valid point code CLLI.

QUERYSS

The command QUERYSS displays the names of all the subsystems resident at the posted point code.

Responses:

FAILED, NO POINT CODE POSTED

Explanation: The command was entered for a point code that was not posted.

User Action: Post the selected point code, and re-enter the command.

INVALID SCCP POINT CODE

Explanation: The code entered as a parameter is not a correct SCCP point code CLLI.

User Action: Correct the point code CLLI, and re-enter the command.

NO SUBSYSTEMS AT pc

Explanation: There are no subsystems resident at this point code.

Where:

pc is the point code CLLI.

RTS

The command RTS allows routing of data to the posted point code by placing the point code in the in-service state.

Responses:

RTS FAILED
FAILED, NO POINT CODE POSTED.

Explanation: The command was made for a point code that is not posted.

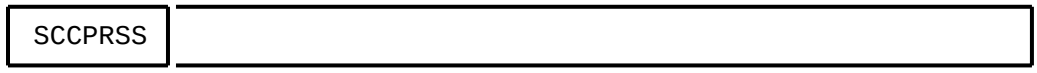
User Action: Post the point code and re-enter the command.

RTS PASSED

Explanation: The system upgrades the point code status to system busy awaiting confirmation from the point code. When confirmation is received the point code status is changed to in service. During this process logs CCS210 and CCS211 are generated, and the PCC alarm is removed.

SCCPRSS

The command SCCPRSS accesses the SCCPRSS level of the MAP and displays the commands and parameters that are available for monitoring and maintaining the remote subsystem. A point code must be posted to access commands at this level.



Responses:

display

Explanation: The menu and status display changes to the SCCPRSS level. For seeing the menu of commands, see Figure 5.9 on page 5-31. For the description of the display headers, see Figure 5.10 on page 5-32.

TRANTST

The command TRANTST checks if a particular global title translates to the correct network address.

TRANTST	g_title_id g_title

Where:

g_title_id is the global title identifier that is listed in system table C7GTTYPE.

g_title is the global title.

Responses:

RESULT IS PC ONLY
PC ONLY IS: pc_clli

Explanation: Command parameters included the subsystem. The subsystem is ignored, and only the point code CLLI is identified.

Where:

pc_clli is the point code CLLI

RESULT IS PC AND SS:
PC VALUE: pc_clli
SS: subsystem

Explanation: There is a point code and subsystem identified in system tables.

Where:

pc_clli is the point code CLLI

subsystem is the subsystem name

RESULT IS SS ONLY
SUBSYSTEM: subsystem

Explanation: There is only a subsystem available at this node.

0 Where:

0 subsystem is the subsystem name

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0 VINTAGE 06.01

CHAPTER 11

SCCPRSS MAP LEVEL

0 PRACTICE 297-1001-531
0 VINTAGE 06.01

0 SCCPRSS-LEVEL COMMANDS AND RESPONSES

0 The following commands and responses are available at the remote
0 subsystem level when the command SCCPRSS is entered at the
0 SCCPRPC level of the MAP.

BSY

The command BSY stops routing of data to the posted subsystem, and sets the subsystem to the manual busy state.

BSY	[FORCE]

Where:

FORCE forces the posted subsystem into the manual busy state.

Responses:

A POINT CODE MUST BE POSTED BEFORE ENTERING THIS LEVEL

Explanation: An attempt was made to enter the SCCPRSS level of the MAP without a posted point code.

User Action: Post a point code in the SCCPRPC level of the MAP, then re-enter the command.

BUSY FAILED
FAILED, POINT CODE CANNOT BE OFFL WHEN BUSYING subsystem

Explanation: An attempt was made to manually busy a subsystem with the point code in the offline state.

Where:

subsystem is the subsystem name

User Action: Return to SCCPRPC level of the MAP, manually busy the point code, return to the SCCPRSS level and re-enter the command.

BUSY PASSED

Explanation: The command BSY was successfully completed.

System Action: The system sets the posted subsystem to the manual busy state, initiates an SSC alarm, and generates log CCS213.

EXCESS PARAMETERS AFTER THE OPTIONAL PARAMETER FORCE

Explanation: The command BSY was entered with an additional parameter after the parameter FORCE. This is an illegal combination.

User Action: Enter the command with correct parameters.

NOTHING POSTED TO PERFORM THE ACTION ON

Explanation: A subsystem has not been posted, therefore the command was not allowed.

User Action: Post the subsystem then re-enter the command.

subsystem IS NOT IN THE POSTED SET

Explanation: The subsystem is a valid parameter, but it is not associated with the posted point code.

Where:

subsystem is the subsystem name

User Action: Re-enter the command using a valid subsystem name.

0 NEXT

0 The command NEXT displays the next seven subsystems in the posted
0 set. The remainder of the posted set is displayed if there are
0 less than seven subsystems remaining in the posted set.

0
0 NEXT
0

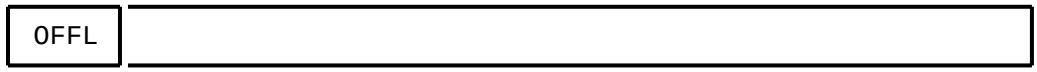
0 Responses:

0 END OF POSTED SET

0 Explanation: There are no more subsystems remaining in
0 the posted set.

OFFL

The command OFFL removes the subsystem from service.



Responses:

NOTHING POSTED TO PERFORM THE ACTION ON

Explanation: A subsystem has not been posted, therefore the command was not allowed.

User Action: Post the subsystem then re-enter the command.

OFFL FAILED
FAILED subsystem NOT IN A MANB STATE

Explanation: The subsystem was not in the manual busy state, therefore the command was not allowed.

Where:

subsystem is the subsystem name

User Action: Use the command BSY to manually busy the subsystem then re-enter the command.

OFFL PASSED

Explanation: The command was successfully completed.

System Action: The system sets the posted subsystem to the offline state, generates log CCS212, and removes the SSC alarm associated with this subsystem.

subsystem IS NOT IN THE POSTED SET

Explanation: The subsystem name entered is a valid parameter, but it is not associated with the posted point code.

Where:

subsystem is the subsystem name that was entered with the command.

0 User Action: Re-enter the command using a valid sub-
0 system.

POST

The command POST selects a subsystem for maintenance actions.

POST	subsystem ALL

Where:

subsystem is the subsystem name.

ALL posts all subsystems associated with the posted point code.

Responses:

```
         POINT CODE   STATE    NUMBER OF SS
  aaaaaaaaaaaaaaaa   state       n
C7 SCCP REMOTE SS
    subsystem    STATE
bbbb             state
bbbb             state
```

Size of posted set: 2

Explanation: The post parameters have been accepted by the system. The system has displayed the two subsystems of the posted set (see Figure 5.10 on page 5-32 for an explanation of the display).

User Action: If more than seven subsystems are expected, use the command NEXT to display the remaining subsystems.

DUPLICATED SUBSYSTEM NAME IN THE COMMAND LINE

Explanation: A valid subsystem name was repeated more than once with the command.

User Action: Enter the command with a single subsystem name.

EXCESS PARAMETERS AFTER ALL

Explanation: The command has been entered using ALL and a valid parameter. When ALL is used it cannot be paired up with any other parameters.

0 User Action: Enter the command either with a valid
0 subsystem name, or the parameter ALL.

0 EXCESS PARAMETER BEFORE ALL

0 Explanation: The command has been entered with a valid
0 subsystem name and ALL. When ALL is used it cannot be
0 paired up with another subsystem name.

0 User Action: Enter the command either with a valid
0 subsystem name, or the parameter ALL.

0 FORCE IS AN INVALID PARAMETER IN THIS CONTEXT

0 Explanation: The parameter FORCE has no meaning with
0 the command POST.

0 User Action: Enter the command with a subsystem name
0 or ALL.

0 NO SUBSYSTEMS AT pc_clli

0 Explanation: There are no subsystems associated with
0 the posted point code.

0 Where:

0 pc_clli is the point code CLLI

0 NO SUCH SUBSYSTEM

0 Explanation: The parameter entered is not a valid sub-
0 system name.

0 User Action: Enter the command with a valid subsystem
0 name.

0 subsystem IS NOT A REMOTE SUBSYSTEM AT THE POSTED POINT CODE

0 Explanation: The subsystem is not known to be resident
0 at the posted point code.

0 Where:

0 subsystem is the subsystem name

QUERYSS

The command QUERYSS displays the names of all subsystems residing at the posted point code.

Responses:

NO SUBSYSTEMS AT pc_clli

Explanation: There are no subsystems resident at the posted point code.

Where:

pc_clli is the point code CLLI

RTS

The command RTS allows routing of data to the posted subsystem by returning it to service.

```
RTS   subsystem
      ALL
```

Where:

subsystem is the subsystem name.

ALL all subsystems resident at the posted point code.

Responses:

FORCE IS AN INVALID PARAMETER IN THIS CONTEXT

Explanation: The command RTS cannot be forced, therefore the parameter FORCE has no meaning and cannot be used.

User Action: Re-enter the command with the correct parameter.

NOTHING POSTED TO PERFORM THE ACTION ON

Explanation: A subsystem has not been posted, therefore the command was not allowed.

User Action: Post the subsystems then re-enter the command.

RTS PASSED

Explanation: The command RTS has been successfully completed.

System Action: The system sets the subsystem to the INI state awaiting confirmation from the SCP database. When confirmation is received from the SCP database, the subsystem’s state is changed to INSV, the logs CCS214 and CCS216 are generated, and the SSC alarm is removed.

subsystem IS NOT IN THE POSTED SET

Explanation: The subsystem is a valid parameter, but it is not associated with the posted point code.

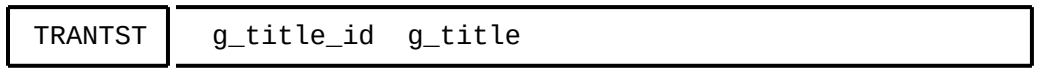
Where:

subsystem is the subsystem name

User Action: Re-enter the command using a valid subsystem name.

TRANTST

The command TRANTST is a test to verify that a global title translates to the correct network address.



Where:

g_title_id is the global title identifier that is listed in system table C7GTTYPE.

g_title is the global title.

Responses:

RESULT IS PC ONLY
PC ONLY IS: pc_clli

Explanation: Command parameters included the subsystem. The subsystem is ignored, and only the point code CLLI is identified.

Where:

pc_clli is the point code CLLI

RESULT IS PC AND SS:
PC VALUE: pc_clli
SS: subsystem

Explanation: There is a point code and subsystem identified in system tables.

