



# **DPS 7**

**GCOS**

## **Terminal Operations**

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### **Software**

**Subject** : This manual describes the procedures to be performed by, and the facilities available to, the terminal operator during a GCOS 7 communications session.

**Special Instructions** : Updates with regard to the GCOS 64 Release 1E.4 are indicated as follows :  
. Change bars in the margin indicate technical modifications or additions  
. Asterisks indicate deletions.

**Software Supported** : GCOS 7-LS, GCOS 7-MS Release V1

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## PREFACE

This manual describes the procedures to be performed by, and the facilities available to, the terminal operator during a GCOS communications session.

The term "64/DPS 7" is synonymous with "DPS 7", the prefix "64" being a "carry-over" from previous releases.

The term "site-catalog" refers to the validated catalog of objects for which access rights have been defined, whereby users accessing the resources of the system submit to security checks.

For the current release, synchronous links for terminals of the VIP line procedure are directly supported via a URP packet link over the TRANSPAC secondary network. These synchronous links collectively termed "CSX25" are provided by

- . DCU7010 convertor for VIP-type terminals : VIP7001/7700/7760, TTS7800 & TTU8221
- . TCU7022/7043 terminal concentrators for QUESTAR terminals : DKU7007/7107/7211.

TRANSPAC refers specifically to the public data network in France, the use of which is contracted by PTT subscription.

This manual is intended for all users of the system working with and developing interactive and transactional applications, job submission and file transfer from and/or to remote systems.

Section I describes the system interface between the operator and the network, and its operations interface during a communications session. The "communications session" is the duration from "logon" to "logoff".

Section II describes the operational characteristics of the terminal according to its line procedure. These characteristics remain the same whether the terminal is connected over either the URP local network or the TRANSPAC/URP secondary network.

Section III describes the connection and disconnection between the terminal and the application according to the AUTO and ASSIGN options defined for the terminal, whether IDSEQ commands have been declared and whether the line is switched.

Section IV lists the network commands available to the terminal operator and the facilities they provide. The commands are shown prefixed with the default "break-qualifier" `$$` to indicate that they address BTNS and not the application or GCOS.

Section V deals with messages output to the terminal. These messages are those that constitute the logon dialog and those that appear as the result of command entry and execution.

Appendix A gives a resumé of PAD return-codes, the majority of which are transmitted by TRANSPAC and the rest set by the DPS 7. For complementary information on these return-codes, refer to the Network Control Terminal Operations Manual.

Appendix B lists the set of terminal operator commands addressable to the DN7100, which are equivalent to those commands addressed to BTNS. For further information on DNS terminal operator commands, refer to Datanet 7100 Terminal User Guide.

The following publications give further information to the topics mentioned in this manual :

- For DSA concepts and 64/DPS 7 networking,
    - . 47A2 01UC Communications Architecture
    - . 47A2 02UC Network Generation
  - For details on the GCOS site-catalog, and the CATMAINT and CONFIG utilities,
    - . 47A2 01US System Management Guide
    - . 47A2 02US System Installation and Updating Manual
  - For the TRANSPAC operator interface,
    - . TRANSPAC Guide Utilisateur : accès par le réseau téléphonique commuté
  - For operating the DCU7010 convertor for VIP-type terminals,
    - . 80A1 7208 DCU7010/7011 Convertor User Guide
  - For operating the TCU7022 terminal concentrator for QUESTAR terminals,
    - . 80A2 7887 Terminal Cluster User Guide/QUESTAR-T TCU7021/7022 User Guide Version V100A and V150A
  - For network control commands and complementary information on TRANSPAC return-codes,
    - . 47A2 05UC Network Control Terminal Operations
  - For information on OCL commands and GCOS messages,
    - . 47A2 01UU Operator Guide
    - . 47A2 02UU Operator Reference Card
    - . 47A2 07UU Console Messages
  - For operating the IOF session and for the list of IOF directives,
    - . 47A2 01UJ Part I
    - " 02UJ " II
    - " 03UJ " III
    - " 04UJ " IV } IOF Terminal User's Guide
  - . 47A2 07UJ IOF (GCL) Pocket Guide
- For TDS master and user commands,
    - . 47A2 02UT TDS User Guide
    - . 47A2 05UT TDS Pocket Guide
  - For operator commands of the RBF6/FTF6 communications services,
    - . 47A2 11UC Remote Facilities Mini 6-to-DPS 7
  - For operator commands of the DJP/DFT communications services,
    - . 47A2 12UC Remote Facilities DPS 7-to-DPS 7

- For information on the CARDLESS communications service,
  - . 47A2 06UU Diskette and CARDLESS Facility User Guide
- For information on the TILS communications service,
  - . 47A2 04US Transactional and Interactive Load Simulator
- For information on the OLTD communications service,
  - . 46A2 CQ19 On-Line Tests and Diagnostics Operator Guide
- For information on DPS 7 network administration,
  - . 47A2 06UC Network Administration Supplement
  - . 47A2 10UC Network Administration Utilities
- For a resumé on operating, generating and maintaining the DPS 7 network,
  - . 47A2 09UC Telecommunications Reference Card
- For terminal operations over the DN7100,
  - . 15A2 8028 Datanet 7100 Terminal User Guide

Suggestions and criticisms concerning the form, content and purpose of this manual are invited.

A Technical Publications Remarks Form is included at the end of the manual for this purpose.

Each section of this document is structured according to the heading hierarchy shown below.

Each heading indicates the relative level of the text which follows it.

Level	Heading Format
1 (highest)	<u>ALL CAPITALS LETTERS, UNDERLINED</u>
2	<u>Initial Capital Letters, Underlined</u>
3	ALL CAPITALS LETTERS, NOT UNDERLINED
4	Initial Capital Letters, Not Underlined
5 (lowest)	ALL CAPITAL LETTERS FOLLOWED BY COLON : Text begins on the same line

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SECTION I  
INTRODUCTION

GCOS allows remote users such as terminal operators and communications software located in other systems to access

- . user applications running under the control of GCOS, which can be
  - MAM applications written in MCS COBOL or GPL
  - transaction programs under TDS control, written in COBOL or RPG
- . GCOS communications services, collectively termed VCAM subsystems which are
  - IOF, Interactive Operator Facility
  - TDS, Transaction Driven Subsystem
  - RBF6/FTF6, Remote Batch and File Transfer Facilities from/to the Mini 6
  - DFT, DSA File Transfer facility from/to another DPS 7
  - DJP, Distributed Job Processing (includes DSA Remote Batch facility)
  - CARDLESS, otherwise known as READER to GCOS
  - TILS, Transactional and Interactive Load Simulator
  - OLTD, On-Line Tests and Diagnostics.

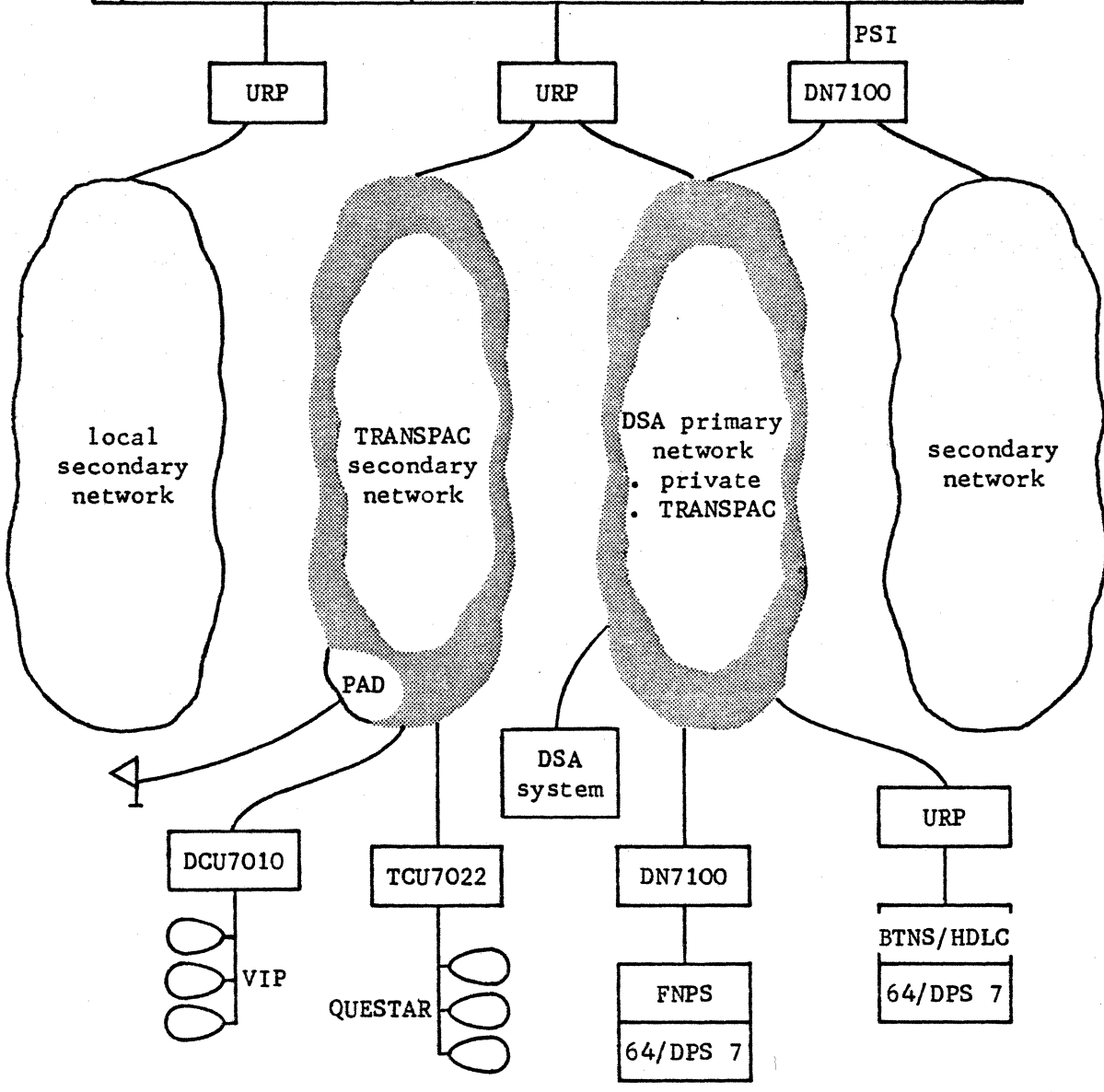
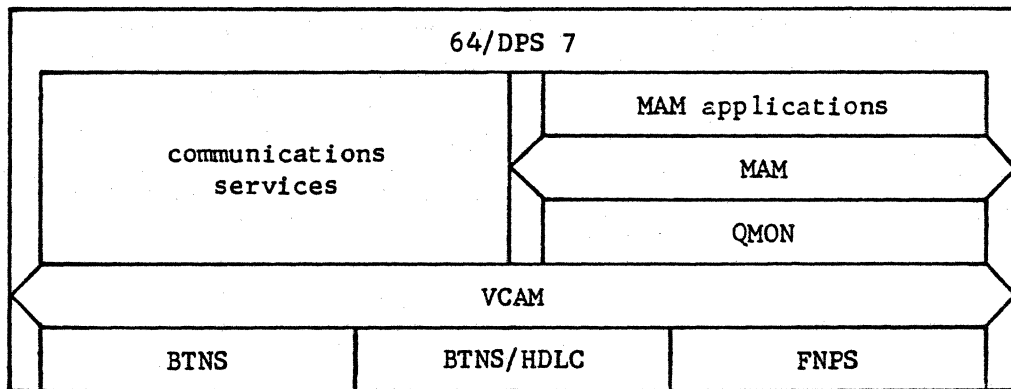
Access to GCOS is provided through the following pieces of equipment

- . the Data Communications Controller of the Unit Record Processor
- . and/or the Datanet 7100 functioning as the Front-end System of the DPS 7.

These two pieces of equipment function with their respective modules of communications management to provide access to the appropriate type of network as follows,

- . the URP functions with
  - either the Basic Terminal Network Support to handle communications over secondary networks composed of leased and/or switched lines in a tree structure
  - or the BTNS/High-level Data Link Control (BTNS/HDLC) being the transport and network-layer subsystem, which handles communications over HDLC X.25 networks comprising
    - . such secondary networks as TRANSPAC
    - . DSA primary networks, both private and TRANSPAC

Interlinked Systems  
in 64/DPS 7  
Networking Environment



- . the DN7100 functions with the Front-end Network Processor Support to handle communications over both types of networks, namely
  - its secondary networks visible to itself but transparent to the DPS 7
  - DSA primary networks, both private and TRANSPAC.