Where:

pc_clli is the point code CLLI

subsystem is the subsystem name

RESULT IS SS ONLY
SUBSYSTEM: subsystem

Explanation: There is only a subsystem available at this node.

0 Where:

0 subsystem is the subsystem name

0 PRACTICE 297-1001-531
0 VINTAGE 06.01

0

CHAPTER 12

SCCPLOC MAP LEVEL

0

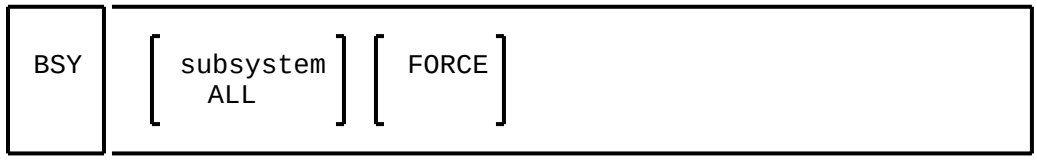
0 PRACTICE 297-1001-531
0 VINTAGE 06.01

SCCPLOC-LEVEL COMMANDS AND RESPONSES

The following commands and responses are available at the local subsystem level when the command SCCPLOC is entered at the CCS7 level of the MAP.

BSY

The command BSY temporarily removes the routing to and from a local subsystem for maintenance reasons. If there are translations depending on this subsystem, or if the subsystem is in an available state, the command is refused.



Where:

subsystem is the subsystem name.

ALL specifies all local subsystems are to be busied.

FORCE forces one or all of the subsystems to be busied.

Responses:

BUSY FAILED
subsystem IS NOT A LOCAL SUBSYSTEM

Explanation: The code input with the command is not a valid local subsystem.

User Action: Re-enter the command using a valid local subsystem.

BUSY FAILED
WARNING SERVICE WILL BE AFFECTED IF THE LOCAL subsystem
SERVICE IS PUT IN A MANB STATE.

Explanation: The command BSY was entered using a local subsystem that was in the in-service state.

Where:

subsystem is a valid local subsystem name.

System Action: System retains the local subsystem in the in-service state.

User Action: Re-enter the command using the parameter FORCE if it necessary to implement the command.

BUSY FAILED
FAILED, MORE THAN ONE SUBSYSTEM POSTED. GIVE
SUBSYSTEM NAME.

Explanation: There is more than one local subsystem posted. The system does not know which subsystem to manually busy.

User Action: Re-enter the command using the required local subsystem.

BSY PASSED

Explanation: The local subsystem is placed in the manual busy state.

System Action: The status display of the subsystem changes to show ManB, Changes the local subsystem state to manual busy, a SSC alarm is initiated, and log CCS218 is generated.

0 NEXT

0 The command NEXT displays the next seven subsystems in the posted
0 set. The remainder of the posted set is displayed if there are
0 less than seven subsystems remaining in the posted set.

0
0 NEXT
0

0 Responses:

0 END OF POSTED SET

0 Explanation: There are no more subsystems remaining in
0 the posted set.

OFFL

The command OFFL removes the subsystem from service.

OFFL	subsystem

Where:

subsystem is the local subsystem name.

Responses:

NOTHING POSTED TO PERFORM THE ACTION ON

Explanation: A subsystem has not been posted, therefore the command was not allowed.

User Action: Post the subsystem then re-enter the command.

OFFL FAILED
FAILED subsystem NOT IN A MANB STATE

Explanation: The subsystem was not in the manual busy state, therefore the command was not allowed.

Where:

subsystem is the subsystem name

User Action: Use the command BSY to manually busy the subsystem then re-enter the command.

OFFL PASSED

Explanation: The command was successfully completed.

System Action: The system sets the posted subsystem to the offline state, generates log CCS212, and removes the SSC alarm associated with this subsystem.

subsystem IS NOT IN THE POSTED SET

Explanation: The subsystem name input is a valid parameter, but it is not associated with the posted point code.

0 Where:

0 subsystem is the subsystem name that was entered with
0 the command.

0 User Action: Re-enter the command using a valid sub-
0 system.

POST

The command POST selects one or more subsystems for maintenance actions. Posting a subsystem does not affect its operations.

POST	l_subsystem subsystem1 ... subsystemn ALL

Where:

l_subsystem is the subsystem name of the required local subsystem.

subsystem1 is a subset of the office's local subsystems.

Responses:

```
                            111111 11112222 22222233
SUBSYSTEM STATE 01234567 89012345 67890123 45678901
subsystem state -------- -------- -------- --------
subsystem state -------- -------- -------- --------
```

SIZE OF POSTED SET: 2

Explanation: The post parameters have been accepted by the system. The system has displayed the two subsystems in the posted set (see Figure 5.12 on page 5-34 for an explanation of the display).

Where:

subsystem is the subsystem name

state is the state of the subsystem

Value: INSV, MANB, OFFL, or SYSB

User Action: If the posted set contained more than 7 subsystems, the command NEXT must be used to display the remainder of the posted set.

DUPLICATED SUBSYSTEM NAME IN COMMAND LINE

Explanation: The command POST was entered with a valid subsystem entered twice.

System Action: System rejected the command.

0 User Action: Re-enter the command with the subsystem
0 not duplicated.

0 subsystem IS NOT A LOCAL SUBSYSTEM

0 Explanation: The command was entered with a valid sub-
0 system name, but not valid for the office.

0 Where:

0 subsystem is a valid subsystem name.

0 System Action: The command is denied.

0 User Action: Re-enter the command using a valid local
0 subsystem.

0 INVALID SUBSYSTEM NAME subsystem

0 Explanation: The command was entered with an invalid
0 local subsystem name.

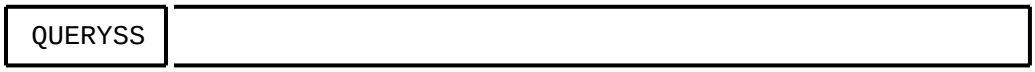
0 Where:

0 subsystem is the code that was entered with the com-
0 mand.

0 User Action: Re-enter the command using a correct
0 local subsystem.

QUERYSS

The command QUERYSS displays the names of all local subsystems.



RTS

The command RTS returns a manually busy local subsystem to the in-service state (displayed as InSv).

RTS	subsystem

Where:

subsystem is the local subsystem name.

Responses:

RTS FAILED
INVALID SUBSYSTEM NAME subsystem

Explanation: The command was given with an invalid subsystem name.

Where:

subsystem is the invalid subsystem name that was entered.

RTS FAILED
FAILED, subsystem IS NOT IN A MANB STATE.

Explanation: The local subsystem selected is in the offline or system busy state.

User Action: Manually busy the local subsystem and re-enter the command.

RTS PASSED

Explanation: The posted local subsystem has been returned to service.

System Action: Changes the state of the posted local subsystem to in service, reduces the number of SSC alarms by the number of local subsystems returned to service, and generates logs CCS219 and CCS220.

TESTSS

The command TESTSS tests the ability of the specified local subsystem to respond to a query message.

TESTSS	subsystem cgp_addr lata cdp_addr [timeout] ACCS clg_num cld_num blg_num [PIN] CCV clg_num cld_num PIN blg_num BNS clg_num cld_num blg_num

Where:

subsystem is the local subsystem.

Value: E800 (Enhanced 800), 800P (800 Plus)

ACCS specifies the automatic calling card system for the US market.

BNS specifies the billed number screening for the Canadian market.

CCV specifies the calling card validation.

blg_num is the billing number for the dialed call.

cdp_addr is the called party address.

cgp_addr is the calling party address.

cld_num is the called number that the calling card call is dialed to, in the form 0NPANXXXXXX.

clg_num is the calling number from which the calling card call is dialed; in the form NPANXXXXXX.

lata is the calling party local access and transport area

PIN is the personal identification number associated with the calling number; in the form XXXX.

timeout is the duration of the test.

Explanation of Responses to the Command TESTSS

The response to the TESTSS command is a multi-line message presenting information in one of the following ways:

* Error message

  If the error message does not contain a response from the database time, the error occurred in the SCCP.

* E800 and 800

  announcement message
  routing message
  routing and ACG message
  routing and termination message
  routing, ACG, and termination message

* ACCS for the US market

  CCV query message
  BNS query message

* ACCS for the Canadian market

  CCV query message (using the command TESTSS CCV)

The following figures illustrate the format of the different response messages that are obtained when the command TESTSS is used.

* Figure 12.1 on page 12-13 is an example of a TESTSS E800 Error Message

* Figure 12.2 on page 12-14 is an example of a Routing Message

* Figure 12.3 on page 12-15 is an example of a Routing, ACG, and Termination Message

* Figure 12.4 on page 12-16 is an example of a CCV Query using the TESTSS ACCS Command

* Figure 12.5 on page 12-17 is an example of a BNS Query using the TESTSS ACCS Command

* Figure 12.6 on page 12-17 is an example of a CCV Query using the TESTSS CCV Command.

The following example is an error message from the database. By entering the command:

```
  TESTSS E800 6212223344 123 8001120004
```

the response is:

```
  THE RESPONSE FROM THE DATABASE TOOK
  0 MINUTES, 0 SECONDS, 100 MILLISECONDS

  ERROR COMPONENT RECEIVED, ERROR IS REPLY OVERDUE

  THIS CALL WOULD BE ROUTED TO REORDER TREATMENT
```

Figure 12.1 Example of an Error Message to Command TESTSS E800

The following example is a routing message.
By entering the command:

```
  TESTSS E800 6132451233 123 8001110000 60
```

the response is:

```
  THE RESPONSE FROM THE DATABASE TOOK
  0 MINUTES,  4 SECONDS, 400 MILLISECONDS

  THE FOLLOWING NUMBER IS THE DIALED NUMBER OR ACG RANGE

  DIGITS NOT ENCODED PROPERLY, ENCODING TYPE IS: 0

  PARAMETER SHOULD HAVE BEEN CARRIER NUMBER.

  THE FOLLOWING NUMBER IS THE CARRIER NUMBER

  THE NUMBER IS 456

  PARAMETER SHOULD HAVE BEEN ROUTING NUMBER

  NUMBERING PLAN IS INCORRECT
  NUMBERING PLAN CODE IS: 5

  THE NUMBER IS 12345

  PARAMETER SHOULD HAVE BEEN BILLING INDICATOR

  BILLING INDICATOR CALL TYPE IS 1020
  BILLING INDICATOR SFI IS 3040

  PARAMETER SHOULD HAVE BEEN BILLING DIGITS

  EXCESS NUMBER OF PARAMETERS

  THIS CALL WOULD BE ROUTED TO REORDER TREATMENT
```

Figure 12.2 Example of a Routing Message

The following example shows a routing, ACG, and termination message. By entering the command:

```
TESTSS E800 6132301144 123 8002251109
```

the response is:

```
THE RESPONSE FROM THE DATABASE TOOK
0 MINUTES, 0 SECONDS, 100 MILLISECONDS

THE FOLLOWING NUMBER IS THE CARRIER NUMBER

THE NUMBER IS 488

THE FOLLOWING NUMBER IS THE ROUTING NUMBER

THE NUMBER IS 8196211234

BILLING INDICATOR CALL TYPE IS 141C
BILLING INDICATOR SFI IS 555C

THE FOLLOWING IS CALL GAPPING INFORMATION

THE FOLLOWING NUMBER IS THE DIALED NUMBER OR ACG RANGE

THE NUMBER IS 800225

ACG IS DUE TO: CALLER OUT OF BAND

ACG SHOULD BE INITIATED FOR 64 SECONDS

ACG SHOULD HAVE A GAP LENGTH OF 11 SECONDS

NOTE: ACG HAS NOT BEEN INITIATED

THE FOLLOWING IS A REQUEST TO SEND TERMINATION DATA

REQUEST DATA IS FD000000

NOTE: NO TERMINATION DATA WILL BE SENT TO THE DATABASE
```

Figure 12.3 Example of a Routing, AGC, and Termination Message

By entering the following command for a CCV query, therefore therefore requiring a PIN:

```
TESTSS ACCS 6132391111 02122201111 9198795606 1234
```

the response is:

```
COMPANY ID IS 1212

RECORD STATUS INDICATION IS DEFAULT RECORD

CCSAN IS 1

PIN IS UNRESTRICTED

INTERLATA CARRIER IS 000

BILLING NUMBER IS 9198795606
```

Figure 12.4 Example of a CCV Query Using the Command TESTSS ACCS

By entering the following command for a BNS query, therefore requiring the exclusion of a PIN:

```
TESTSS ACCS 6132391111 02122201111 9198795606
```

the response is:

```
COMPANY ID IS 1212

RECORD STATUS IS DEFAULT RECORD

THIRD NUMBER ACCEPTANCE INDICATION IS ALLOW 3RD NUMBER BILLING

TREATMENT INDICATION IS AUTOMATED - TONE

SERVICE OR EQUIPMENT IS TELCO PUBLIC COIN - CDF

INTERCEPT INDICATION IS NOT INTERCEPTED

INTERLATA CARRIER IS 000

BILLING NUMBER IS 9198795606
```

Figure 12.5 Example of a BNS Query Using the Command TESTSS ACCS

By entering the command:

```
TESTSS CCV 6132391111 02122201111 1234 9198795606
```

the response is:

```
RAO IS 132

PIN IS UNRESTRICTED

CARRIER INDICATORS ARE NO PREFERRED CARRIER
```

Figure 12.6 Example of a CCV Query Using the Command TESTSS CCV

Responses:

ACG IS DUE TO: reason

Explanation: Automatic call gapping has been applied to this called-party address. The reason for ACG is included in the response.

Where:

reason is one of the following:

CALLER OUT OF BAND
DATABASE OVERLOAD
MASS CALLING OF DESTINATION
SMS INITIATION
VACANT CODE

SCP database.

ACG IS DUE TO: UNKNOWN CAUSE
CAUSE CODE IS: nnn

Explanation: Automatic Call Gapping has been applied to this Called Party address. The database was unable to determine why ACG was applied. This is an error condition.

Where:

nnn is the cause code

Value: 6 to 255

System Action: SCCP received an error indicator code from the SCP database that was out of range for valid causes.

User Action: Re-try the query.

AGC IS IN EFFECT FOR THAT NUMBER
QUERY BLOCKED

Explanation: Call gapping is in effect for that number or a range of numbers that include the queried number.

User Action: Wait for 30 seconds then re-enter the query.

ACG SHOULD BE INITIATED FOR duration

Explanation: The SCP database is advising that ACG should be applied for the time duration given.

Where:

duration is the time duration.

Value:

1, 2, 4, 8, 16, 32, 64, 128, 256, 512, 1024, or 2048 SECONDS
or
INDEFINITELY

ACG SHOULD BE INITIATED FOR AN UNKNOWN DURATION

Explanation: SCCP received an unknown ACG duration code from the SCP database.

User Action: Try the query again, or check with the SCP database.

ACG SHOULD HAVE A GAP LENGTH OF nnn SECONDS

Explanation: The gap between calls to the SCP database is shown.

Where:

nnn is the time duration

Value: 0, 3, 4, 6, 8, 11, 16, 22, 30, 42, 58, 81, 112, 156, 217, or 300

ACG SHOULD HAVE A GAP LENGTH OF UNKNOWN LENGTH.

Explanation: SCCP received an unknown ACG gap code from the SCP database.

User Action: Try the query again.

AN ERROR IS RECOGNIZED IN THE TCAP DECODING FACILITIES

Explanation: The received message contained an error. It was detected by TCAP and rejected the message.

User Action: Try the query again.

ANOTHER VERIFICATION PROCESS IS CURRENTLY RUNNING.
MULTIPLE QUERIES ARE NOT ALLOWED.

Explanation: Only one verification query is allowed at the office at any one time.

User Action: Wait until the current query has completed (maximum wait is 255 seconds), then re-try the command using the same query.

AUTOMATIC CALL GAPPING IS IN EFFECT FOR THAT NUMBER
QUERY BLOCKED

Explanation: Call gapping is in effect for that number or a range of numbers.

User Action: Wait for a short period, then re-try the command using the same query.

BILLING NUMBER INVALID

Explanation: The billing number, input as part of the command, was not recognizable by the system.

User Action: Re-enter the command using a correct billing number.

BILLING NUMBER IS WRONG LENGTH
NEED NPANXXXXXX (10 DIGITS)

Explanation: The system only recognizes a billing number of 10 digits.

User Action: Re-enter the command using a correct billing number.

BILLING NUMBER IS nn

Explanation: The SCP database has replied to the query with the billing number.

Where:

nn is the billing number.

CALLED NUMBER INVALID

Explanation: Part of the 800 number used was non-numeric. Either a letter or a control character was included.

User Action: Verify the number and re-try the command using a valid number.

CALLED NUMBER IS WRONG LENGTH
NEED 800NXXXXXX

Explanation: An 800 number must be 10 digits including 800.

User Action: Verify the number and re-try the command using a valid number.

CALLED NUMBER MUST START WITH 800

Explanation: The number as entered did not start with 800.

User Action: Re-try the command using a correct number.

CALLING NUMBER INVALID

Explanation: Part of the calling number was non-numeric. Either a letter or a control character was used as part of the calling number.

User Action: Re-try the command using a correct number.

CALLING NUMBER IS WRONG LENGTH
NEED NPANXXXXXX (10 DIGITS)

Explanation: The calling number (ANI digits) is of incorrect length. It must have 10 digits.

User Action: Re-try the command using a correct number.

CALL WOULD BE ROUTED TO announce ANNOUNCEMENT

Explanation: A correct call, if made with the selected parameters, would be routed to the identified announcement.

Where:

announce is one of the following:

BUSY
DISCONNECTED NUMBER
NO CIRCUIT AVAILABLE
OUT OF BAND
REORDER
VACANT CODE

CALL WOULD BE ROUTED TO announce SPECIAL ANNOUNCEMENT

Explanation: The call would be routed to the appropriate announcement.

Where:

announce is one of the following:

CHANGED NUMBER ANNOUNCEMENT # 1
CHANGED NUMBER ANNOUNCEMENT # 2

CALL WOULD BE ROUTED TO announce SPECIAL ROUTE

Explanation: The call would be routed to the appropriate announcement.

Where:

announce is one of the following:

VALID 800 - OUT OF ZONE SUBSCRIBER
US ASSIGNED NUMBER
TRANSITION 800 NUMBER

CALL WOULD BE ROUTED TO AN UNKNOWN ANNOUNCEMENT
UNKNOWN ANNOUNCEMENT CODE IS nn

Explanation: The SCP data base sent an unidentified announcement code to SCCP. SCCP is unable to display a cause of why the call would not be completed.

Where:

nn is a number within the range 8 to 255

User Action: This is an error message, re-try the command using the same query data.

CALL WOULD BE ROUTED TO AN UNKNOWN SPECIAL ANNOUNCEMENT
SPECIAL ANNOUNCEMENT CODE IS nn

Explanation: The SCP data base sent an unidentified announcement code to the SCCP. The SCCP displays the special announcement it received instead of an announcement.

Where:

nn is a number within the range 8 to 255

User Action: This is an error message, re-try the command using the same query data.

CALL WOULD BE ROUTED TO AN UNKNOWN SPECIAL ROUTE
SPECIAL ROUTE CODE IS nn

Explanation: The SCP data base sent an unidentifiable special route code to the SCCP. The SCCP displays the special route code it received instead of a special route message.

Where:

nn is a number within the range 8 to 255

User Action: This is an error message, re-try the command using the same query data.

CALLING CARD SERVICE DENIAL IS announce

Explanation: The call would be denied with the reason given.

Where:

announce is one of the following:

NO PINS ASSIGNED
NO SERVICE DENIAL
SERVICE DENIAL PIN HUNTING

CALLING CARD SERVICE DENIAL IS OF UNKNOWN TYPE
UNKNOWN CALLING CARD SERVICE DENIAL IS nn

Explanation: TCAP was unable to identify the code from the subsystem.

Where:

nn. is the code received

User Action: This is an error message, re-try the command using the same data.

CANT ALLOCATE MAILBOX - QUERY ABORTS

Explanation: The mailbox system within the switch is either fully loaded, or has become corrupted.

User Action: Check logs to determine the cause for the failure.

CANT CREATE MAILBOX POOL - QUERY ABORTS

Explanation: The mailbox system within the switch is either fully loaded, or has become corrupted.

User Action: Check logs to determine the cause for the failure.

CARRIERS INDICATORS ARE NO PREFERRED CARRIER

Explanation: A carrier has not been defined for this call.

CCAN SERVICE DENIAL INDICATION IS announce

Explanation: The calling card account number (CCAN) is returned for CCV queries.