"Interlinked Systems in 64/DPS 7 Networking Environment" shows the access to the DPS 7 local-system in relation to its access to the various types of networks.

The three modules of communications management function with the Virtual Communications Access Method, the module of message management, to provide the network management component of GCOS.

Local dialogs involved in operating the various types of networks are those

- . available to terminals connected to the DPS 7 through the DN7100 front-end system
- . offered to operators by intermediate components between the terminal and the DPS 7 such as TRANSPAC, the DCU7010 convertor and the TCU7022/7043 terminal concentrator.

This manual does not deal with such local dialogs for which the user is referred to their respective documentation.

The terminal operator interacts with GCOS communications system in terms of

- . the DPS 7 system interface
- . and the operations interface.

### DPS 7 SYSTEM INTERFACE

The system interface involving the GCOS communications components so far described, is structured around three principal layers

- . the transport/network layer is occupied by communications management being BTNS, BTNS/HDLC and FNPS (only BTNS and BTNS/HDLC are treated in this manual)
- . the session layer is occupied by message management being VCAM
- . the application layer is occupied by the communications services which include the Message Control System.

### Basic Terminal Network Support

BTNS provides the following functions :

- . manages all physical I/O operations over URP lines through its I/O request supervisor, line drivers and terminal drivers
- . controls the URP network and drives the local dialogs through its terminal manager.

### BTNS/High-level Data Link Control

Basic Terminal Network Support / HDLC provides additional functions to BTNS :

- . manages all physical I/O operations over the networks supported through its HDLC line driver
- . handles connection to the TRANSPAC secondary and primary networks through its X25 Level 3 mechanism
- . implements the DSA transport protocol through its multiplexing transport station
- . handles connection requests to remote systems through its network connection and resource manager (ENCRM).

### Virtual Communications Access Method

VCAM provides the interface between communications management and the application layer by

- . handling connection and dialog functions
- . allowing direct access to terminals and applications without their being aware of the communications path or mechanism used for establishing the connection
- . centralizing management of security checks and of dynamic network entities.

### Communications Services

Communications services are those software components which directly interface with VCAM and which are listed on page 1-01.

Included among the communications services are

- . the Message Control System, being QMON, the queue monitor, working in conjunction with MAM, the Message Access Method, to provide the interface and access, respectively, between MAM applications and VCAM
- . the Network Administrative Storage Facility which enables access to its administrative files by correspondents in the primary network.

### User Applications

The two types of user applications are

- . transaction programs, written in either COBOL or RPG, executing under the TDS executive
- . MAM applications, written in either MCS COBOL or GPL, monitored by MCS.

## OPERATIONS INTERFACE

The operations interface deals with establishing the connection between the terminal and the application.

The application, as explained before, is either the communications service or the user application. The term "application" refers to the entry APPL in the CCO1 message for a general-purpose terminal at logon.

The operations interface is explained in terms of

- . the role of the network control operator
- . the definition and scope of local dialog
- . and the operational states of the terminal.

### Role of the Network Control Operator

The network control operator is in charge of those functions concerning communications management, as opposed to the system console operator who is in charge of all system functions. The interface for communications management is provided by the BTNS administrative manager which interprets communications commands for managing terminals of the secondary networks and for servicing DN7100 functions.

Any terminal of the URP network becomes the network control terminal provided that the user can log onto IOF from this terminal under a GCOS catalogued project which specifies NETWORK. The default network control terminal is the DPS 7 system console.

### Definition and Scope of Local Dialog

The local dialogs present in different components of the network, as illustrated in "Interlinked Systems in 64/DPS 7 Networking Environment", are for the following types of terminals, namely

- . those connected over the URP local network, the local dialog being wholly managed by BTNS
- . those connected over the TRANSPAC/URP secondary network, the local dialog being managed
  - partly by the BTNS terminal manager
  - and partly by the software applicable to the line procedure of the terminal type, namely
    - . PAD, for asynchronous TTY-type terminals
    - . DCU7010, for VIP-type terminals
    - . TCU7022/7043 for QUESTAR terminals.

The local dialog consists of

- . commands addressed to the terminal manager or the appropriate layer(s) of communications management
- . messages sent to the terminal by the same software layer(s).

Commands keyed in by the operator serve a variety of functions, namely

- . establish and break the connection between the terminal and the application
- . rectify errors with the appropriate operator intervention
- . broadcast messages to other operators within the network
- . display the status of objects, including applications, within the network.

Messages received by the terminal are

- . either responses to commands entered previously by the operator
- . or consequences of external events detected and reported by the appropriate layer(s) of communications management, such as
  - logon dialog
  - broadcasts from other operators within the network
  - advice of connection or disconnection of the terminal to/from the application.

#### Operational States of the Terminal

The BTNS terminal manager sets the terminal in one of the following operational states :

- . CONNECTED : connection established with the application
- . DISCONNECTS : terminal is in the transient "disconnection" phase
- . HELD : logically "closed" to the network
  - either as the result of the CLOSE option being specified for the terminal or for any of its higher objects
  - or as a consequence of the HT network control command being issued to the terminal or to one of its higher objects
- . IDLE : "enabled" and eligible for logon to an application
- . LOGGED : connected to the BTNS terminal manager and waiting for a connection request from an application
- . LOGGING : terminal is in the transient "logging" phase between IDLE and, LOGGED or CONNECTED.

While the terminal operator cannot "hold" a terminal, he can release it, provided that neither its "queue" nor any of its higher objects, in the ascending order, "station", "cluster" and "line" are HELD.

"Holding" the terminal and its higher objects, and "releasing" the higher objects of the terminal, are privileged commands reserved for the network control operator.

## OPERATOR COMMANDS

The commands available to the terminal operator are

- . those addressable to BTNS, see Section IV
- . those specific to terminals connected over the TRANSPAC/URP secondary network addressable to one of the following
  - TRANSPAC PAD for TTY-type terminals, refer to Spécifications Techniques d'Utilisation du Réseau
  - DCU7010 for VIP-type terminals, refer to DCU7010/7011 Convertor User Guide
  - TCU7022/7043 for QUESTAR terminals, refer to Terminal Cluster User Guide.

The commands issued over the TRANSPAC interface are primarily for establishing the link-up between the terminal and the DPS 7, see Section III.



## SECTION II

### TERMINAL OPERABILITY

Terminal operability is determined by

- . the line procedure under which the terminal operates
- . and the characteristics of the terminal itself.

Terminals operating under the same line procedure are compatible with each other since they conform to a common transmission protocol.

The characteristics of the terminal affecting its operation and function are

- . its controls for terminating the message
- . its special characters for erasing
- . its error detection and operator intervention
- . and its line length and message length.

These terminal characteristics are applicable for connection over either the URP local network or the TRANSPAC/URP secondary network. Each of these characteristics is treated according to the line procedure of the terminal.

#### CONTROLS FOR TERMINATING THE MESSAGE

##### TTY/TTY-R

Depending on the type of terminal and on what has been defined for the system, any one of the following controls serve as the "end-of-message", namely

- . CAN : cancel
- . CR : carriage-return
- . LF : line-feed
- . NL : new line
- . SUB : substitute.

For switched lines, timeout causes the line to disconnect.

This timeout value is

- . determined by the TOLEN parameter of the LINE command at network generation
- . and can be modified dynamically during the communications session through the MTL network control command.

## TC

"End-of-message" is denoted by either control which can be used interchangeably, before TRANSMIT is pressed

- . ETB : end-of-transmission-block
- . ETX : end-of-text.

For terminals without either of these controls, the "end-of-message" is automatically affixed to the message when TRANSMIT is pressed.

## VIP

"End-of-message" is denoted by the following consecutive control sequence, before TRANSMIT is pressed

- . ETX : end-of-text
- . EOT : end-of-transmission.

For terminals not equipped with controls to generate this control sequence, the "end-of-message" is automatically affixed to the message when TRANSMIT is pressed.

## BSC

BSC2780 terminals are computers whose message terminator is determined by file transfer conventions and is generated by its appropriate software or firmware.

IBM3270 which uses the BSC3270 line procedure automatically generates its message terminator when TRANSMIT is pressed.

The message terminator is one of either control codes for BSC2780 terminals

- . ETB : end-of-transmission-block
- . ETX : end-of-text.

## SPECIAL CHARACTERS FOR ERASING

### TTY/TTY-R (including PAD terminals)

Since these terminals are unbuffered, data keyed in is immediately transmitted over the line to the central processor.

The special character used to erase a previous erroneous character is specified through the ERCAP parameter of the LINE command at network generation. This "erase" character corresponds to the key generating the code "5C" (ASCII) or "EO" (EBCDIC) and is usually represented by the symbol (\).

A line is deleted by entering the symbol (Ⓢ), followed by the line terminator which can be one of the following controls

- . CR : carriage-return
- . LF : line-feed
- . NL : new-line

If the last character of a message is (Ⓢ), then the last line of the message is inadvertently erased when the message is sent.

### TC

Since these terminals are buffered, erasing functions can therefore be locally performed through editing keys before the message is sent.

### VIP

Since these terminals are buffered, editing and erasing can be locally performed before transmission.

For screen terminals, what is displayed is what is transmitted. As a result, the "backspace" can be used to position the cursor over the erroneous character in order to "overwrite" it.

This ability to edit before transmitting, allows error-free text to be sent over the line to the central processor.

### BSC

For BSC2780 terminals which are computers, editing functions are completely program-controlled.

For IBM3270 which operates under the BSC3270 line procedure, editing and erasing are performed as for a VIP screen terminal.

## ERROR DETECTION AND OPERATOR INTERVENTION

For the URP local network and the TRANSPAC/URP secondary network, most errors in transmission are retried partly by software, being BTNS and BTNS/HDLC for the respective networks, and partly by the firmware in the Data Communications Controller of the URP.

If the error cannot be corrected, the appropriate action is taken:

- . for the URP local network, the terminal is disconnected by BTNS
- . for the TRANSPAC/URP secondary network, the switched virtual circuit is closed.

An example of transmission error where the terminal operator can intervene is the "page-overflow" condition occurring in VIP line procedure terminals.

### Conditions of Page Overflow

"Page-overflow" occurs under the following conditions

- . a message greater than the size of the screen has been sent
- . the position of the addressed cursor falls outside the limits of the screen
- . the screen was not cleared when a new message was sent.

### Detecting Page Overflow

When "page-overflow" occurs, transmission stops and is signalled to the operator according,

- . for VIP-type terminals, the DCU7010 sets an error indicator
- . for QUESTAR terminals, the TCU7022/7043 sends a service message
- . for MTS7508, a service message appears.

### Resuming Transmission after Page Overflow

The sequence of operator action required to resume transmission is as follows,

- . clear the screen by pressing the CLEAR control
- . resume transmission by performing one of the following actions
  - cancel the message causing the "page-overflow" by keying in `$$RDY STRONG` thereby enabling the terminal to receive a new message
  - resume dialog with the application by keying in any character or entering the `$$RDY` command, which action has the effect of retransmitting the message causing the "page-overflow".

## LINE LENGTH AND MESSAGE LENGTH

The line length and message length are hardware characteristics which are implicitly defined in the TERMNL command at network generation by the "terminal-type" and "terminal-subtype".

The attributes affecting the "terminal-queue" are defined by the following parameters of the QUEUE command at network generation, namely

- . LLENGTH : specifies the number of characters per line to be used for automatic editing when the option BLOCKING is specified
- . NBLOCKS : defines the number of lines in each message text to be sent  
"maximum-message-length" is the product  $\text{NBLOCKS} \times \text{LLENGTH}$ , whereby any part of the message exceeding this limit is truncated
- . BLOCKING : allows MCS to format the message sent into as many lines as the specified number of characters per line (LLENGTH).

The MTE operator command can be used to override these attributes as follows

- . "line-length" which dynamically alters whatever value was specified for LLENGTH
- . "block-size" which dynamically alters whatever value was specified for NBLOCKS  
the new "maximum-message-length" is defined by the appropriate product
  - "line-length" x NBLOCKS, if only LLENGTH has been altered
  - "block-size" x LLENGTH, if only NBLOCKS has been altered
  - "line-length" x "block-size", if both LLENGTH and NBLOCKS have been altered
- . BLOCK which dynamically invokes automatic editing if BLOCKING was not originally specified
- . NBLOCK which dynamically overrides BLOCKING.