Where:

announce is one of the following:

NO PIN ASSIGNED
NO SERVICE DENIAL
SERVICE DENIAL ON THE CCAN

CCSAN is nn

Explanation: The SCP database has identified the Calling Card Subaccount Number (CCSAN) and replied by returning the number to the switch. The switch repeats the number on the MAP display.

Where:

nn is a number within the range 1 - 20

COLLECT ACCEPTANCE INDICATION IS announce

Explanation: The SCP database has identified the query, and is replying with the acceptance status.

Where:

announce is the acceptance status. This status is one of the following:

ACCEPT ALL COLLECT CALLS
ACCEPT ALL COLLECT CALLS; REJECT INTERLATA
ACCEPT ALL COLLECT CALLS; VER INTERLATA
ALLOW NO COLLECT CALLS
ALLOW NO COLLECT CALLS AT CUST REQUEST
NIL COLLECT ACCEPTANCE
VERIFY ALL COLLECT CALLS

COMPONENT nn IS OF INVALID TYPE xx

Explanation: The SCP database has sent an invalid component code to the SCCP. The SCCP treats this component code as an incomplete message, and sends this message to the display.

Where:

nn is the component code sent by the SCP database

xx is the component type code expected by SCCP

User Action: This is an error message, re-try the command using the same parameters.

DIGITS NOT ENCODED PROPERLY. ENCODING TYPE IS : nn

Explanation: The SCP database is unable to decode the message from SCCP.

Where:

nn is the encoding type code received

User Action: This is an error message, repeat the command.

ERROR COMPONENT RECEIVED. ERROR IS announce

Explanation: The SCP database received enough of the query from the SCCP to respond with an error message. The most common error is MISSING CUSTOMER RECORD, meaning that the SCP database cannot not identify the queried number. All calls receiving this message are sent to reorder treatment.

Where:

announce is one of the following:

DATA UNAVAILABLE
MISSING CUSTOMER RECORD
REPLY OVERDUE
UNAVAILABLE NETWORK RESOURCE
UNEXPECTED COMPONENT SEQUENCE
UNEXPECTED DATA VALUE

ERROR COMPONENT RECEIVED. ERROR IS UNKNOWN TYPE.
ERROR CODE IS nn

Explanation: The SCP database received enough of the query from the SCCP to respond with an error message. The SCCP is unable to determine the reason for the

error message.

Where:

nn is the code received from the SCP database

User Action: This is an error message, repeat the command.

ERROR IS PART OF PRIVATE TCAP
BYTE ONE OF ERROR IS nn

Explanation: The SCP database is not allowed to send error components that are part of private TCAP. The SCCP does not try to decode this message.

EXCESS NUMBER OF PARAMETERS

Explanation: More parameters were included in the response from the SCP database than should be.

User Action: Re-enter the command using the same data.

EXPECTED AN INTERNATIONAL NUMBER
DIGITS WILL FOLLOW ANYWAY

Explanation: The SCP database expected an international dialing number.

User Action: Verify the calling party number, and re-enter the command with corrections if necessary.

FIRST COMPONENT IS NOT NATIONAL TCAP

Explanation: The first component of the response message is part of private TCAP, and the only correct component is national TCAP.

User Action: Verify the input parameters and re-enter the command.

INSUFFICIENT NUMBER OF PARAMETERS

Explanation: There were not sufficient parameters in the response from the SCP database.

User Action: Re-enter the command using the same data.

INTERCEPT INDICATION IS announce

Explanation: is the type of intercept indication that applies to this query.

Where:

announce is one of the following types of intercept indication:

BEING CHANGED
CHANGED TO NONPUBLISHED NUMBER
CHANGED WITH REFERRAL
DISCONNECTED WITHOUT REFERRAL
MAY NOT YET BE CONNECTED
NIL
NOT INTERCEPTED
NOT IN SERVICE
SPECIAL INTERCEPT TREATMENT REQUIRED
TEMPORARILY CONNECTED
TEMPORARILY DISCONNECTED BY CUSTOMER
TEMPORARILY DISCONNECTED WITH REFERRAL
TEMPORARILY REMOVED FROM SERVICE
VACANT NUMBER

INTERNATIONAL DIGITS ENCODED INCORRECTLY
ENCODING TYPE CODE IS: nn

Explanation: The digits are not encoded in a format that the SCP database can read, or the encoding message is incorrect.

Where:

nn is the encoding type code received by the SCP database

User Action: Re-enter the command using the same data.

LATA NUMBER INVALID

Explanation: The LATA number input as a parameter was incorrect.

User Action: Re-enter the command using a correct LATA number.

NO RESPONSE FROM DATABASE WITHIN TIMEOUT OF xx SECONDS

Explanation: A response was not received from the SCP data base within the timeout period.

Where:

xx is the time period in seconds

User Action: Verify that the timeout level is suitable.

NOTE: ACG HAS NOT BEEN INITIATED

Explanation: Reminds the user that the verification query will respond to, but not initiate or terminate automatic call gapping. There may be some impact on call processing.

NOTE: NO TERMINATION DATA WILL BE SENT TO THE DATABASE

Explanation: Reminds the user that the verification feature does not send termination data to the database, because it is not a real phone call.

NUMBERING PLAN IS INCORRECT
NUMBERING PLAN CODE IS: nn

Explanation: All numbers must have the telephony numbering plan, with the exception of the carrier number, which must have an unknown numbering plan. Any other combination results in this message.

Where:

nn is the numbering plan received by the SCP database

User Action: Verify the parameters with the command, and re-enter the command.

PARAMETER IS OF UNKNOWN TYPE - UNABLE TO DECODE
PARAMETER CODE IS: nn

Explanation: A parameter has been used, whose type is unknown to the SCCP (as opposed to a known type that was in an unexpected sequence). The response has probably been corrupted in some way.

Where:

nn is the parameter code received by the SCCP

User Action: Re-enter the command using the same data.

PARAMETER SHOULD HAVE BEEN announce

Explanation: The response from the SCP database included an incorrect parameter, the response identi-

fies the incorrect response.

Where:

announce is one of the following:

ACG
ACG DIALED DIGITS
ANI NUMBER
ANNOUNCEMENT
BILLING NUMBER
CALL INTERACTION DIGITS
CARRIER NUMBER
DESTINATION NUMBER
DIALED NUMBER OR ACG RANGE
ECHO DATA REQUEST
INTERNATIONAL ROUTING NUMBER
LATA NUMBER
ROUTING NUMBER

System Action: The verification query continues to decode the remainder of the parameters that had an incorrect parameter.

PARAMETER SHOULD HAVE BEEN OF UNKNOWN TYPE
DIGIT TYPE CODE IS nn

Explanation: The SCP database has received an incorrect parameter. Its response shows that it did not recognize the parameter.

Where:

nn is the digit type code received by the SCP database

System Action: This is an error message, re-enter the command.

PIN INVALID

Explanation: The PIN was in an invalid format (for example, non-numeric).

System Action: System rejected the command.

User Action: Repeat the command using a correct PIN.

PIN IS access

Explanation: This is the status of the PIN.

0 Where:

0 access is either RESTRICTED or UNRESTRICTED

0 PIN IS OF UNKNOWN TYPE
0 UNKNOWN PIN TYPE IS nnn

0 Explanation: The PIN input as part of the command was
0 in the correct format, but was not recognizable by the
0 system.

0 Where:

0 nnn is the PIN entered as part of the command.

0 User Action: Verify the PIN, re-enter the command
0 using a valid PIN.

0 PIN RESTRICTION INDICATION IS NIL

0 Explanation: The personal identification number cannot
0 be restricted.

0 PIN SERVICE DENIAL IS reason

0 Explanation: There is no service to this PIN. The
0 reason for the denial is given.

0 Where:

0 reason is one of the following:

0 NIL
0 NO SERVICE DENIAL
0 SERVICE DENIAL DUE TO THRESHOLD EXCEEDED
0 SERVICE DENIAL DUE TO NON PAYMENT

0 PIN SERVICE DENIAL IS OF UNKNOWN TYPE
0 UNKNOWN PIN SERVICE DENIAL IS nnn

0 Explanation: The PIN Service Denial code received by
0 the switch does not have a reason attached to it.

0 Where:

0 nnn is the PIN Service Denial code

0 User Action: This is an error condition. Re-enter the
0 command using the same data.

0 PRIVATE COMPONENT nn IS OF UNEXPECTED TYPE yy

Explanation: A component has been received that is correct for a private TCAP, but not correct for the data input.

Where:

nn is the private component received

yy is the component type received.

User Action: Repeat the query, and or verify that the SCP data base is correct.

PRIVATE PARAMETER IS OF UNKNOWN TYPE
PARAMETER TYPE CODE IS: nn

Explanation: A parameter has been received that is part of private TCAP, but is not identified by the switch.

User Action: Repeat the query, and or verify that the SCP data base is correct.

PROBLEM WITH MAILBOX - QUERY ABORTS

Explanation: The DMS-100 Mailbox system is either fully loaded, or has been corrupted.

User Action: Check log reports to determine the cause of the error.

PROBLEM WITH MUTUAL EXCLUSION SEMAPHORE
QUERY ABORTS

Explanation: The semaphore system has been corrupted.

User Action: Check log reports for cause of failure.

RAO IS nnn

Explanation: The code of the revenue accounting office is identified. It handles the billing of a call to that calling number.

Where:

nnn is the RAO identification code.

RAO revenue accounting office

RECEIVED BAD PARAMETER

Explanation: The received message contains a parameter

that has been assembled incorrectly.

User Action: Re-enter the query.

RECORD STATUS INDICATOR IS announce

Explanation: A record status indicator is returned for CCV and BNS queries.

Where:

announce is one of the following:

NIL STATUS
DEFAULT RECORD
TRANSITIONAL RECORD
STABLE RECORD

SEMAPHORE DID NOT RETURN PROPERLY
VERIFICATION QUERIES MAY BE BLOCKED FOR 5 MINUTES

Explanation: The semaphore system in the DMS-100 has failed.

System Action: The system waits for the semaphore to time out, which can take up to 5 minutes.

User Action: Wait 5 minutes then re-enter the command. Also check the log reports to see if the cause of the error has been reported.

SERVICE OR EQUIPMENT IS type

Explanation: Identifies the type of service or equipment that the billed number is using.