### SECTION III

#### LOGON AND LOGOFF

The logon procedure, which precedes any data exchange between the terminal and the application, consists of

- . establishing the physical link which involves mechanical manipulations such as power-on and dial-up

Note : For terminals connected over the TRANSPAC/URP secondary network, dialog with TRANSPAC PAD, DCU7010 or TCU7022/7043 software, as applicable for the type of terminal, is a phase in establishing this physical link.

- . establishing the logical connection with the application which consists of dialog driven by the BTNS terminal manager, this dialog being determined by the options declared for the terminal at network generation.

The logoff procedure terminates the data exchange over a connection previously established and may be instigated by

- . the terminal operator
- . the application
- . the network control operator
- . or BTNS or BTNS/HDLC, as appropriate, on detecting an anomaly.

## ESTABLISHING THE PHYSICAL LINK OVER THE URP LOCAL NETWORK

Terminals connectable over the URP local network are listed under the TERMNL command in the Network Generation Manual.

The physical link over the URP local network concerns point-to-point and multi-point connections for switched and non-switched lines which can either be local or leased.

### Non-switched Lines

The terminal operator does not have to perform any special manipulation before initiating logon, provided that all the components of the link, being the terminal itself, modems, line and URP, are

- . physically available and functionally operational
- . logically available to the BTNS terminal manager, that is, the terminal is "enabled" in the IDLE state.

The terminal is unavailable for the following reasons :

- a previous HT network control command having been issued to the "terminal-queue" or to the higher objects of the terminal
- an initial CLOSE state declared for the "terminal-queue" or for the higher objects of the terminal at network generation.

When these conditions are fulfilled, BTNS and BTNS/HDLC at the start of the communications session will initialize and survey non-switched lines for any input.

### Switched Lines

At the start of the communications session, BTNS is initialized and then waits to detect the "ring" indicator over all switched lines which are not in the HELD state.

Transmission over switched lines is initiated by dialling the number corresponding to the required DPS 7 URP line, which results in the following tones

- . the high-pitched "data" tone, meaning that dial-up is successful, at which moment, the operator switches from "phone" to "data-circuit"
- . the "engaged" tone, meaning that the line is being used by another terminal
- . the "ring" tone, meaning that dial-up is unsuccessful for one of the following reasons
  - the DPS 7 is "down"
  - the communications session has not yet been started through the ST console command
  - the line is in HELD due to
    - . a previous failure
    - . a previous "HT line-name" network control command having been issued
    - . the line being declared initially CLOSED at network generation.



If the terminal operator has terminated the previous communications session with "DIS HOLD", dial-up is not necessary.

A "break" signal is sufficient to initiate a new logon dialog.

## ESTABLISHING THE PHYSICAL LINK OVER THE TRANSPAC/URP SECONDARY NETWORK

The link-up over the TRANSPAC/URP secondary network involves two operations, namely,

- establishing the physical link between the terminal and the "remote-data-equipment"
- and establishing the virtual circuit between the RDTE and the secondary network controller.

The RDTE as defined by the command of the same name at network generation can be

- PAD, for asynchronous TTY-type terminals
- CSX25, which groups together
  - DCU7010, being the convertor for VIP-type terminals
  - TCU7022/7043, being the terminal concentrator for QUESTAR terminals.

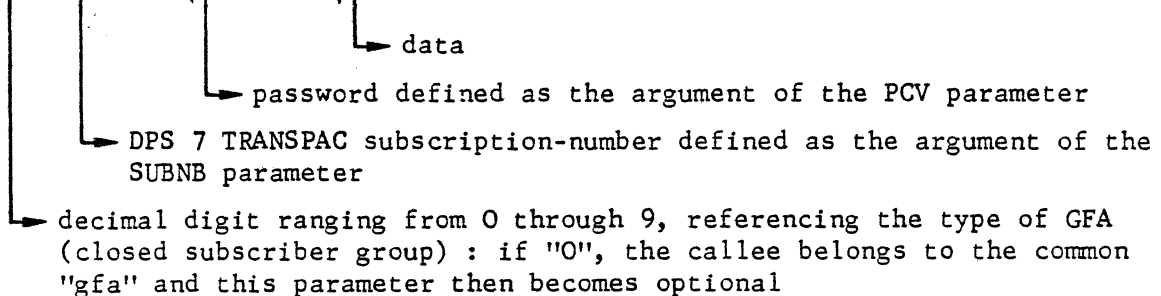
Terminals connectable over the TRANSPAC/URP secondary network are "remote-data-terminals" and are listed under the RDTN command in the Network Generation Manual.

### Connection Through PAD

The sequence of operator actions is as follows

- power up the terminal
- if the terminal is connected over a switched line,
  - dial the PAD phone number
  - when the high-pitched "data" tone is heard, switch from "phone" to "data-circuit"
  - wait for PAD to reply : TRANSPAC
  - if PAD does not reply, key in H, then "carriage-return"
- optional tuning parameters may then appear according to the requirements of the subscription, in which case, key in the values given in the "work-sheet" previously supplied by the operations or installation manager
- issue the command to connect to PAD of the format :

[G n -] subnb { P <pcv> | D }



Note : The PCV and SUBNB parameters appear in the LSUB command at network generation. LSUB and SUBNB are aliases for GENNET and TPCADD respectively. GFA is a term used in the PTT TRANSPAC subscription.

. wait for TRANSPAC to reply as appropriate

- COM : connection is successful

- LIB xxx nnn : connection has been refused

└─ 3 decimal digits being the return-code either from the "fault-finding" dictionary of TRANSPAC or set by the DPS 7

└─ 3 letters being the mnemonic for the reason and/or source of the refusal except CONF which stands for "confirmation"

Note : Appendix A lists the mnemonics in alphabetical order and for each mnemonic, the return-codes are treated in ascending order.

. logon dialog with the DPS 7 now starts.

For details of operational procedures, refer to TRANSPAC Guide Utilisateur : accès par le réseau téléphonique commuté.

## Connection Through CSX25

The operational procedure for establishing the connection depends on the type of configuration, that is, whether the connection interface is through the "cluster" or a multiple interface unit (MIU).

The following description for establishing such a connection is valid for both the DCU7010 and the TCU7022/7043, and assumes that either the "cluster" or MIU, as applicable, is powered up and functioning normally. In the text that follows, the term "CSX25" is used to group together both the DCU7010 and TCU7022/7043.

Starting up the CSX25 on the terminal side and the TRANSPAC access line on the DPS 7 side, involves similar operational procedures, although for reasons of distance, are not performed by the same operator :

- . insert the software diskette into the diskette unit of the CSX25
- . ensure that the unit is securely closed and locked
- . power up the CSX25 : this power-up manipulation automatically loads the software into main memory, thereby making the CSX25 operational.
- . activate the HDLC line to access TRANSPAC through the "RT LNnn" network control command (this manipulation is not in the scope of the terminal operator)

Note : The identification "LNnn" of the RT command for the URP to access TRANSPAC is declared in the SRST at the time of DPS 7 installation, and appears in the "work-sheet" previously supplied to the system console operator by the operations or installation manager.

This RT command is entered after the start-up of the communications session through the ST system console command.

Once the CSX25 and the HDLC access line are operational, the terminal operator on the VIP-type terminal or QUESTAR terminal, as the case may be, performs the following actions,

- . power up the terminal
- . key in the command `*$CNX`, then "transmit" : the following occurs
  - the command is transmitted to the CSX25 on the side of the terminal
  - the CSX25 in the case of a switched virtual circuit, initiates a "call" packet to TRANSPAC (for a permanent virtual circuit, connection is direct)
  - TRANSPAC tallies the "subscriber-number" implicitly built into the "call" packet with the DPS 7 "subscription-number" declared as the argument of the SUBNB parameter in the LSUB command at network generation
  - if both numbers tally, the virtual circuit is established

Note : LSUB and SUBNB are aliases for GENNET and TPCADD respectively.

- . wait for the CSX25 to reply as appropriate
  - VOUS ETES CONNECTE (you are connected) : all the components of the virtual circuit are physically functional and logically available
  - VOUS ETES DECONNECTE xx : connection has been refused, where xx is a 2-letter mnemonic for the reason and/or source of refusal

Note : For the list of mnemonics and for further details of operational procedures, refer to the DCU7010/7011 Converter User Guide and the Terminal Cluster User Guide for VIP-type terminals and QUESTAR terminals, respectively.

- logon dialog with the DPS 7 now starts.

## ESTABLISHING THE LOGICAL CONNECTION

The procedure for establishing the logical connection depends on the AUTO and ASSIGN options declared for the terminal at network generation either in the TERMNL command or in the RDTN command.

For switched lines of the URP local network, the IDSEQ command can be used to indicate to the BTNS terminal manager to identify the terminal (TERMNL).

The following descriptions for AUTO and ASSIGN are valid for terminals which are declared with either option only. For both AUTO and ASSIGN, see page 3-14.

**AUTO** : the terminal is submitted to automatic connection algorithms by the terminal manager, before being set to the LOGGED state, according to the following sequence :

- QMON is requested to scan its output queues for one with the same name as the terminal and checks if the queue contains any data pending to be output
- if such a queue exists and contains data, the terminal manager initiates the output of the data to the terminal
- when all the data destined for the terminal is output, the terminal is left in the LOGGED state, which means that any communications service can from then on seize the terminal to process an outward connection.

If a queue exists but contains no data, or if no queue matching the terminal exists, the terminal is set immediately to the LOGGED state.

**ASSIGN** : the terminal is dedicated to a particular server which can be

- either QMON, in which case, the ASSIGN parameter specifies as its argument the name of the queue bearing the same name as the terminal
- or a VCAM subsystem specified in the DCTAP command and as the argument of the ASSIGN parameter.

The ASSIGN parameter applies only to "master" terminals. An ASSIGNED terminal can be dynamically deassigned or re-assigned through the MTT network control command.

There are four terminal categories according to what options are declared, namely,

- general-purpose terminal : neither AUTO nor ASSIGN declared  
The logical connection is initiated by the operator who can then access any application
- automatic terminal : only AUTO declared but not ASSIGN  
The logical connection is initiated by the terminal manager and completed when any application requests connection to the terminal
- dedicated terminal : only ASSIGN declared but not AUTO  
The logical connection is initiated by the operator and directed to the application specified as the argument in the ASSIGN option
- automatic-dedicated terminal : both AUTO and ASSIGN declared  
The logical connection is initiated by the terminal manager and directed to the application specified as the argument in the ASSIGN option.

According to the terminal category and its connection type, request for logon is as follows, after the terminal has been powered up

- for switched lines: dial-up causes the BTNS terminal manager to detect the ring indicator over the line as initiation for logon
- for terminals declared with AUTO over non-switched lines, the start-up of the communications session results in a request to the terminal manager for logon without operator action
- for general-purpose terminals and dedicated terminals over non-switched lines, the "break" signal initializes the logon dialog with the terminal manager.

IDSEQ : the terminal operator provides the "identification-sequence" specified in the IDSEQ command.

On receiving the "id" of any of the valid IDSEQ commands, the BTNS terminal manager retrieves the default terminal characteristics from the "terminal-type" and "terminal-subtype[s]" specified in the appropriate command to manage the terminal.

Default characteristics include such features as page and line length, password erasing sequence, automatic line-feed capability and device address.

If no IDSEQ command is specified, the entry ID does not appear in the CCO1 logon message and the terminal is then strictly managed according to the parameters defined in the TERMNL command.

For non-switched lines, the IDSEQ command does not apply.

Logon  
Dialog and Procedures  
(xxxx = terminal-name , yyyy = application-name)

CNC option	switched line : power-on + dial-up		non-switched line
	with IDSEQ	no IDSEQ	power-on - ["break"]
<u>none general purpose</u>	CCO1 ID,USER/PROJECT/ BILLING , APPL ?  CCO2 PASSWORD ?  hh. mm xxxx ACTIVATED FOR yyyy ON mm. dd, 1984	CCO1 USER / PROJECT / BILLING , APPL ?  CCO2 PASSWORD ?  hh. mm xxxx ACTIVATED FOR yyyy ON mm. dd, 1984	<u>"break"</u>  CCO1 USER / PROJECT / BILLING , APPL ?  CCO2 PASSWORD ?  hh. mm xxxx ACTIVATED FOR yyyy ON mm. dd, 1984
<u>AUTO automatic</u>	CCOO ID ?  hh. mm xxxx ACTIVATED FOR ***** ON mm. dd, 1984  hh. mm xxxx ACTIVATED FOR yyyy ON mm. dd, 1984	hh. mm xxxx ACTIVATED FOR ***** ON mm. dd, 1984  hh. mm xxxx ACTIVATED FOR yyyy ON mm. dd, 1984	hh. mm xxxx ACTIVATED FOR ***** ON mm. dd, 1984  hh. mm xxxx ACTIVATED FOR yyyy ON mm. dd, 1984
<u>ASSIGN = yyyy dedicated</u>	CCO1 ID,USER/PROJECT/ BILLING ?  CCO2 PASSWORD ?  hh. mm xxxx ACTIVATED FOR yyyy ON mm. dd, 1984	CCO1 USER / PROJECT / BILLING ?  CCO2 PASSWORD ?  hh. mm xxxx ACTIVATED FOR yyyy ON mm. dd, 1984	<u>"break"</u>  CCO1 USER / PROJECT / BILLING ?  CCO2 PASSWORD ?  hh. mm xxxx ACTIVATED FOR yyyy ON mm. dd, 1984
<u>AUTO ASSIGN = yyyy automatic dedicated</u>	CCOO ID ?  hh. mm xxxx ACTIVATED FOR yyyy ON mm. dd, 1984	hh. mm xxxx ACTIVATED FOR yyyy ON mm. dd, 1984	hh. mm xxxx ACTIVATED FOR yyyy ON mm. dd, 1984





### Logon of an Automatic Terminal

The logical connection of an automatic terminal once initiated, is directed to

- . either a MAM application, when the output queue associated with the terminal is "enabled" and contains data to be dispatched
- . or a communications service, otherwise known as a VCAM subsystem, when both conditions are fulfilled
  - that an output queue does not exist for the terminal to be connected to the MAM application
  - that the communications service itself requests the terminal, in which case the terminal is "enabled" for connection while in the LOGGED state.

When the BTNS terminal manager initiates the logon of an automatic terminal, operator intervention is only required in the case where

- . the terminal is connected over a switched line
- . and IDSEQ command(s) have been declared at network generation.

The following message appears :

CC01 ID?

The operator replies with whatever "id" is appropriate (if more than one IDSEQ command has been declared, any of the "id's" is valid and will be accepted) and the following events occur

- . the terminal manager issues a connection request to QMON to scan for an out-queue bearing the same name as the terminal

If such a queue exists and contains data, the data is output to the terminal which is then left in the LOGGED state.

If such a queue exists but contains no data, or if no such queue exists, the terminal is immediately set to the LOGGED state.

The following message appears :

CC33 terminal-name LOGGED TO TERMINAL MANAGER

- . once the terminal is in the LOGGED state, it is available for allocation to any application which requests it, for example, TDS can issue the request to spawn a transaction for the terminal.

Note : Terminals declared with only AUTO are not checked for "userid". However, catalog checks are made at the time of "spawn".

### Logon of a Dedicated Terminal

The logical connection of a dedicated terminal once initiated is directed to the application specified as the argument for its ASSIGN option.

The application to which the terminal is dedicated must be present in the list of applications known to the system and attached to the project under which the operator is to log on.

During the communications session, the MTT network control command can be used

- . either to deassign the dedicated terminal to become a "general-purpose" terminal
- . or to re-assign the dedication of the terminal from one application to another.

The request for logon initiates the same response as for a "general-purpose" terminal except that the entry APPL does not appear in the CC01 message.

The BTNS terminal manager sends the following message :

- . CC01 [ID,] USER / PROJECT / BILLING ?

the operator keys in the required operands but cannot specify the application and its accompanying options.

## Logon of an Automatic-Dedicated Terminal

An automatic-dedicated terminal combines the operational attributes of both an "automatic" terminal and a "dedicated" terminal :

- as an "automatic" terminal, the only operator intervention required when the BTNS terminal manager initiates the logon is in the case where the terminal is connected over a switched line for a network declared with IDSEQ command(s)
- as a "dedicated" terminal, the logical connection once initiated is directed to the application declared as the argument for ics ASSIGN option.

The MTT network control command can alter the status of an automatic-dedicated terminal to an "automatic" terminal or the dedication of the terminal from one application to another.

When operator intervention is needed, the terminal manager sends the message :

CCOO ID?

The operator replies with the appropriate "id" and the following events occur

- the terminal manager issues a connection request to the mailbox named in the ASSIGN option
- this request is checked against the site-catalog as follows :
  - the userid is built in the concatenated format of  
either <gencom-name><terminal-name> or <lsys-name><terminal-name>  
where "gencom-name" will only be used by default if the pair-set, LSYS and LSC, is not declared at network generation, and where either "gencom-name" or "lsys-name" if less than 4 characters, will be right padded with underscores to make up 4 characters before being concatenated to "terminal-name"
  - this userid must then belong to a project for which the application named in the ASSIGN option has access rights.

## Logon of a Multi-Terminal Station

A terminal of the VIP line procedure can, in general, be defined with one or more "slave's". This is done by defining consecutive TERMNL commands with the SLAVE option following a TERMNL command for which a valid "terminal-type" has been specified.

A multi-terminal station is composed of such configured terminals with one or several "master's" for other "slave's" attached to the same station.

In such a "master / slave[s]" configuration, the AUTO and ASSIGN options only apply to the "master" description, the "slave's" being subordinate to the "master" follow its operational procedure.

The "master / slave[s]" concept is for the convenience of logon and operation :

- . when the "master" logs on and is then allocated to an application, all its "slave's" are logged on at the same time and allocated to the same application
- . if the "master" is a dedicated terminal, all its "slave's" are dedicated to the same application
- . no "slave's" can log on or be dedicated to an application independently of its "master"
- . an MTT network control command deassigning or re-assigning a dedicated "master" also deassigns or re-assigns its "slave's", respectively.

## SUCCESSFUL LOGON

If logon has been successful, the following message appears :

hh.mm terminal-name ACTIVATED FOR application-name ON mm.dd.yy

where "application-name" can be

- . either "program-queue-name" identifying the MAM application
- . or "program-name" identifying the communications service.

If the terminal has been declared with AUTO only and has yet to be allocated to an application, the following message appears

CC33 terminal-name LOGGED TO TERMINAL MANAGER.

Successful logon implies

- . the availability of the physical link between the terminal and the DPS 7
- . the availability of the application requested
- . the successful checkout of the logon parameters, either manually keyed in or automatically provided, against those defined for the relevant objects in the GCOS site-catalog.

Availability of the Application :

For a MAM application, its program-queue is immediately available once the communications session is started up and QMON is activated through the ST QMON system console command, provided that the queue is not in the HELD state for the following reasons,

- . its associated QUEUE command has not been declared with the CLOSE option at network generation
- . an HT network control command has not been issued to the queue concerned
- . a DISABLE statement has not been previously executed by an application on the queue concerned, see MAM User Guide.

In order for the terminal to receive messages and data, the network generation must, in addition, declare an output queue which can be either a terminal-queue or a userid-queue, corresponding to the terminal logging on.

For a communications service, otherwise known as a VCAM subsystem, the start-up of the communications session makes it immediately available. However, in the case of TDS, the version of TDS must first be started up by the DPS 7 system console operator through the SJ command before its transactions are available.

## GCOS Site-Catalog Checks :

The parameters checked against the GCOS site-catalog, except "id", are

- id :  
ranges from 1 through 4 alphanumeric characters and defines the "identification-sequence" of the IDSEQ command whose default characteristics are to be used to manage the terminal. The operator can enter an empty string for the "id". In this case, the terminal will be managed strictly according to its parameters defined at network generation.  
Note : "id" is a dynamic entity used at the time of logon.
- userid :  
ranges from 1 through 12 alphanumeric characters and identifies the operator logging on at the terminal.  
This is the only mandatory entry by the operator of a terminal not declared with the AUTO option. The userid, in this case, is explicit.  
  
For terminals declared with the AUTO option, the userid is implicit and takes the format : <gencom-name><terminal-name> or <lsys-name><terminal-name>, where "gencom-name" will only be used by default if the pair-set, LSYS and LSC, is not declared at network generation, and where either "gencom-name" or "lsys-name" if less than 4 characters, will be right padded with underscores to make up 4 characters before being concatenated to "terminal-name". This default userid must be declared by CATMAINT in the site-catalog to match the network generated and is used either to check out the project for which the application named for an "automatic-dedicated" terminal has access rights or to "spawn" to an "automatic" terminal by TDS.
- project :  
ranges from 1 through 12 alphanumeric characters and defines the project under which the operator wants to log on. The project need not be specified if the operator logs on under the default project defined for the userid. To bypass the start-up of the project, which would otherwise be executed for IOF users catalogued for a project or declared with a project when logging on, the entry !NSTARTUP can be keyed in. The symbol "!" corresponds to the key generating the code "21" (ASCII) or "4F" (EBCDIC).
- billing :  
ranges from 1 through 12 alphanumeric characters and specifies the name to be used for the accounting and control of the current project. Billing can only be specified, if the project is specified. This parameter can be omitted if the operator logs on under the default billing attached to the referenced project.
- application :  
ranges from 1 through 8 alphanumeric characters and defines either the "program-queue-name" for the MAM application or the "program-name" for the communications service, otherwise known as a VCAM subsystem. This option does not appear for a terminal declared with the ASSIGN option. The application need not be specified if the operator logs on to the default application attached to the referenced project.
- \$station :  
ranges from 1 through 8 alphanumeric characters and defines the IOF / RBF logical station to which the operator wants to log on. This parameter is omitted if the user logs on under the default logical station attached to the referenced project or does not connect to IOF or RBF applications.

## UNSUCCESSFUL LOGON

If an operator response during the logon dialog is incorrect, the system will terminate the dialog with the message :

```
CCO4 LOGON DENIED : reason
```

where "reason" gives the cause or the type of refusal.

In the case of a "master / slave [s]" terminal configuration, an additional logon rejection message can appear on the "master" of the format :

```
hh.mm AUXILIARY DEVICE terminal-name NOT CONNECTED : reason
```

where "reason" defines the operational state of the "slave".

If the GCOS site-catalog has not yet been validated, such applications as IOF, TDS and RBF, will deny logon with the message :

```
CCO4 LOGON DENIED : ACCESS RIGHTS VIOLATION.
```

Checkouts against the GCOS site-catalog ensure that unauthorized users are denied access to the system. Logging such violations provides a record of this security control.

In order to do this, SVIOL is specified in the ACCOUNT statement of the CONFIG utility, whereby system-violation records, to which logon violations belong, are written to the accounting file, see System Management Guide.

This accounting file is printed out by the DUMPACT utility which can be submitted either manually by the operator or automatically by the system.

If no DUMPACT statement is specified at CONFIG, the operator is warned with the repetitive message when the accounting file is full to run the DUMPACT utility :

```
*AC01 GCOS : ACCOUNTING FILE FULL. RUN DUMPACT.
```

If, however, DUMPACT has been specified at CONFIG, no operator intervention is required when the accounting file is full since the system will automatically print out the file and, once completed, will inform the operator accordingly :

```
*AC02 GCOS : ACCOUNTING FILE FULL. DUMPACT COMMAND SUBMITTED.
```

Whatever the reasons for the denial to log on, the logon dialog can be restarted by sending the "break" signal.



## TERMINATING THE LOGICAL CONNECTION

The logical connection between the terminal and the application is terminated or suspended

- . at the request of the terminal operator entering
  - `$$$DIS` to be processed by the BTNS terminal manager
  - commands addressable over the TRANSPAC/URP secondary network
- . disconnection from PAD
  - press CONTROL and the key P simultaneously
  - key in the string LIB, then "carriage-return"
  - PAD will then reply : LIB CONF
- . disconnection from CSX25 (DCU7010 and TCU7022/7043)
  - key in the command `$$$DCX`, then "transmit"
  - CSX25 will then reply : VOUS ETES DECONNECTE xx
- BYE addressed to IOF or TDS
- . on the intervention of the network control operator using either command
  - TT to terminate the communications session
  - HT to hold the terminal or any of its higher objects
- . on the intervention of the TDS master terminal operator using the commands
  - M CANCEL to "abort" the current transaction
  - M REMOVE to allow completion of the current transaction before logoff
  - M STOP to terminate the TDS session
- . on the occurrence of a malfunction in any of the components constituting the link between the terminal and the application, which includes powering down equipment before an authorized logoff.