Where:

type is a description of the service or equipment. It is one of the following:

CENTREX LINE
CUSTOMER CARD READER 1
CUSTOMER CARD READER 2
CUSTOMER COIN
CUSTOMER COINLESS
DORMITORY LINE
HOTEL/MOTEL GUEST LINE
INTERLATA CARD READER 1
INTERLATA CARD READER 2
INTERLATA PUBLIC COIN
INTERLATA PUBLIC COIN - CCF
INTERLATA PUBLIC COIN - POSTPAY

INTERLATA PUBLIC COINLESS
INTERLATA SEMI PUBLIC COIN - CDF
NIL SERVICE
OTHER 1
OTHER 2
OTHER 3
OTHER 4
PBX LINE WITH AIOD
PBX LINE WITHOUT AIOD
POTS LINE
PREPAY - CDF
PUBLIC COINLESS
SEMI-PUBLIC COIN CCF
SEMI-PUBLIC COIN CDF
SEMI-PUBLIC COIN POSTPAY
TELCO CARD READER 1
TELCO CARD READER 2
TELCO PUBLIC COIN - CCF
TELCO PUBLIC COIN - CDF
TELCO PUBLIC COIN - POSTPAY

THE BNS SYSTEM IS NOT IN SERVICE.
LOCAL APPLICATION QUERIES ARE NOT POSSIBLE.

Explanation: This system is out of service for some reason.

User Action: Attempt to return the system to service, then re-try the command.

THE CCV SYSTEM IS NOT IN SERVICE.
LOCAL APPLICATION QUERIES ARE NOT POSSIBLE.

Explanation: The ACCS subsystem has been removed from service.

User Action: Verify the status of the ACCS subsystem, and return it to service if possible. When the ACCS subsystem has been returned to service, re-enter the command.

THE DIGITS ARE nn

Explanation: This message is part of a correct response, it identifies the digits received.

Where:

nn are the digits received

THE FOLLOWING IS CALL GAPPING INFORMATION

Explanation: This is the message that precedes the call gapping information.

THE PARAMETER IS NOT A PRIVATE TCAP TYPE

Explanation: The parameter of the received message is not coded as private TCAP.

User Action: Re-try the query.

THE RESPONSE FROM THE DATABASE TOOK
nn MINUTES, nn SECONDS, nn MILLISECONDS

Explanation: This message is displayed above all messages that are displayed as a result of a response from a database. Note that this is the time from query to response; the figures in this message may be large during heavy traffic.

Where:

nn is the number of minutes, seconds, or milliseconds

THE 800 SYSTEM IS NOT IN SERVICE.
VERIFICATION QUERIES ARE NOT POSSIBLE.

Explanation: The local 800 system is currently out of service.

User Action: Return the subsystem to service, then re-enter the query.

THIS CALL WOULD BE ROUTED TO REORDER TREATMENT

Explanation: Appears below all database responses where a call that produced the same response is routed to reorder treatment.

THIRD NUMBER ACCEPTANCE INDICATION IS accept

Explanation: The SCP database has recognized the query and has responded with the status of the third number acceptance indication.

Where:

accept is one of the following statuses of the third number acceptance indication:

ALLOW INTRALATA 3RD NUMBERS
ALLOW NO 3RD NUMBERS AT CUST REQUEST
ALLOW NO 3RD NUMBER BILLING

ALLOW 3RD NUMBER BILLING
NIL ACCEPTANCE
VERIFY 3RD NUMBER

TREATMENT INDICATION IS announce

Explanation: Describes the type of treatment that is available for the query.

Where:

announce is one of the following statuses of the treatment indication:

NIL
AUTOMATED - TONE
AUTOMATED - TONE + ANNOUNCEMENT
OPERATOR HANDLING - STATION LIMITATIONS
OPERATOR HANDLING - CUSTOMER REQUEST
SPECIAL TREATMENT - HANDICAPPED 1
SPECIAL TREATMENT - HANDICAPPED 2

UNABLE TO DECODE RESPONSE FROM DATABASE.

Explanation: This message is displayed when the SCCP is unable to decode any part of the data base response.

User Action: Re-enter the query.

UNABLE TO FORMAT SCP ADDRESS FOR SCP QUERY
QUERY ABORTS

Explanation: The query was unable to format the address of the SCP node for the data base query.

User Action: Verify that the datafill or the input data is correct, rectify, then re-enter the query.

UNABLE TO SEND MESSAGE THROUGH TCAP

Explanation: The message was blocked in the TCAP level during encoding.

User Action: Check the log reports to determine the cause of the error.

UNEXPECTED ANNOUNCEMENT OPERATION CODE IS nn

Explanation: A standard announcement has been received from the database. The announcements used in 800 service are part of private TCAP only.

Where:

nn is the operation code received from the SCP database

User Action: Check with the SCP database.

UNEXPECTED COMPONENT TYPE IS nn

Explanation: The component in the SCP database reply is not correct for the SCCP.

Where:

nn is the component code received from the SCP database

User Action: Re-enter the command using the same data.

UNEXPECTED CONNECTION OPERATION CODE IS nn

Explanation: The connection code in the invoke component is an unknown type for the SCCP.

Where:

nn is the operation code received from the SCP database

User Action: Re-enter the command using the same data.

UNEXPECTED DIGIT TYPE FOR INTERNATIONAL NUMBER
DIGIT TYPE CODE IS: nn

Explanation: International numbers must be routing number digits only. Any other digit type is rejected by the switch. The call would be routed to reorder treatment.

Where:

nn is the digit type code received by SCCP

User Action: Re-enter the command using the same data.

UNEXPECTED INVOKE FAMILY IS nn

Explanation: The invoke component received from the database is not correct for the SCCP.

Where:

nn is the invoke family received from the SCP database

User Action: Re-enter the command using the same data.

UNEXPECTED NATIONAL COMPONENT IS nn

Explanation: The component received from the database is part of national TCAP, but is not correct for the SCCP.

Where:

nn is the national component received from the SCP database

User Action: Re-enter the command using the same data.

UNEXPECTED NETWORK MANAGEMENT OPERATION CODE IS nn

Explanation: Part of the ACG component is invalid. The only valid network management operation code in an SCP response is connection control. The call would be routed to reorder treatment.

Where:

nn is the network operation code received from the SCP database

User Action: Re-enter the command using the same data.

UNEXPECTED PRIVATE COMPONENT IS nn

Explanation: The component received from the SCP database is part of private TCAP, but it is not correct for the SCCP.

Where:

nn is the private component received from the SCP database

User Action: Re-enter the command using the same data.

UNEXPECTED RETURN CODE FROM ACG CHECK

Explanation: The test for ACG has returned a code that was invalid.

0 System Action: Query is aborted.

0 User Action: Check log reports to determine the cause
0 of the error.

0 WRONG NUMBER OF BILLING INDICATORS

0 Explanation: An incorrect number of billing indicators
0 has been received in the response from the SCP data-
0 base.

0 User Action: Re-enter the command using the same data.

TRANTST

The command TRANTST conducts a test to verify that a particular global title translates to a correct network address.

TRANTST	g_title_id g_title

Where:

g_title_id is the global title identifier that is listed in system table C7GTTYPE.

g_title is the global title.

Responses:

RESULT IS PC ONLY
PC ONLY IS: pc_clli

Explanation: Command parameters included the subsystem. The subsystem is ignored and only the point code CLLI is identified.

Where:

pc_clli is the point code CLLI

RESULT IS PC AND SS:
PC VALUE: pc_clli
SS: subsystem

Explanation: There is a point code and subsystem identified in system tables.

Where:

pc_clli is the point code CLLI

subsystem is the subsystem name

RESULT IS SS ONLY
SUBSYSTEM: subsystem

Explanation: There is only a subsystem available at this point code.

0 Where:

0 subsystem is the subsystem name

0

CHAPTER 13

SEAS MAP LEVEL

0

0 PRACTICE 297-1001-531
0 VINTAGE 06.01

GENERAL

The maintenance that the system automatically provides for the signaling engineering and administration system (SEAS) includes:

* logs generated whenever maintenance actions change the state of a SEAS (described in SEASlog.)

* alarms generated whenever maintenance action is required (described in SEAS Alarms for Changes of States)

* data tables for changing office configurations (described in System Data Tables for SEAS on page 13-6)

* interfaces to other parts of the CCS7 and ISDN systems, for example, the user application layer (UAL) and user program layer (UPL) (described in User Application and User Program Layers for SEAS on page 13-2)

* a hierarchy of menus at a MAP for monitoring or maintaining SEAS (described in SEAS-Level Commands and Responses on page 13-9)

LOGGING ACTIONS OF SEAS

The following SEAS logs are generated whenever a SEAS has a change of state caused by manual or automatic maintenance action:

SEAS101 identifies the MPC to which the PVC is connected and indicates the progress of the SEAS UAL-level initialization.

SEAS102 indicates a failure to transmit a segment of a message to the other end (SEAC), even after the transmission has been re-attempted the preset number of times.

SEAS103 indicates a problem with accessing a file when attempting to close the file with message block index 7; a return code indicates an attempt to close a file that was already closed.

SEAS104 records each change of state that occurs to a SEAS.

The maintenance actions can be manually done by entering commands at a MAP or done by the system.

0 SEAS ALARMS FOR CHANGES OF STATES

0 Maintenance actions that cause a change of state to a SEAS are 0 flagged by the following minor SEAS alarms.

0 SSMB indicates a SEAS is manually busy, that is, out of service 0 in the ManB state.

0 SSSB indicates a SEAS is system busy, that is, out of service 0 in the SysB state.

0 SSTR indicates a SEAS has in-service trouble, that is, is in 0 service in the ISTb state.

0 The actions can be manually done by entering commands at a MAP or 0 done by the system. The alarms are shown at the top of all of 0 the CCS7-level status displays (see line numbers 1 and 2 of Fig- 0 ure 2.2 on page 2-2) Only one alarm appears at a time.

0 USER APPLICATION AND USER PROGRAM LAYERS FOR SEAS

0 With feature package NTX835AA, the user application layer (UAL) 0 interfaces to SEAS and the user program layer (UPL) interfaces to 0 STP's SEAS application support. The combination of both inter- 0 faces is the application layer that is synonymous with the trans- 0 port layer of the OSI communications protocol model. (For 0 information on the OSI model, see 297-1001-141.)

0 The interfaces use the following databases to support its appli- 0 cation processes:

0 a data collection database
0 a network configuration record base
0 a recent-change-and-verification data base

0 Other databases are used for SEAS applications that require spe- 0 cific types of processing.

0 SEAS Protocol

0 The SEAS and STP interface protocol consists of five layers. The 0 UAL layer provides services for the application messages. The 0 STP uses the Bell system BX.25 standard throughout the packet 0 layer (level 3) for the transport service. UAL protocol also 0 supports the DTE-to-DTE and the DTE-to-DCE interfaces supported 0 by CCITT's X.25. This allows the use of either dedicated high 0 speed data links or packet-switched data networks in SEAS and STP 0 communication.