An example of an authorized logoff is in the case of TDS when the terminal operator issues BYE or when the master terminal operator issues M STOP. Through either command, TDS is made aware that the user or all users, respectively, are to log off and TDS can therefore perform the appropriate housekeeping functions.

An example of a non-authorized logoff is when the terminal operator enters `$$$DIS` or when the network control operator enters TT STRONG before the terminal operators of the network can clear down and log off correctly. Since either command can be entered at any time, the application(s) cannot be warned in time to perform the appropriate housekeeping functions and to save the user-files of the user or all users, respectively.

Whatever the means of logoff, the state of the terminal is set to IDLE unless

- . otherwise set to HELD by the HT network control command
- . the terminal is "automatic", in which case, it is set to LOGGED.

If at logoff, the terminal is physically available, the BTNS terminal manager will send a "disconnection" banner to the terminal :

hh.mm terminal-name DEACTIVATED BY { APPL | OPERATOR | SYSTEM | USER }.



## SECTION IV

### COMMANDS

The commands available to the terminal operator for network management are all addressable to BTNS and are shown preceded by the default "break-qualifier" `*$`.

This "break-qualifier" which is used by BTNS to distinguish a network command from a system OCL command, can be overridden through the use of the SIMBRK option in the GENCOM command at network generation.

# APL

## Definition

The "APL Character Translation" command applies only to the AJ832 and AJ833 and is used over a leased or switched line to indicate to BTNS to allow the use of the APL character set.

If the "identification-sequence" is to be used for the logon dialog, the corresponding IDSEQ command must be defined with either "AJ832" or "AJ833" as the "terminal-type". Otherwise, the APL command will be rejected.

The APL command is accepted whatever the status of the terminal.

## Format of Command

$\$ * \$ \left\{ \begin{array}{l} \text{APL} \\ \text{apl} \end{array} \right\}$
--

## Definition

The "Break" command generates an "interrupt" and is an alternative way to the physical "break" capability.

Only TTY-type terminals have this physical "break" capability.

If the BRK command is issued from a VIP-type terminal in a "page-overflow" condition, it has the effect of BRK + RDY, that is,

- . the "interrupt" is processed
- . and output to the terminal is resumed.

The message BRK MEANINGLESS appears when the BRK command cannot be processed as the terminal is in a transient state.

A lack of response to the BRK command means that the link between the DPS 7 and the terminal is "held"

- . physically, in the sense that the components of the link are "down" or malfunction, the latter condition being detected by the BTNS line monitor and reported to the network control terminal operator
- . logically, in the sense that the terminal itself or any component at a higher level has been "held" by an HT network control command.

## Format of Command

\$ \* \$ BRK

## Effect of Command

The effect of the command depends on the status of the terminal issuing it.

### IDLE :

If the terminal is IDLE, the "break" signal is sent to the BTNS terminal manager which starts the logon dialog.

### LOGGING :

If the logon dialog is not completed, the "break" signal is sent to the BTNS terminal manager and the logon dialog is restarted.

### CONNECTED :

The "break" signal is processed as follows,

- . For a MAM application, QMON reports the "break" signal to the application provided that the queue on which the terminal is logged has been specified with the BREAK option at network generation
- . For a VCAM subsystem, processing of the "break" signal depends on the type of the subsystem, for example, in the case of IOF, the interactive processor returns the "break" prompt in the form ??? to which the user has a number of options to reply with.

# BT

## Definition

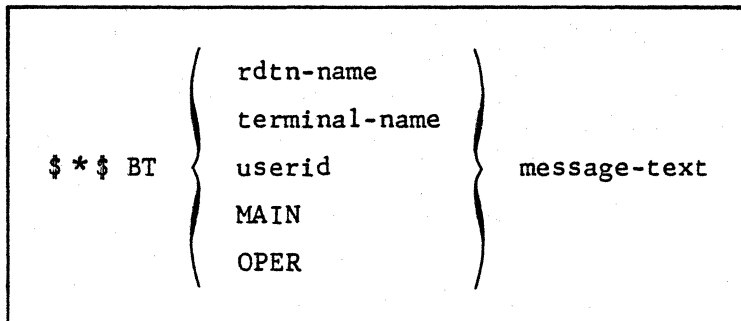
The "Broadcast Telecom" command sends a message to destinations declared by the appropriate operand.

The destination will receive the message prefixed by the time of emission and the name of the sender.

Rules : The BT command will be executed under the following conditions,

- . that the user is allowed to execute BT commands if this capability is specified by the default BROADCAST parameter of "project" in CATMAINT for the GCOS site catalog
- . that the destination terminal has not been specified with the NOBT or NSYSMES options at network generation
- . that the terminal to which the message is sent is not in HELD.

## Format of Command



## Description of Parameters

### rdtn-name

- ranges from 1 through 4 alphanumeric characters and uniquely identifies the "remote data terminal".

The rdtn represents a terminal in the TRANSPAC/URP secondary network and can only be accessed if not "disabled", that is, a virtual circuit must exist to the terminal.

### terminal-name

- ranges from 1 through 4 alphanumeric characters and uniquely identifies the terminal in the URP local network.

### userid

- ranges from 1 through 12 alphanumeric characters and uniquely identifies the operator currently logged on to a terminal of the BTNS/URP secondary network.

### MAIN

- keyword to identify the destination as the DPS 7 system console.

Description of Parameters (continued)

OPER

- keyword to identify the destination as the network control terminal.

message

- a string of up to 128 alphanumeric characters.

If the message includes "spaces", it must be enclosed between open and close quotation marks; in this case, only the text is transmitted, not the quotation marks.

# DIS

## Definition

The "Disconnect" command terminates the connection between

- . the terminal on one side
- . and on the other side, either the MAM application or VCAM subsystem.

The use of the command is not the normal way of terminating the session.

The normal termination of the session must be the result of

- . either a decision of the application or subsystem to terminate the session
- . or a request from the terminal to terminate the session through a pre-defined command acceptable to the subsystem, such as BYE to TDS and IOF.

## Format of Command

```
$*$ DIS [HOLD ]
```

## Description of Parameter

### HOLD

- the terminal is returned to the IDLE state but the line is not disabled.

This means that the terminal operator, in order to initiate logon, has only to send a "break" signal without having to dial up again, see BRK.

★

## Effect of Command on Line Status

If HOLD is not specified for a switched line, the terminal is set to IDLE and

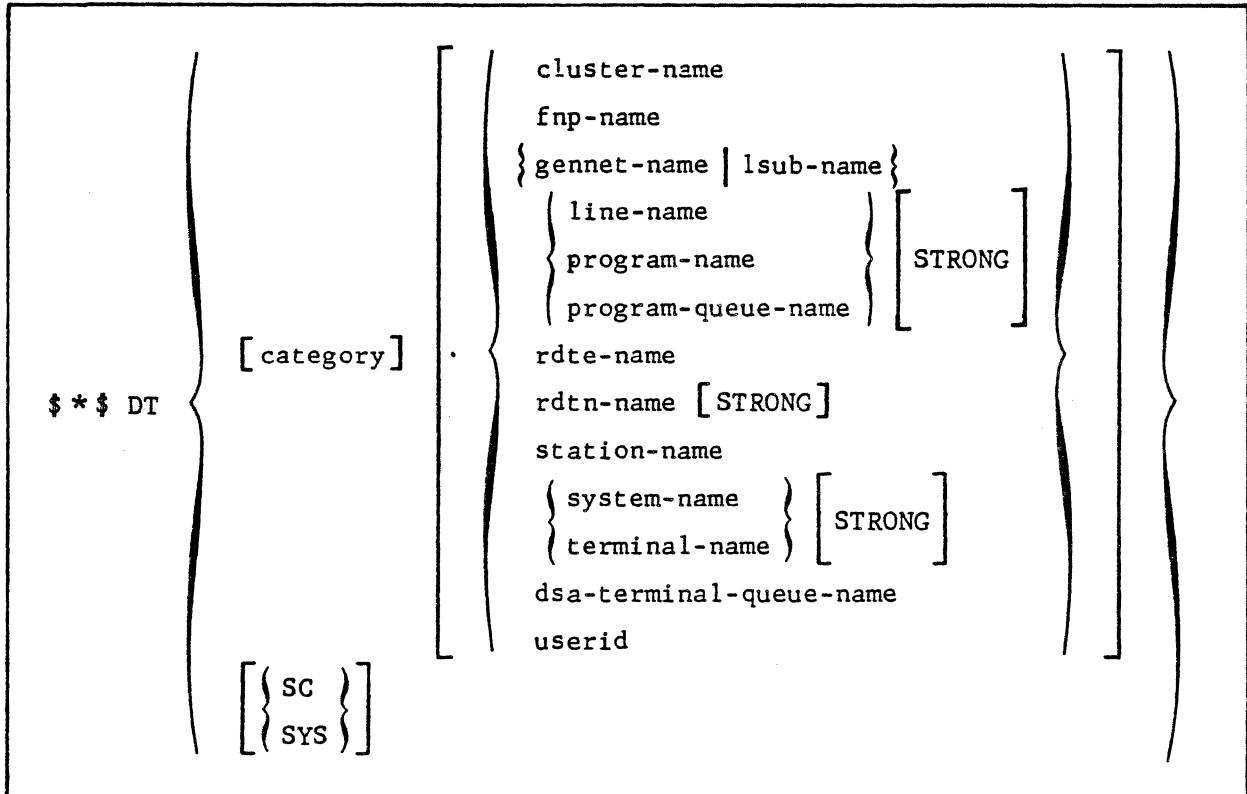
- . either the line is "disabled", if the terminal issuing the DIS command is the last one powered on and functional on the line
- . or the line is not "disabled", if other terminals are still active over the line.



Definition

The "Display Telecom" command provides information on the network object. If no operand is specified, the command is treated as "DT terminal-name" acting on the submitter terminal.

Format of Command



Description of Parameters

category

- a keyword to denote an "object-class" to be specified with its appropriate "object-name" to resolve the ambiguity caused by different objects having the same names.

If MB (mailbox) is specified, the corresponding object can be

- . program-name or program-queue-name
- . rdtn-name or terminal-name or dsa-terminal-queue-name
- . the name of a system mailbox such as \$LOGFILE or \$NASF.

Allowed categories are

- |           |              |            |          |         |          |
|-----------|--------------|------------|----------|---------|----------|
| . CLUSTER | . FSYS §     | . LINE     | . MB     | . RDTN  | . STATN  |
| . FNP     | . { GENNET } | . LSC §    | . QUEUE  | . RSC § | . TERMNL |
| . FSC §   |              | . { LSUB } | . LSYS § | . RDTE  | . RSYS § |
|           |              |            |          |         | . USERID |

§ Note : See "system-name" for description.

# DT

## continued

### Description of Parameters

#### cluster-name

- ranges from 1 through 4 alphanumeric characters and uniquely identifies a set of stations connected over a polled line of the BTNS/URP secondary network.

"DT cluster-name" displays

- . the current status of the cluster, whether HELD or not
- . the list and status of stations pertaining to the cluster.

#### fnp-name

- ranges from 1 through 8 alphanumeric characters and uniquely identifies the FNPS service in the FNP command at network generation.

"DT fnp-name" displays

- . the current status of the associated DN7100 in terms of
  - executing state
  - "load" processing
  - dump in progress
  - sysgen running
- . the number of channels used.

#### gennet-name or lsub-name

- ranges from 1 through 4 alphanumeric characters and uniquely identifies the TRANSPAC subscription that allows access to GCOS64 via the BTNS/URP interface over the HDLC link.

Note : TRANSPAC refers specifically to the public network in France.

"DT gennet-name" displays

- . the TRANSPAC subscription number
- . the number of virtual circuits declared and active.

#### line-name

- takes the format LNnn, where nn ranges from 01 through 99, and uniquely identifies the communications line within the BTNS/URP secondary network as declared in the SRST at the time of installation.

"DT line-name" displays

- . the current status of the line, whether HELD or not
- . the current firmware parameters, such as time-out and speed
- . the counts of messages and errors over the line
- . the current polling list, if the line is multipoint.

"DT line-name STRONG" displays in addition to the above, the list and status of all objects pertaining to the line, such as clusters, stations and terminals, where applicable.

#### program-name

- ranges from 1 through 8 alphanumeric characters and uniquely identifies the appropriate communications service, otherwise known as VCAM subsystem.

"DT program-name" displays the current status of the communications service in terms of

- . the number of terminals connected and the allowable maximum
- . the number of terminals waiting for connection and the maximum allowed.

Description of Parameters (continued)

program-name (continued)

- "DT program-name STRONG" displays in addition to the previous information, the users connected and waiting for connection, identified as follows
  - . users logged on to BTNS are identified by their "terminal-name"
  - . users logged on to BTNS/HDLG are identified by the keyword TNS
  - . users logged on over the DN7100 are identified by the keyword FNPS.

program-queue-name

- ranges from 1 through 8 alphanumeric characters and uniquely identifies the program-queue used by MAM applications to receive messages.

"DT program-queue-name" displays the current status of the program-queue, whether HELD or not, in terms of

- . the number of messages present in the queue
- . the percentage of space occupied in the queue
- . the current data formats used over the line.

"DT program-queue-name STRONG" displays in addition to the above, the list of userid's and the number of terminals connected and waiting to connect to the program-queue.

rdte-name

- ranges from 1 through 4 alphanumeric characters and uniquely identifies the "remote-data-equipment" accessed by the TRANSPAC subscription over the HDLC link of the TRANSPAC/URP secondary network.

Note : TRANSPAC refers specifically to the public network in France.

"DT rdte-name" displays

- . the TRANSPAC address of the rdte, being the subscription telephone number
- . the current status of the rdte.

rdtn-name

- ranges from 1 through 4 alphanumeric characters and uniquely identifies the "remote-data-terminal" associated with its corresponding rdte.

Command execution follows the same rules as defined for "terminal-name".

Note : The rdtn represents a terminal in the TRANSPAC/URP secondary network accessed by the TRANSPAC subscription, see RDTE.

station-name

- ranges from 1 through 8 alphanumeric characters and uniquely identifies the station in the URP local network.

"DT station-name" displays

- . the station-index (STI)
- . the current status of the station, whether powered up and /or HELD
- . the status of the terminals belonging to the station.

# DT

## continued

### Description of Parameters (continued)

#### system-name

- ranges from 1 through 4 alphanumeric characters and identifies the DSA system within the DPS 7 network.

The three types of systems declared by their respective "system/session-control" pair-sets of CNC commands are

- . LSYS / LSC for the "local system" being the DPS 7 configuring the network
- . FSYS / FSC for the "front-end system" being the DN7100
- . RSYS / RSC for the "remote system" accessing and accessed by the network.

Since the name of the "session-control" is the same as that of its associated "system", the "category" must be used with the "name" to distinguish one from other, e.g., "DT FSYS DN1" and "DT FSC DN1" distinguish the DN1 system as the "front-end system" as opposed to the DN1 system as the "session-control".

"DT <system-category> <system-name>" displays the "profile" of the system.

"DT <session-control-category> <system-name> STRONG" applies to FSC and RSC, and displays the names of the FNPS services providing access to the respective systems.

#### terminal-name

- ranges from 1 through 8 alphanumeric characters and uniquely identifies the terminal in the URP local network.

"DT terminal-name" displays its current status and the userid; if however, a terminal-queue has been defined, the following additional information appears

- . its current status, whether HELD or not
- . the number of messages it contains
- . its percentage space occupied
- . its editing parameters as defined in the MTE command.

"DT terminal-name STRONG" displays in addition to the information above, the number of messages exchanged by the terminal since the beginning of the communications session.

#### dsa-terminal-queue-name

- identifies the queue used to send messages to an application over either a DN7100 secondary network or a primary network connecting a DSA remote system.

The format of the queue-name is {<fsys-name>|<rsys-name>}.<mailbox-name> where

- . "fsys-name" or "rsys-name" ranges from 1 through 4 alphanumeric characters, see "system-name" above for definitions
- . "mailbox-name" ranges from 1 through 8 alphanumeric characters
- . the total string, excluding the "full-stop", is 12 characters.

"DT dsa-terminal-queue-name" displays its current status in terms of

- . the number of messages it contains
- . its percentage space occupied
- . its editing parameters as defined in the MTE command.

Description of Parameters (continued)

userid

- ranges from 1 through 12 alphanumeric characters and uniquely identifies the operator currently logged on to a terminal of the URP local network.

"DT userid" displays

- . the current status of the terminal, whether HELD or not
- . the name of the terminal on which the named user has logged on.

SC or SYS

- keywords to specify all "session-control" objects and all "system" objects, respectively.

Since the name of the "session-control" is the same as that of its associated "system", "DT SC" and "DT SYS" will list the same object-names.



Description of Parameters (continued)

block-size (continued)

- This parameter is meaningful only with "message blocking" and is used to alter
  - . either the NBLOCKS value as specified originally in the QUEUE command at network generation
  - . or a subsequent "block-size" value specified in the MTE command previously issued during the course of the current communications session.

The length of the message transmitted is defined by the algorithm :

$$(NBLOCKS \times LLENGTH) = \text{maximum message length}$$

Any part of a message exceeding the "maximum message length" will be truncated. In order to avoid this situation occurring, the terminal operator can during the course of the communications session, dynamically alter either or both of these values :

80 \*

This means that the "line-length" is to be altered from whatever value is current to 80, while the "block-size" is to remain unchanged.

\* 30

This means that the "block-size" is to be altered from whatever value is current to 30, while the "line-length" is to remain unchanged.

IMARK

- denotes "input mark mode" and corresponds to the IM=MK option in the CNC QUEUE command whereby
  - . headers are passed as marks of the format ><U03abc
  - . all hexadecimal control codes are translated into their corresponding mark formats
  - . character encoding and "repeat" formats are translated
  - . other characters, including control codes in mark format, are passed without translation.

INEDT

- denotes "input unedited mode" and corresponds to the IM=UN option in the CNC QUEUE command whereby
  - . headers are passed as marks of the format ><U03abc
  - . other characters, including control codes in mark format, character encoding and "repeat" formats, are passed without translation.

INORM

- denotes "input normal mode" and corresponds to the IM=NL option in the CNC QUEUE command whereby
  - . headers and control codes, except HT and ESC, are not passed
  - . character encoding and "repeat" formats are translated
  - . other characters, including control codes in mark format, are passed without translation.

# MTE

## continued

### Description of Parameters (continued)

#### ONEDT

- denotes "output unedited mode" and corresponds to the OM=UN option in the CNC QUEUE command whereby
  - . the user can provide VIP-headers in the mark format ><U03abc
  - . other characters, including control codes in mark format, character encoding and "repeat" formats, are passed without translation.

#### ONORM

- denotes "output normal mode" and corresponds to the OM=NL option in the CNC QUEUE command whereby
  - . the user can provide VIP-headers in the mark format ><U03abc
  - . character encoding and "repeat" formats are translated
  - . unreserved codes and inapplicable hexadecimal control codes are translated into character encoding formats ><Cab
  - . control codes in mark format specific to the terminal are translated into hexadecimal values
  - . all other characters, including applicable hexadecimal control codes, are passed without translation.



## Definition

The "No APL Character Translation" command applies only to the AJ832 and AJ833 and is used to indicate to BTNS to cease further processing of input/output messages to and from the terminal through the conversion tables for the APL character set.

This command is issued to cancel the APL command.



## Format of Command

$*\$ \left\{ \begin{array}{l} \text{NAPL} \\ \text{napl} \end{array} \right\}$
--

# RDY

## Definition

The "Ready" command is used to reset the "busy" state of a VIP-type terminal caused by the "page-overflow" condition.

This command informs BTNS that the terminal is again available after a "clear" by the terminal operator.

The message causing the "page-overflow" condition will

- . either resume to be output to the terminal, if RDY without option is issued
- . or be deleted, if RDY with STRONG is issued.

★

## Format of Command

`$$$ RDY [ STRONG ]`

## Description of Parameter

### STRONG

- deletes the message causing the "page-overflow" condition.

This option is useful in cases where either or both conditions occur,

- . the message sent by the application is longer than the screen size can accommodate
- . the application positions the cursor beyond the limits of the screen.

## Alternative to the Command

Instead of using the RDY command, the alternative is to "clear" the terminal followed by any input to the application.

Definition

The "Reset Lower Case" command applies to terminals without the "CAPITALS LOCK" key and dynamically requests BTNS to translate small letters entered at the terminal into capital letters.

Format of Command

`$$ rlc`

Use of Command

GCOS OCL and JCL commands are composed of capital letters, numerics and special characters used as field delimiters.

Terminals, like Iriscope 200, transmit small letters without SHIFT, and capitals only when SHIFT is depressed. However, SHIFT not only "shifts" smalls to capitals, it also "shifts" numerics and special characters.

Most terminals possess the "CAPITALS LOCK" which when depressed only locks small letters into capitals while leaving numerics and special characters unchanged.

Iriscope 200 does not have the "CAPITALS LOCK". As a consequence the \$\$rlc command is intended for such terminals to perform such character conversion by software what the "CAPITALS LOCK" mechanism does by hardware.

The \$\$rlc command can be sent even before logging on the terminal, that is, before replying to the CCO1 message.

# RML

## Definition

The "Reset Mode Line" command applies only to the IBM3270 and cancels the SML command.

As a result, screen formatting is returned as a function of the terminal and all cursor positionings are achieved by transmitting "native" control codes to the terminal.

Screen formatting is longer automatic, and the MAM application to which the terminal is connected becomes responsible for line display on the screen.

## Format of Command

\$*\$ RML
-----------

## Use of Command

This command returns the IBM3270 from line-by-line mode to character mode. The purpose of this is to enable the terminal to use TDS and MAM applications.

Screen formatting is done by the application, in the case of TDS, the formatting interface is provided by FORMS.

Definition

The "Release Telecom" command indicates to the BTNS terminal manager to resume activity on a specified terminal. In the absence of a terminal being specified, the command applies to the submitter terminal.

The command performs one of the appropriate actions,

- . triggers off the reconnection of an automatic terminal which has been logged off after a "disconnection" event
- . unlocks the terminal which can be either a general-purpose or dedicated terminal from the HELD state.

Format of Command

```
$*$ RT [ terminal-name ]
```

Description of Parametersterminal-name

- ranges from 1 through 4 alphanumeric characters and uniquely identifies the terminal in the URP local network.

The "terminal-name" is that declared in the TERMNL command at network generation.

# SLC

## Definition

The "Set Lower Case" command applies to terminals without the "CAPITALS LOCK" key and cancels the RLC command.

As a result, small letters entered at the terminal are not translated into capitals.

## Format of Command

```
$$$ slc
```

Definition

The "Set Mode Line" command applies only to the IBM3270 and converts control codes recognizable to the terminal for screen formatting, such as,

- . carriage-return
- . line-feed
- . new-line, generating carriage-return and line-feed.

On the completion of the line on the screen, the cursor is positioned in column 1 of the following line to continue the text display.

This mechanism enables the entire screen to be filled on a line-by-line basis.

Format of Command

```
$$$ SML
```

Use of Command

This mode of support is used for IOF sessions, where the terminal operator issues the command before logging on through \$\$\$BRK.

The formatting of the screen is performed when the \$\$\$BRK command is processed. The BTNS terminal manager recognizes the BSC3270 line procedure and the IOF application, and starts simulating the line-by-line formatting.





## SECTION V

### MESSAGES

Messages received by the terminal can be,

- . messages sent by the application to which the terminal is connected
- . service messages issued by the BTNS terminal manager which are the consequences of
  - commands entered by the network control operator, see Network Control Terminal Operations
  - commands entered by the terminal operator, see Section IV
  - a broadcast from another terminal, including the network control operator.

This section describes messages issued by the BTNS terminal manager which are classified as follows,

- . information, which is an acknowledgement that the command has been executed
- . normal operation, which are
  - either to indicate that a command is to be retried or a procedure to be repeated
  - or to indicate that a reply is required, in which case, the message is prefixed by an asterisk \*.