0 Together, the UAL and UPL interface provides:

* interface to multi-protocol controllers (MPCs) with BX.25 links

* link configuration management

* synchronized communication with the far end, including the initialization and reinitialization of a link after its failure

* construction of the UAL-level message header that is used in the UAL/UAL level of the SEAS/STP message protocol

* routes for outgoing messages

* the saving of outgoing messages while the STP-to-SEAS links are out of service

* retrieval of outgoing messages when the links are returned to service

* the receiving of messages from the SEAC and handling them or transfering them to the application (UPL) layer

* management of message blocks used in the UAL-to-UPL message transfer

Using an MPC

An MPC card is mounted in an IOC shelf as an I/O device driver. Each MPC card supports four links, two of which are useable for interfacing to the STP (links 2 and 3). Layer two and three are supported by the MPC's downloaded software. It is recommended that two MPCs support one link each as a precaution against losing both links if the one card fails. The downloading and the return to service of an MPC occurs at the IOC level of a MAP. For information on the maintenance of MPCs, see 297-1001-513.

The setup for using an MPC with a SEAC is shown in Figure 13.1 on page 13-4.

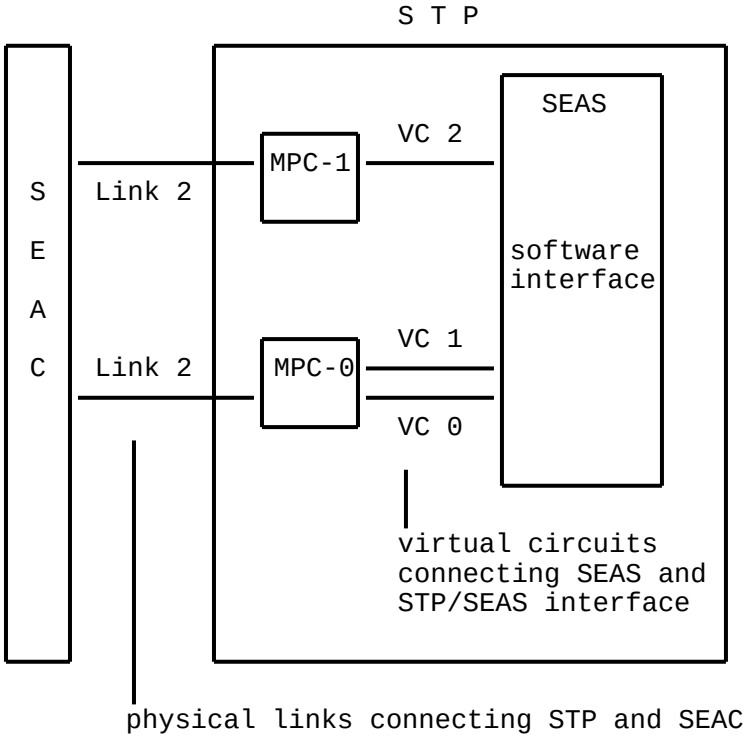


Figure 13.1 SEAC to STP Physical Interface Using an MPC

System Tables Associated with an MPC

The system tables that are used with MPCs are:

- MPC
- X25LINK
- SEASMPC

Table MPC datafills the MPC as a "slot and circuit" in the IOC and defines the link types (protocol types) that are supported by the MPC card.

Table X25LINK defines the quantity of logical channels per physical link.

Table SEASMPC defines the mapping of the logical virtual circuits onto the physical resource (the MPC and links). See System Data Tables for SEAS on page 13-6.

System Interactions with Disks and Files

The data storage for the incoming and outgoing messages is located in the DMS disk system. The disk volumes used by SEAS function are:

- message block volume (named disk_id_SEASBK)
- buffer volume (named disk_id_SEASBF)

The volumes must be created manually on a disk for STP whenever the SEAS system is installed. The above names are the defaults used by the SEAS system, however, they can be changed. For information on the office parameters associated with volumes, see System Data Tables for SEAS on page 13-6.

Message Block Volume

The message block volume contains the files used for the individual messages incoming and outgoing to the SEAC. Various situations affect the required size of this volume, described as follows:

* the SEAC sending messages in as fast as it can and some autonomous messages being generated require a maximum of 100 message blocks

* the SEAC sending a large number of very large messages requires 396K

* a very large incoming or outgoing message with only one in-service PVC causes a congestion of messages in the SEAS system

According to these possible situations and allowing for very large messages with a maximum size of 39.6 megabits (396K x 100), which is greater than the 32000 (32 megabits) records accommodated by a disk volume, it is recommended that the message block volume be created at this maximum size, although it is never expected to be reached during normal operation of the system. See the description of the OFCENG parameters in System Data Tables for SEAS on page 13-6.

The actual number of message block files which can reside on a disk is set by parameter SEAS_MSG_BLK_NUM of table OFCENG with a default of 100 blocks. If the system runs out of message blocks, log SEAS102 records it with NO MSG BUFFERS. To increase the quantity of message blocks, the SEAS system must be made offline (OffL state) before changing the value of the office parameter. Any incoming or outgoing SEAS message that generates the log is lost.

0 Buffer Volume

0 The SEAS buffer volume is defined by parameter SEAS_BUFFER_VOL of 0 of table OFCENG. The SEAS buffer volume on the disk contains 0 different files used for the following:

0 SEASBUFF for the buffering of the outgoing messages when the 0 links to the SEAC are out of service.

0 SZDELACT and SZDELAC2 for storing the commands for activation at 0 later time.

0 SZ30MIN00?? for storing the OM history of information.

0 The sizes of these files are as follows:

0 SEASBUFF up to 100 messages at up to 396 kilobits each for a 0 total of 39.6 megabits.

0 SZDELACT and SZDELAC2 up to 100 stored messages, 250 bits and 400 0 bits for each record for a total of about 65 kilobits 0 of storage

0 SZ30MIN00?? a total of 2.2 megabits required for all the files 0 combined

0 It is recommended that the buffer volume be allocated the maximum 0 of 32000 blocks when the system is installed, although it is 0 never expected to be reached during normal operation of the sys- 0 tem.

0 SYSTEM DATA TABLES FOR SEAS

0 The system data tables that must be edited for the SEAS/UAL 0 interface are:

0 SEASMPC (after table X25LINK)
0 OFCENG

0 Changes to the parameters of table OFCENG for the SEAS/UAL inter- 0 face are effective immediately.

0 Table SEASMPC

0 Table SEASMPC assigns the type of channel and the channel and 0 link setup between specific MPCs and PVCs.

Table OFCENG

The following parameters of table OFCENG are used for the SEAS/UAL interface:

- SEAS_BUFFER_VOL
- SEAS_MSG_BLK_NUM
- SEAS_MSG_BLK_VOL
- SEAS_SEG_SIZE
- SEAS_UAL_RETRY_COUNT
- SEAS_UAL_SEAC_NODE_NAME
- SEAS_UAL_SITE_TO_SITE_TIMER
- SEAS_UAL_STP_NODE_NAME

The descriptions of the function of the parameters are as follows.

Parameter SEAS_BUFFER_VOL

Parameter SEAS_BUFFER_VOL defines the volume name of the disk on which the buffer file is to be stored for outgoing messages when the SEAS links are not operational.

Parameter SEAS_MSG_BLK_NUM

Parameter SEAS_MSG_BLK_NUM defines the quantity of message blocks to be made available for SEAS applications. The default is 100.

Parameter SEAS_MSG_BLK_VOL

Parameter SEAS_MSG_BLK_VOL defines the volume name of the disk on which the message blocks are to allocate physical store.

Parameter SEAS_SEG_SIZE

Parameter SEAS_SEG_SIZE defines the size of the message segment to be used to split long messages into shorter segments. The default is 2048.

Parameter SEAS_UAL_RETRY_COUNT

Parameter SEAS_UAL_RETRY_COUNT defines the quantity of retries to be attempted for each message transmitted between the SEAS and the DMS-STP nodes. The default is 1.

Parameter SEAS_UAL_SEAC_NODE_NAME

Parameter SEAS_UAL_SEAC_NODE_NAME defines the node field header of the destination for outgoing messages. The value must be 12 upper case alphanumeric non-symbolic characters, always beginning with an upper case E to identify the system element as a SEAC.

0 Parameter SEAS_UAL_SITE_TO_SITE_TIMER

0 Parameter SEAS_UAL_SITE_TO_SITE_TIMER defines the timeout for the
0 handshake acknowledgement between the SEAS and the DMS-STP nodes.
0 The default is 15.

0 Parameter SEAS_UAL_STP_NODE_NAME

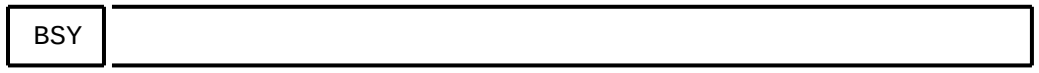
0 Parameter SEAS_UAL_STP_NODE_NAME defines the node field header of
0 the origination of outgoing messages. The value must be 12 upper
0 case alphanumeric non-symbolic characters, always beginning with
0 an upper case T to identify the system element as an STP.

SEAS-LEVEL COMMANDS AND RESPONSES

The following commands and responses are available at the signaling engineering and administration system (SEAS) level of the MAP when the command SEAS is entered at the CCS7 level. The commands listed on the SEAS menu are described alphabetically. Responses to each command are also listed alphabetically.

BSY

The command BSY sets the SEAS access to the manually busy state (ManB) and generates a log and a message to the signaling engineering and administration center (SEAC) informing it of the change of state.



Responses:

BSY FAILED

Explanation: The SEAS was unable to to enter the manual busy state.

User Action: Verify that SEAS is in one of the following states, then re-enter the command.

- InSv
- ISTb
- Offl
- SysB

BSY PASSED

Explanation: The SEAS is placed in the manual busy state.

System Action: The status display for the SEAS changes to ManB.

ERROR -- INVALID STATE CHANGE REQUEST

Explanation: The SEAS could not execute the state change request because SEAS is in an invalid state.

User Action: Verify that SEAS is in one of the following states, then re-enter the command.

- InSv
- ISTb
- Offl
- SysB

THIS COMMAND MAY TAKE UP TO 5 MINUTES

Explanation: A warning to the user that the command

could take up to 5 minutes to complete the command. This response is displayed immediately after the command is entered.