The categories of messages appearing in the order documented, are

- . time-prefixed messages, which are "information" and which require no operator action
- . key-prefixed messages, the keys being CCnn and QCnn, where nn represents a 2-digit decimal number.

In addition to those messages generated by the BTNS terminal manager, terminals connected over the TRANSPAC/URP secondary network can receive in addition, messages issued by

- . the TRANSPAC PAD for TTY terminals, see Specifications Techniques d'Utilisation du Réseau and Appendix A
- . the DCU7010 convertor for VIP-type terminals
- . the TCU7022/7043 terminal concentrators for QUESTAR terminals.

### BT Message

° hh.mm { terminal-name } message-text  
          { MAIN  
          { OPER

cause : the message is the result of a BT command issued by one of the following,

- . if MAIN, the system console operator
- . if OPER, the network control operator.

### Connection Banner

° hh.mm terminal-name ACTIVATED FOR { program-queue-name } ON mm.dd.yy  
  { program-name

cause : the logon request of the named terminal has been accepted

- . either by the MAM application represented by the "program-queue-name"
- . or by the communications service represented by the "program-name".

### Disconnection Banner

° hh.mm terminal-name DEACTIVATED BY { APPL  
  { OPERATOR  
  { SYSTEM  
  { USER

cause : the terminal named in the message has been disconnected by one of the following,

- . if APPL, the MAM application or communications service
- . if OPERATOR, the network control operator by issuing an HT command to the "terminal-queue" or to the higher objects of the terminal
- . if SYSTEM, GCOS, for example, on "timeout"
- . if USER, the terminal operator by issuing the DIS command.

### Slave Logon Rejection Banner

° hh.mm AUXLR. DEVICE terminal-name NOT CONNECTED : reason

cause : the "slave" of the master logging on has caused the logon to be rejected for the "reason" indicated in the message.

**\* CC00 ID ?**

**type** : normal operation

**syntax** : request for identification of a terminal during logon, having the following attributes,

- . declared at network generation, with
  - the AUTO option
  - one or more IDSEQ commands
- . configured over a switched line at installation time.

**cause** : this message is part of the logon dialog sequence as a result of the ring indicator received over a switched line at dial-up.

**action** : reply as appropriate :

- . either with the name of the required IDSEQ command whose attributes are to manage the terminal
- . or enter an empty string so that the terminal is strictly managed according to the attributes defined in its parameters at network generation.

\* CC01 [ID]USER / PROJECT / BILLING [APPL]?

type : normal operation

syntax : . ID will appear if the terminal is connected over a switched line and if one or more IDSEQ commands have been declared.

- . USER, PROJECT and BILLING as defined in the GCOS site-catalog, see page 3-17
- . APPL will appear if the terminal is not dedicated to an application, by one of the following means,
  - through the MTT network control command
  - at network generation through the ASSIGN option of the TERMNL or RDTN commands.

cause : this message is part of the log-on dialog sequence as a result of

- either a hardware "break" or a BRK command received from a terminal in the IDLE state
- or a ring indicator received over a switched line.

action : reply as appropriate: if the information requested is correct, the CC02 message will appear.

\* CC02    PASSWORD? [XXXXXXXXXXXXX]

type    : normal operation

syntax : request for password associated with the terminal type and application.

On some terminals, the reply field is masked by other characters, shown in the message format as a series of X's, so that the password cannot be read by unauthorized personnel. This case applies particularly to terminals with hard copy.

On other terminals, the operator's reply does not appear at all when keyed in.

cause  : sequel to the correct information given in reply to CC01.

action : reply with the correct password, which can be up to 12 alphanumeric characters.

Note : If a password has not been defined in the site-catalog, any character entered will be accepted as valid.

**CC03** command-name text

type : information

syntax : . "command-name" defines the command to which the reply given in "text" is related.  
          . "text" gives information about the execution of the command.

• **COMPLETED**

cause : the command has been correctly executed  
action: none

• **INVALID NAME string**

cause : "string" defines a component not known to the communications system.  
action: . check the "name" using where appropriate the DT command  
          . reissue the command.

• **INVALID TYPE string**

cause : "string" references the component which is known to the communications system but for which the command issued has no meaning.  
action: . check the "name" of the component  
          . reissue the command.

• **NOT ALLOWED**

cause : the command issued is syntactically valid but in contradiction with the GCOS site-catalog definition  
action: . check the options declared for the component to which the command is to be issued  
          . reissue the command.

## CC04 LOGON DENIED : text

type : normal operation

syntax : "text" defines the reason why log-on has been denied

- ACCESS RIGHTS VIOLATION

cause : an attempt has been made to log on to an application, such as IOF or a version of TDS, which needs a site catalog but such a catalog, however, neither exists nor has been validated.

action: ask the system console operator for the catalog validation, and if the catalog exists, retry log-on.

- APPL REJECT : hh, where "hh" is a hexadecimal code indicating the "reason"

cause : the catalog information at logon is correct but the application has rejected the connection for the "reason" given in the text

action: ask the system console operator for the reason of the rejection, and if no system failure is apparent, retry log-on later.

- DUPLICATE STATION NAME

cause : the IOF or RBF logical station cited in the log-on message has already been used by another connection.

action: use another logical station-name or wait for the disconnection of the user using the referenced station name, and retry log-on.

- IDENTIFICATION UNKNOWN

cause : a reply given to ID in the message CCOO/CCO1 is unknown to BTNS.

Note : the ID-string is defined through the IDSEQ command at network generation.

action: send a "break" interrupt or a BRK command to obtain the CCOO or CCO1 message, and retry logon.

- INVALID LOGON MESSAGE

cause : the replies for log-on message(s) are not syntactically correct.

action: send a "break" interrupt or a BRK command to obtain the CCO1 message, and retry log-on.

- MAILBOX NOT OPERABLE

cause : an attempt has been made to log on to an application which has been declared at network generation through the DCTAP command, but which is currently inactive.

action: wait for the application to be activated, and retry log-on.

- MAILBOX SATURATED

cause : an attempt has been made to log on to an application for which the maximum number of connections has been reached and which specifies that no log-on enqueueing is to be performed.

action: wait for the number of connections to drop, using as appropriate the DT command, and retry log-on.

CC04 LOGON DENIED : text (continued)

• MAILBOX UNKNOWN

cause : an attempt has been made to log on to an application which is not known to the system,

- either because the application is non-existent
- or because the application is inactive since it has not been declared through the DCTAP command at network generation.

action: perform the respective actions,

- verify the name of the application, and if wrongly entered, retry log-on
- wait for the application to be activated, and retry log-on.

• SECURITY CHECKS FAILED

cause : one or more of the specified GCOS site-catalog entries given in reply to the CC01 message is incorrect.

action: • verify the catalog parameters, and if wrongly entered, retry log-on

- if the catalog parameters are correct, request catalog modification, and retry log-on.

• USER ALREADY LOGGED

cause : another user is currently logged under the same userid.

action: • use another userid, and retry log-on

- request the network control operator to disconnect the unauthorized user, and retry log-on.



**CC07** { program-name } MB { DYN } { IDLE } CNCT : n1 / n2 WAITING m1 / m2  
{ program-queue-name } { STAT } { ON }

type : information

syntax : . "program-name" is the version of a VCAM subsystem.

- . "program-queue-name" is the name of the program queue used by MAM application(s).
- . MB denotes mailbox.
- . DYN denotes a "dynamic" mailbox, that is, a mailbox used by a VCAM subsystem like RBF and not declared by a DCTAP command at network generation.
- . STAT denotes a "static" mailbox, that is, one that has been declared by a DCTAP command at network generation.
- . IDLE denotes that the VCAM subsystem either has deactivated its mailbox or is not present in the system.
- . ON denotes that the mailbox is active.
- . CNCT denotes the number of connections as follows,
  - n1 = the number of users currently logged on to the mailbox
  - n2 = the maximum number of users allowed to log on to the mailbox.
- . WAITING denotes the number of users in the waiting state as follows,
  - m1 = the number of users waiting to log on to the mailbox
  - m2 = the maximum number of users allowed to be enqueued for logon to the mailbox.

cause : response to a DT command referencing a "program-name" or a "program-queue-name".

action : none

CC08

terminal-name  $\left\{ \begin{array}{l} \text{CONNECTED} \quad \left\{ \begin{array}{l} \text{ASG TO} \\ \text{WITH} \end{array} \right\} \quad \left\{ \begin{array}{l} \text{program-name} \\ \text{program-queue-name} \end{array} \right\} \\ \text{IDLE} \\ \text{LOGGED} \\ \text{LOGGING} \end{array} \right\}$

USERID =  $\left\{ \begin{array}{l} \text{*****} \\ \text{userid} \end{array} \right\} \left[ \left\{ \begin{array}{l} \text{ALT OF} \\ \text{ALT ON} \end{array} \right\} \text{terminal-name2} \right] \text{IN} = \left\{ \begin{array}{l} \text{Y} \\ \text{N} \end{array} \right\} \text{OU} = \left\{ \begin{array}{l} \text{Y} \\ \text{N} \end{array} \right\}$

type : information

- syntax : . "terminal-name1" identifies the terminal to which the information pertains.
- . CONNECTED denotes that the terminal is currently logged on, as follows,
    - ASG TO meaning that the terminal is dedicated
      - . as a result of either the ASSIGN option in the TERMNL command at network generation, or an MTT network control command issued to the terminal
      - . to either a VCAM subsystem as denoted by "program-name" or a MAM application as denoted by "program-queue-name"
    - WITH meaning that the terminal is general-purpose and can therefore log on to any VCAM subsystem or MAM application.
  - . IDLE denotes that the terminal is not connected but is available for logon, provided that the higher level components, i.e., line, cluster and station, are not in HELD.
  - . LOGGED denotes that the terminal has been declared with the AUTO option in the TERMNL command at network generation. The terminal is therefore immediately available for a connection request from a VCAM subsystem, such as TDS, or whenever a message is available in a MAM terminal-queue to which the terminal is connected. When the terminal is connected, the text will read CONNECTED.
  - . LOGGING denotes that the terminal is a general-purpose terminal which is currently in the logon phase. If "program-name" or "program-queue-name" is displayed, BTNS is waiting for a VCAM subsystem or a QMON connection "accept".
  - . USERID provides the user identification keyed in during logon.
  - . ALT OF terminal-name2 means that terminal1 is currently the alternate of terminal2, which was previously defined by an MTT network control command issued to the terminal.
  - . ALT ON terminal-name2 means that terminal1 has an alternate which is terminal2, which was previously defined by an MTT network control command issued to the terminal.

CC08 (continued)

- . IN, where Y specifies that the terminal has input capability
  - . OU, where Y specifies that the terminal has output capability
- cause : response to a DT command referencing a "terminal-name".
- action : none

**CC32** OM=n1 IM=n2 OE=n3

type : information

syntax : . OM denotes "output messages" and specifies the cumulative number of messages sent to the terminal since the start of the communications session.

- . IM denotes "input messages" and specifies the cumulative number of messages received from the terminal since the start of the communications session.
- . OE denotes "output errors" and specifies the cumulative number of transmission errors when sending to a terminal since the start of the communications session.

cause : response to a DT STRONG command issued to a terminal.  
The "terminal-name" appears in the preceding message CC08.

action : none

**CC33** terminal-name LOGGED TO TERMINAL MANAGER

type : normal operation

syntax : "terminal-name" identifies the terminal declared by the TERMNL command at network generation.

cause : the terminal has been declared with AUTO only and not with ASSIGN at network generation and is therefore recognized by BTNS as being physically available for connection.  
The terminal is now set to the LOGGED state, thereby being available for allocation to any application which requests it.

action : none

**QC39** { OQ  
program-queue-name } [ HELD ] n1 MSG n2 % OF FREE SPACE

type : information

syntax : . OQ denotes "output queue" and appears subsequent to a DT STRONG command.

The information pertains to the terminal-queue.

- "program-queue-name" identifies the program-queue used by MAM applications to receive messages.
- HELD, due to one of the following,
  - an HT network control command issued to the referenced queue
  - the CLOSE option specified in the corresponding QUEUE command at network generation.
- MSG denotes "messages" and gives the number of complete messages enqueued, as denoted by the preceding "n1". This number excludes messages currently being sent to or received from the queue.
- % OF FREE SPACE gives the percentage of space used in
  - a memory queue defined with the NUMBLK parameter
  - a memory pool, where the queue is defined with the QCPOOL option
  - a disk queue, used as a buffer pool to access a disk file, if it is defined with the NUMREC parameter.