Usage Note:

Log SEAS104 records that a SEAS is manually busied, that is, changes to the ManB state.

OFFL

The command OFFL removes the SEAS from system maintenance, to allow office data modifications for the SEAS. An offline SEAS cannot cause an alarm.

OFFL	

Responses:

ERROR -- INVALID STATE CHANGE REQUEST

Explanation: The SEAS cannot execute the state change request because SEAS is in an invalid state.

User Action: Verify that SEAS is in the manual busy state, then re-enter the command. The SEAS may already be in the offline state (displayed as OffL).

THIS COMMAND MAY TAKE UP TO 5 MINUTES

Explanation: A warning to the user that the command could take up to five minutes to complete the command. This response is displayed immediately after the command is accepted.

OFFL FAILED

Explanation: SEAS is unable to execute the command. One possibility is that SEAS was already in the offline state.

OFFL PASSED

Explanation: The SEAS is made offline.

System Action: The status display changes to OffL.

Usage Note:

Log SEAS104 records that a SEAS is made offline, that is, changes to the OffL state.

0 PVC

The command PVC accesses the PVC level of the MAP and displays the headings and commands that are available for monitoring and maintaining PVCs.

0 Responses:

```
SEAS                Msg Blk Vol            Buffer Volume
Offl           D000SEASBK   UnAvail  D000SEASBF  UnAvail

PVCs    Offl    ManB     RMB     SysB     InSv     INI
 8       2       1        0       0        4        1
```

0 Explanation: The system responds with a display showing the availability of the message block volume and the buffer volume, and the number of PVCs at this office. The display also lists the states of the PVCs.

The PVC commands are described in PVC-Level Menu Commands and Responses on page 14-1.

QUERYFLT

The command QUERYFLT displays information about faults on a posted SEAS.

Responses:

NO ERRORS HAVE BEEN DETECTED

Explanation: The SEAS system is fully operational.

THE BUFFER BLOCK VOLUME IS NOT AVAILABLE

Explanation: The buffer block volume is not responding to SEAS requests.

User Action: Check the input/output system using the IOC MAP level (see 297-1001-513).

THE MESSAGE BLOCK VOLUME IS NOT AVAILABLE

Explanation: The message block volume is not responding to SEAS requests.

User Action: Check the input/output system using the IOC MAP level (see 297-1001-513).

THE MPC IS NOT AVAILABLE

Explanation: The multi protocol controller is not responding to SEAS requests.

User Action: Check the MPC using the IOC level commands. See 297-1001-513 for information on commands at the IOC MAP level commands.

THERE ARE NO INSV PVCs

Explanation: SEAS is not functioning because there are no in-service PVCs.

User Action: Enter the PVC MAP level to find and correct the fault.

THERE ARE NO PVCs WITH TWO WAY COMMUNICATION CAPABILITY

Explanation: The in-service PVCs are only capable of receiving commands from the SEAC.

User Action: Enter the PVC MAP level to return to service a PVC that has a PVC usage of ALL.

RTS

The command RTS returns the SEAS to service (InSv or ISTb state). When the command has been successfully completed, a log is generated and a message is sent to the SEAC informing it of the change of state. When RTS is initiated, a maximum wait time message is displayed at the MAP.

RTS	[NOWAIT]

Where:

NOWAIT returns the MAP control to the craftsperson after the command is accepted and without waiting for the command to complete. NOWAIT also cancels the display of the system's responses for that maintenance action.

Responses:

INVALID STATE CHANGE REQUEST

Explanation: The SEAS cannot be returned to service because SEAS is not in the manually busy or system busy state (ManB or SysB), or is already in service (InSv or ISTb state).

User Action: Verify that SEAS is in the manual busy state, then re-enter the command.

RTS FAILED

Explanation: The system failed to place SEAS into the in-service or in-service trouble state.

User Action: Check for alarm states under the IOC and CCS headings. If an alarm is present, rectify it and then re-enter the command.

System Action: The status display changes to SysB or ManB.

RTS PASSED

Explanation: The SEAS system is available for message transfer.

System Action: The status display changes to InSv or ISTb.

Usage Note:

13-16

0 Log SEAS104 records that a SEAS is returned to service or is made
0 system busy, that is, changes to the InSv, ISTb, or SysB state.

TST

The command TST sends a UPL test message to the SEAC and verifies the result. A message for the maximum time of wait is displayed when the command is accepted.

TST can be used when SEAS is in one of the following states:

- in service (displayed as InSv)
- in-service trouble (displayed as ISTb)
- manual busy (displayed as ManB)

Responses:

TEST FAILED -- NO SEAC RESPONSE

Explanation: The SEAC does not respond to test messages.

User Action: Contact the SEAC to determine why they are not responding to test messages.

TEST FAILED -- TEST MESSAGE CORRUPTED

Explanation: The SEAC responded to a test message, but the response was corrupted.

User Action: Check the IOC system for faults (see 297-1001-513).

THIS COMMAND MAY TAKE UP TO 5 MINUTES

Explanation: A warning to the user that the command could take up to 5 minutes to complete the command. This response is displayed immediately after the command is entered.

TEST PASSED

Explanation: A test message was sent to the SEAC and returned without error.

Usage Note:

Log SEAS104 records that a SEAS is made system busy, that is, changes to the InSv or ISTb state.

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0 CHAPTER 14

0 PVC MAP LEVEL

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0 PRACTICE 297-1001-531
0 VINTAGE 06.01

PVC-LEVEL MENU COMMANDS AND RESPONSES

PVCs are monitored and maintained by the system or manually through the PVC level of the MAP. The PVC level is accessed from the SEAS level by entering the command PVC (menu item 14). The commands that are available to the PVC level's menu are described alphabetically as follows. Responses to each command are also listed alphabetically.

BSY

The command BSY removes the posted PVCs from service. BSY is valid when the posted PVC is in the initializing, in service, offline, remote manual busy, or system busy state. The states are respectively displayed as INI, InSv, OffL, RMB, or SysB.

The command BSY is invalid if applied to the last in-service PVC. If the command BSY is given to the last in-service PVC, the following occurs:

* with NOWAIT - no error message and PVC remains in service

* without NOWAIT - error message and PVC remains in service

```
BSY   pvc_number  [ NOWAIT ]
      ALL
```

Where:

pvc_number is the PVC's discrimination number.

Value: 0 to 7

ALL busies all of the PVCs in the posted set.

NOWAIT returns control of the MAP control to the craftsperson immediately without waiting for the maintenance action to complete. Responses to the command BSY are bypassed, but the status in the display of the PVC in the control position of the posted set changes to ManB.

Responses:

PVC: pvc_number -- BUSY FAILED

Explanation: The PVC cannot enter the manual busy state, where pvc_number echoes the posted PVC.

System Action: The status display of the posted PVCs does not change.

PVC: pvc_number -- BUSY PASSED

Explanation: The PVC is removed from service and placed in the manual busy state, where pvc_number echoes the posted PVC.

System Action: The status display of the posted PVC changes to ManB.

PVC: pvc_number -- CANNOT BUSY LAST INSV PVC

Explanation: The system cannot busy the last remaining in-service PVC, where pvc_number echoes the posted PVC.

User Action: Return to service another PVC, then re-enter the command on the original PVC.

PVC: pvc_number -- INVALID STATE

Explanation: The PVC cannot be made busy because it is not in a valid state, where pvc_number echoes the posted PVC.

User Action: Verify that the PVC is in one of the following states, then re-enter the command.

InSv
INI
OffL
RMB
SysB

NEXT

Because the command POST lists only the first four PVCs in a posted set, the command NEXT displays the remainder of the set. If there are less than four PVCs in the posted set, the command NEXT displays the response END OF POSTED SET.

NEXT

Responses:

END OF POSTED SET

Explanation: All of the PVCs in the posted set have been displayed.

PVC	STATE	MPC	LINK	LC	PVC_TYPE	PVC_USAGE
n	state	m	l	c	pvc_type	pvc_usage

Explanation: The status of the remaining posted PVCs is displayed, where

n is 0 to 7 for the discrimination number of the posted PVC.

state is one of the PVC statuses listed in Table 5.17 on page 5-39.

m is the discrimination number of the multi-protocol controller (MPC) that is connected to the PVC.

l is one of the four MPC link numbers.

c is the logical channel number.

pvc_type is one of the types of channels:

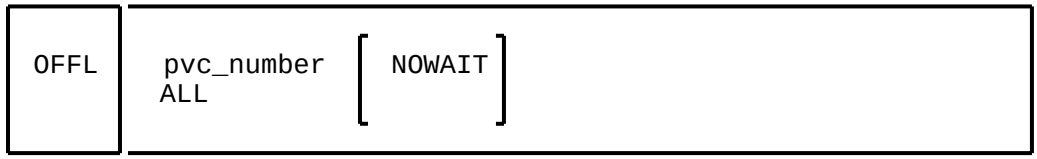
NTIMECRT
TIMECRT

pvc_usage is how the PVC is being used, by:

ALL
COMMANDS

OFFL

The command OFFL removes a manually busied PVC from system maintenance. Office data modifications (ODM) can be done to PVCs in the offline state (displayed as OffL).



Where:

pvc_number is the discrimination number of the posted PVC.

Value: 0 to 7

ALL makes all of the posted PVCs offline.

NOWAIT returns control of the MAP control to the craftsperson immediately without waiting for the maintenance action to complete. Responses to the command OFFL are bypassed, but the status in the display of the PVC in the control position of the posted set changes to OffL.

Responses:

PVC: pvc_number -- INVALID STATE

Explanation: The PVC must be manually busy (ManB state) before it can be made offline or the PVC may already be offline.

User Action: Verify that the PVC is in the manual busy state, then re-enter the command.

PVC: pvc_number -- OFFL FAILED

Explanation: The system cannot make the PVC offline.

System Action: The status display of the PVC does not change.

PVC: pvc_number -- OFFL PASSED

Explanation: The PVC is made offline.

0 System Action: The status display of the posted PVC
0 changes to OffL.

POST

The command POST places the specified PVCs into a posted set. Subsequent maintenance commands affect only the PVCs in a posted set. If more than four PVCs are in the posted set, only the first PVCs are displayed.

POST	pvc_number [pvc_number ... pvc_number] ALL state [state ... state]

Where:

pvc_number is the discrimination number of a PVC to be posted. More than one PVC can be specified.

Value: 0 to 7

ALL posts all PVCs at this office.

state posts all PVCs in the specified state. More than one state can be specified.

Value: OFFL, MANB, RMB, SYSB, INSV, or INI

Responses:

PVC	STATE	MPC	LINK	LC	PVC_TYPE	PVC_USAGE
n	state	m	l	c	pvc_type	pvc_usage

Explanation: The status of the remaining posted PVCs is displayed, where

n is 0 to 7 for the discrimination number of the posted PVC.

state is one of the statuses of a PVC, as listed in Table 5.17 on page 5-39.

m is the discrimination number of the multi-protocol controller (MPC) that is connected to the PVC.

l is one of the four MPC link numbers.

c is the logical channel number.

pvc_type is one of the types of channels:

NTIMECRT

0 TIMECRT

0 pvc_usage is how the PVC is being used, by:

0 ALL
0 COMMANDS

0 NO PVC POSTED

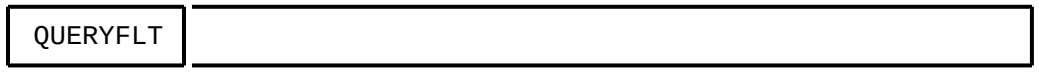
0 Explanation: The PVC level of the MAP is accessed
0 without posting a PVC or without having a previously
0 posted PVC.

0 PVC: pvc_number -- NOT DATAFILLED

0 Explanation: The specified PVC cannot be posted
0 because it must first be datafilled in system table
0 SEASMPC.

QUERYFLT

The command QUERYFLT displays information about the faults of posted PVCs. Although the command can be entered when the PVC is in any state, the display of the information may depend on the current maintenance action.



PVC: pvc_number -- MPC NOT AVAILABLE

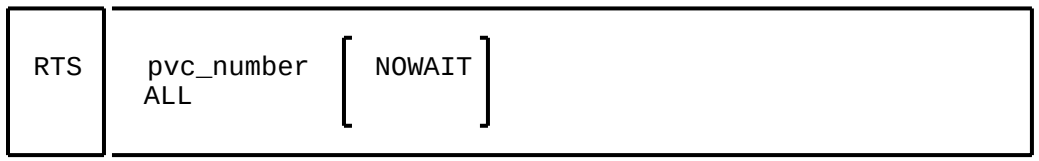
Explanation: A multi-protocol controller (MPC) is not available for this PVC, where pvc_number echoes the discrimination number of the posted PVC.

PVC: pvc_number -- SYNCHRONIZATION IN PROGRESS

Explanation: The PVC's faults cannot be queried because it is currently undergoing synchronization, where pvc_number echoes the discrimination number of the posted PVC.

RTS

The command RTS returns the PVC to service from the manually busy state (displayed as ManB). The system attempts to communicate with the SEAC by placing the PVC in the initializing state (displayed as INI). If there are insufficient resources to return the PVC to service (displayed as InSv), the PVC is made system busy (displayed as SysB).



Where:

pvc_number is the discrimination number of the posted PVC to be returned to service.

Value: 0 to 7

ALL returns all of the posted PVCs to service.

NOWAIT returns control of the MAP control to the craftsperson immediately without waiting for the maintenance action to complete. Responses to the command RTS are bypassed, but the status in the display of the PVC in the control position of the posted set changes to InSv or ISTb if the tests pass.

Responses:

PVC: pvc_number -- INVALID STATE

Explanation: The specified PVC cannot be returned to service because it is not in the manually busy or system busy state (displayed as ManB or SysB) or the PVC may already be in service (displayed as InSv or ISTb). The discrimination number of the specified PVC is echoed by the value of pvc_number.

User Action: Verify that the PVC is in the manually busy state, then re-enter the command.

PVC: pvc_number -- RTS FAILED

Explanation: The system could not return the PVC to service, where pvc_number echoes the discrimination number of the specified PVC. If there are insufficient resources available for the return, the PVC is made

system busy (displayed as SysB).

System Action: The status display remains the same with SysB or changes from ManB to SysB.

User Action: Try RTS again later.

PVC: pvc_number -- RTS PASSED

Explanation: The PVC is returned to service, where pvc_number echoes the discrimination number of the specified PVC.

TST

The command TST tests the operation of posted in-service PVCs and is executed if

* the PVC is in the in-service state (displayed as InSv or ISTb)

* the SEAS is in the in-service or in-service trouble state (displayed as ISTb)

A message for the maximum time of wait is displayed before the command is executed. A UPL message is transmitted through the PVC to the SEAC and a response from the SEAC is verified. For a description of the UAL, see 297-1001-141.

TST	pvc_number ALL

Where:

pvc_number is the discrimination number of the PVC to be tested.

Value: 0 to 7

ALL tests all of the PVCs in the posted set.

Responses:

PVC: pvc_number -- TEST FAILED (NO SEAC RESPONSE)

Explanation: A test message was sent to the SEAC, but the SEAC did not respond within a specified time. The discrimination number of the PVC to have been tested is echoed by the value of pvc_number.

PVC: pvc_number -- TEST FAILED (TEST MESSAGE CORRUPTED)

Explanation: A test message was sent to the SEAC and returned, but was corrupted during the process. The discrimination number of the PVC to have been tested is echoed by the value of pvc_number.

PVC: pvc_number -- TEST PASSED

Explanation: A test message was sent to the SEAC and the response is verified as correct, where pvc_number echoes the discrimination number of the PVC that passed the test.

THIS COMMAND MAY TAKE UP TO 5 MINUTES

Explanation: The tests could take up to 5 minutes to complete. This response is displayed immediately after the command TST is entered.

User Action: If the tests are to be cancelled, enter the command ABORT or ABTK. For the description of ABORT or ABTK, see 297-1001-509.

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CHAPTER 15

ABBREVIATIONS

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0 PRACTICE 297-1001-531
0 VINTAGE 06.01

ACCS	Automated Calling Card System
ACG	Automatic Call Gapping
Act	Activate
Alnd	Aligned
AlnNRd	Aligned Not Ready
AlnRdy	Aligned Ready
ALM	Alarm
ANI	Automatic Number Identification
Assoc	Associated
BCS	Batch Change Supplement
BNS	Billed Number Screening
BSN	Backward Sequence Number
Bsy	Busy
CBsy	Central Side Busy
CCAN	Calling Card Account Number
CCIS6	Common Channel Interoffice Signaling 6
CCITT	Consultative Committee of International Telephone and Telegraph
CCITT6	CCITT Signaling #6
CCS	Common Channel Signaling
CCSAN	Calling Card Subaccount Number
CCS7	Common Channel Signaling 7
CCV	Calling Card Validation
CFA	Configuration Acknowledge
CFL	Carrier Failed
CI	Command Interpreter
CLLI	Common Language Location Identifier
CPA	Congestion Parm Acknowledge
CUST	Customer
DACT	Deactivate
Deact	Deactivated
DISALM	Display Alarm
DLP	Data Link Processor
DTC	Digital Trunk Controller
DPNSS	Digital Private Network Signaling System No.1
ECSA	Exchange Carriers Standards Association
Ext	External
Extrk	External Trunk
E800	Enhanced 800 Service
FIB	Forward Indicator Bit
FIFO	First In First Out
FISU	Fill-in Signal Unit
FSN	Forward Sequence Number
FtLk	Faulty Link
GS	General Specifications
GT	Global Title
GTI	Global Title Identifier
Idl	Idle
INI	Initializing
INIT	Initializing
InSv	In Service

0	ISTb	In-Service Trouble
0	ISDNUP	Integrated System Digital Network User Part
0	LATA	Local Access and Transport Area
0	LGP	Link General Processor
0	LInh	Local Inhibit
0	LIU7	Link Interface Unit 7
0	Lk	Signaling Link
0	LK	Linkset Minor Alarm
0	LKC	Linkset Critical
0	LKM	Linkset Major Alarm
0	LOOPBK	Loop Back
0	LNA	Link Number Acknowledge
0	LPO	Local Processor Outage
0	LSM	Linkset Management
0	ManB	Manual Busy
0	MAP	Maintenance and Administration Position
0	MAPCI	MAP Command Interpreter
0	MB	Manual Busy of transmission link
0	MMI	Man-Machine Interface
0	MPC	Multi-Protocol Controller
0	MSB	Message Switch and Buffer
0	MSB7	Message Switch and Buffer for CCS7
0	MSU	Message Signal Unit
0	MTC	Maintenance
0	MTP	Message Transfer Part
0	Net	Network
0	NEq	Not Equipped
0	NT	Northern Telecom
0	NTP	Northern Telecom Practices
0	OAM	Operation, Administration and Maintenance
0	ODM	Office Data Modification
0	OffL	Offline
0	PEC	Product Engineering Code
0	PC	Point Code
0	PCC	Point Code Critical Alarm
0	PIN	Personal Identification Number
0	PM	Peripheral Module
0	PMB	Peripheral Busy
0	POP	Performance Oriented Practice
0	POTS	Plain Old Telephone System
0	PROC	Procedure
0	Prohbtd	Prohibited
0	PVC	Private Virtual Circuit
0	Quasi	Quasi-associated
0	RAO	Revenue Accounting Office
0	RInh	Remote Inhibit
0	RPO	Remote Processor Outage
0	RS	Routeset Minor
0	RSC	Routeset Critical
0	RSM	Routeset Major
0	RSMan	Routeset Management

Rstrctd	Restricted
RTE	Route
RTS	Return to Service
SB	System Busy for Transmission Link
SCCP	Signaling Connection Control Part
SCP	Service Control Point
SEAS	Signaling Engineering and Administration System
SIE	Emergency Alignment Status Indicator
SIN	Normal Alignment Status Indicator
SIOS	Out of Service Status Indicator
SIU	Out of Alignment Status Indicator
SMS	Service Management System
SNID	Signaling Network Identifier
SO	Signaling Office
SS	Subsystem
SSC	Subsystem Critical
SSM	Subsystem Major
SS7	Signaling System 7
ST	Signaling Terminal
ST7	Signaling Terminal for CCS7
Sta	Status
STA	Status
STB	System Busy
STBY	Standby
STC	Signaling Terminal Controller
STCkt	Signaling Terminal Circuits
STCM	Signaling Terminal Controller Module
STP	Signaling Transfer Point
SU	Signal Unit
SWERR	Software Error
SysB	System Busy
SZD	Seized
TCAP	Transaction Capabilities Application Part
TL	Transmission Link
TM	Trunk Module
Traf	Traffic
Trks	Trunks
TST	Test
TSTTRNSL	Test Translate
TSV	Test Standby VF Link
TUP	Telephone User Part
UnEq	Unequipped
800P	800 Plus Service