The above parameters appear in the QUEUE command declared at network generation.

cause : response to one of the following,

- DT terminal-name
- DT QUEUE
- DT STRONG

action : none

**QC40**

$$\text{IN} = \begin{Bmatrix} \text{M} \\ \text{N} \\ \text{U} \end{Bmatrix} \quad \text{OU} = \begin{Bmatrix} \text{N} \\ \text{U} \end{Bmatrix}$$

type : information

syntax : . IN denotes "input mode"

. OU denotes "output mode"

. M denotes "mark mode", applicable only to input

. N denotes "normal mode"

. U denotes "unedited mode"

cause : response to a DT program-queue-name command.

action : none

QC41 { BLOCK } n1 / n2  
      { NBLOCK }

type : information

syntax : . BLOCK, where length and block-size are meaningful

      . NBLOCK, where length and block-size do not apply

      . "n1" represents the line-length, which when surpassed results  
      in automatic line folding

      . "n2" represents the block-size which is the maximum number of  
      lines per message sent to the terminal.

cause : response to a DT STRONG command.

action : none



## APPENDIX A

### PAD RETURN CODES

This appendix gives a resumé of the official TRANSPAC list of return-codes and includes where applicable, those return-codes set specifically by the DPS 7. The list of return-codes is in French, being the source language of TRANSPAC specifications, and for consistency, the DPS 7 return-codes have been translated into French. The list of DPS 7 return-codes in English appears at the end of this appendix.

For more detailed explanation of the TRANSPAC return-codes, refer to Spécifications Techniques d'Utilisation du Réseau.

The tables of return-codes are built in the following hierarchical order :

- mnémonique : appears in bold letters heading each page in alphabetical order and represents the "cause" which the "diagnostic" details :
  - CONF : libération confirmée par le PAD
  - DER : dérangement
  - DTE : reprise, libération ou réinitialisation par l'abonné distant
  - ERR : erreur de procédure locale
  - INV' : appel non valide
  - NA : accès interdit
  - NC : incident dans le réseau
  - NP : numéro inconnu
  - OCC : numéro occupé
  - PAD : libération ou réinitialisation par le PAD
  - PCV : refus de taxation au demandé
  - RPE : erreur de procédure distante
- diagnostic : a 3-digit decimal value representing the return-code either from the TRANSPAC "fault-finding" dictionary or set by the DPS 7  
Note : DPS 7 return-codes only apply for the DTE mnémonique.
- correspondant
  - : represents the participant of the network for which the return-code applies ;
  - ETTD-P : applies to the HDLC line configured in the DPS 7 SRST
  - ETTD-C : applies to the terminal
  - TELEX : applies to the "telex" terminal connectable over PAD
- précision : applicable for DTE, PAD and RPE mnémoniques where the "cause" and "diagnostic" may be the result of more than one action.

# CONF

Diagnostic

na = non applicable

Correspondant

Explication de Diagnostic

na

réseau

réponse du PAD à une commande LIB de l'ETTD-C

Diagnostic		. plus d'une explication
Correspondant		Explication de Diagnostic
000	ETTD-P ETTD-C TELEX réseau	. niveau trame déconnecté sur la liaison d'accès de l'ETTD-P à distance . liaison physique entre PAD et ETTD-C non établie rupture de la communication TELEX . coupure du raccordement physique entre TRANSPAC et le réseau TELEX
001	ETTD-P TELEX	. réinitialisation du niveau trame sur la liaison d'accès de l'ETTD-P à distance . mention DER reçue du réseau TELEX
002	TELEX	mention ABS reçue du réseau TELEX

# DTE

Diagnostic		. plus d'une explication	* code mis par le 64/DPS 7
	Correspondant	p=reprise, l=libération, i=réinitialisation	
		Explication de Diagnostic	Précision
001	ETTD-C ETTD-C	. commande LIB de l'ETTD-C . "break" de l'ETTD-C	pli i
002	ETTD-C ETTD-C AFS	. réponse à une invitation à libérer de l'ETTD-P . commande RESET de l'ETTD-C . type de service demandé inconnu	pli i pli
003	ETTD-C AFS	. perte de caractères en entrée . erreur dans commande du générateur de trafic	i i
004	ETTD-P ETTD-C AFS	* plus de ressources disponibles . mélange de bits Q dans une même sequence de paquets . manque de ressources	pli i i
005	ETTD-C AFS	. message PAD trop long . lancement de l'exécution d'une commande au générateur	i i
006	AFS	contrôle de flux bloqué sur la VL de l'abonné	i
007	ETTD-C	communication en cours de libération	pli
008	ETTD-C	paramètres PAD incompatibles	pli
048	ETTD-P	* identificateur de protocole PAD erroné	pli
049	ETTD-P	* identificateur de protocole dsa erroné	pli
051	ETTD-P	* numéro d'abonné inconnu	pli
052	ETTD-P	* réseau primaire dsa non soutenu	pli
054	ETTD-P	* numéro d'abonné rejeté	pli
055	ETTD-P	* plus de tables PAD disponibles	pli
056	ETTD-P	* plus de circuits virtuels disponibles	pli
057	ETTD-P	* site PAD occupé	pli
059	ETTD-P	* groupe fermé d'abonnés inconnu	pli
060	ETTD-P	* débit demandé trop élevé	pli
062	ETTD-P	* taxation au demandé refusée	pli
063	ETTD-P	* code de facilité erroné	pli
064	ETTD-P	* indicateur de débit absent	pli
065	ETTD-P	* code de facilité absent	pli
066	ETTD-P	* taxation au demandé soumise mais mot-de-passe absent	pli

Diagnostic		* code mis par le 64/DPS 7	
Correspondant		p = reprise, l = libération, i = réinitialisation	Précision
		Explication de Diagnostic	
067	ETTD-P	* invalable mot-de-passe	pli
074	ETTD-P	* invalable identificateur de protocole de réseau secondaire dsa	pli
075	ETTD-P	* invalable longueur de numéro d'appel du demandeur	pli
077	ETTD-P	* appel rejeté par l'application	pli
078	ETTD-P	* invalable type de demandé	pli
079	ETTD-P	* numéro d'abonné à distance inconnu	pli
081	ETTD-P	* clôture en route	pli
128	ETTD-P	* plus de ressources requises que disponibles	pli
129	ETTD-P	* erreur dans le contrôle de flux de données	pli
130	ETTD-P	* temps imparti dû a inactivité dépassé	pli
132	ETTD-P	* erreur dans la longueur de paquets	pli
133	ETTD-P	* invalable message PAD	pli

# ERR

Diagnostic		Explication de Diagnostic
	Correspondant	
-	réseau	<u>diagnostic absent</u> : commande LIB de l'ETTD-C alors qu'aucun circuit virtuel n'est établi
005	réseau	non acquittement d'une réinitialisation répétée
009	réseau	expiration du temporisateur de surveillance de confirmation d'appel

Diagnostic		
	Correspondant	Explication de Diagnostic
001	réseau	données d'appel ou mot-de-passe 12 caractères
003	réseau	erreur d'emploi d'une facilité GFA

# NA

Diagnostic		
	Correspondant	Explication de Diagnostic
001	réseau	protection par GFA
002	réseau	pas de voie logique mixte ou arrivée
003	TELEX	mention NA reçue du réseau TELEX



Diagnostic		
	Correspondant	Explication de Diagnostic
nnn	ETTD-P ou réseau	<u>diagnostic quelconque</u> : diagnostic non significatif pour l'utilisateur

# NP

Diagnostic		. plus d'une explication
Correspondant		Explication de Diagnostic
000	réseau TELEX	<ul style="list-style-type: none"><li>. abonné inexistant</li><li>. circonscription TELEX inconnue de TRANSPAC</li></ul>
001	TELEX	mention NP reçue du réseau TELEX

Diagnostic		. plus d'une explication
Correspondant		Explication de Diagnostic
000	ETTD-P ETTD-C TELEX	. plus de voies logiques libres . ETTD-C occupé . mention OCC reçue du réseau TELEX
001	ETTD-P	collision d'appel

# PAD

Diagnostic		l = libération, i = réinitialisation	
	Correspondant	Explication de Diagnostic	Précision
-	ETTD-P	réponse du PAD à une invitation à libérer de l'ETTD-P	l
003	ETTD-P ou réseau	perte de caractères en entrée	i
004	ETTD-P	mélange de bits Q dans une même séquence complète de paquets	i
005	ETTD-P	message PAD trop long	i
008	réseau	paramètres PAD incompatibles	l
nnn	réseau	<u>diagnostic quelconque</u> : incident dans le réseau non significatif pour l'utilisateur	l

Diagnostic		
	Correspondant	Explication de Diagnostic
000	réseau	abonné refusant la taxation au demandé

# RPE

Diagnostic		. plus d'une explication	
	Correspondant	l = libération, i = réinitialisation	Précision
		Explication de Diagnostic	
001	ETTD-P	type de paquet inconnu	l
002	ETTD-P	erreur lors d'une reprise	l
003	ETTD-P	nature de VL incorrecte	l
004	ETTD-P	<ul style="list-style-type: none"> <li>. taille de champ de données incorrecte</li> <li>. erreur pendant la phase d'établissement et rupture du circuit virtuel</li> </ul>	i l
005	ETTD-P réseau	<ul style="list-style-type: none"> <li>. erreur de contrôle de flux, P(S) ou P(R) non valable</li> <li>. non acquittement par l'ETTD-P à distance d'une réinitialisation répétée</li> </ul>	i l
006	ETTD-P	erreur de procédure en phase de réinitialisation	i
007	ETTD-P	l'abonné a émis un paquet REJ	i
008	ETTD-P	numéro de VL non à zéro dans un paquet de reprise	l
009	ETTD-P	expiration du temporisateur de surveillance de confirmation d'appel	l
039	ETTD-P	taille de paquet de communication acceptée incorrecte	l
065	ETTD-P	code de facilité erroné	l
066	ETTD-P	paramètre de facilité erroné	l

List of Specific 64/DPS 7 Return Codes

return code	explanation of return codes
004	no more resources available
048	wrong pad protocol identifier
049	wrong dsa protocol identifier
051	unknown subscription number
052	dsa primary network not supported
054	subscription number rejected
055	no more pad tables available
056	no virtual circuit available
057	pad site busy
059	unknown "closed subscriber group" (gfa)
060	throughput requested too large
062	reverse charges refused
063	wrong facility code
064	throughput indicator missing
065	facility code missing
066	reverse charges have been requested but password is missing
067	invalid password
074	invalid dsa secondary network protocol identifier
075	invalid length of caller's number
077	call rejected by application
078	invalid type of callee
079	unknown remote subscription number
081	shutdown in progress
128	more resources required than are available
129	error in control of data flow
130	inactivity timeout
132	error in length of packet
133	invalid pad message





## APPENDIX B

### DN7100 OPERATOR COMMANDS

This appendix deals with commands, homologous to BTNS network commands, available to the terminal operator in the DN7100 secondary network.

This set of DNS command equivalents has been included since the operator of a terminal over a switched line can choose, in the case where full network facilities are supported, to connect to either the URP or the DN7100.

Other DNS commands are also available, depending on the terminal type and its supporting line procedure, which do not have BTNS equivalents. For further details of such commands and for information on the logon procedure to the DN7100, refer to Datanet 7100 Terminal User Guide.

DNS Terminal Operator  
Command Equivalents  
(listed in the order of BTNS Commands)

APL	<u>APL character translation</u> \$\$\$ APL ON
BRK	<u>break</u> \$\$\$ BRK
BT	no DNS command equivalent
DIS	<u>disconnect</u> \$\$\$ DIS [HOLD]
DT	no direct DNS equivalent : \$\$\$ ID for identifying own terminal .
MTE	<u>modify telecom edit</u> \$\$\$ LL line-length - \$\$\$ PL lines-per-page
NAPL	<u>no APL character translation</u> \$\$\$ APL OFF
RDY	<u>ready</u> \$\$\$ RDY [STRONG]
RLC	<u>reset lower case</u> \$\$\$ lc off
RML	<u>reset line mode</u> \$\$\$ LM OFF
RT	no direct DNS equivalent
SLC	<u>set lower case</u> \$\$\$ lc on
SML	<u>set line mode</u> \$\$\$ LM ON



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