CA IDMS™

System Generation Guide

Release 18.5.00, 2nd Edition

CA Technologies Product References

This document references the following CA products:

- CA ADS™
- CA ADS™ Alive
- CA ADS™ APPC
- CA ADS™ Batch
- CA ADS™ Trace
- CA Common Services for z/OS (CCS)
- CA Endevor/DB™ for CA IDMS™ (CA Endevor/DB)
- CA ICMS
- CA IDMS™
- CA IDMS™ ASF (ASF)
- CA IDMS™/DB
- CA IDMS™ DBCS Option
- CA IDMS™/DC (DC)
- CA IDMS™/DC or CA IDMS™ UCF (DC/UCF)
- CA IDMS™/DC Sort
- CA IDMS™ DDS
- CA IDMS™ Dictionary Migrator Assistant (DMA)
- CA IDMS™ Dictionary Module Editor (CA IDMS DME)
- CA IDMS™ Dictionary Query Facility (CA IDMS DQF)
- CA IDMS™ DML Online (CA IDMS DMLO)
- CA IDMS™ Enforcer
- CA IDMS™ Extractor
- CA IDMS™ Masterkey
- CA IDMS™ Online Log Display
- CA IDMS™ Performance Monitor
- CA IDMS™ Presspack
- CA IDMS™ SASO
- CA IDMS™ Server
- CA IDMS™ SQL

- CA IDMS™ Task Analyzer
- CA IDMS™ UCF (UCF)
- CA IDMS™ VSAM Transparency
- CA OLQ™ Online Query for CA IDMS™ (CA OLQ)
- CA TCPaccess™ Communications Server for z/OS (CA TCP access CS for z/OS)
- CA Visual Express™ Reporter (CA Visual Express)

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Documentation Changes

The following documentation updates were made for the 18.5.00, 2nd Edition release of this documentation:

- SYSTEM Statement Parameters (see page 155), TASK Statement Parameters (see page 293), Internal Wait Time (see page 46) —Added information that the INTERNAL WAIT parameter of the SYSTEM statement is no longer functional. This parameter has been replaced by the INACTIVE INTERVAL parameter of the TASK statement.
- SYSTEM Statement Usage (see page 192)—Updated the recommended setting for the DEADLOCK DETECTION INTERVAL parameter.

The following documentation updates were made for the 18.5.00 release of this documentation:

- SYSTEM Statement (see page 155)—Changes to roll time display documented.

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Chapter 1: Introduction

This section contains the following topics:

Who Should Use This Guide

This guide is intended for the person responsible for creating and maintaining DC/UCF system definitions. Typically, this person is the system administrator.

This guide:

- Provides conceptual information needed to define a CA IDMS/DC and DC/UCF system
- Explains how to define a DC/UCF system
- Serves as a reference for system generation statements and JCL used to define a DC/UCF system

This guide uses the term CA IDMS to refer to any one of the following components:

- CA IDMS/DB—The database management system
- CA IDMS/DC—The data communications system and proprietary teleprocessing monitor
- DC/UCF—The universal communications facility for accessing IDMS database and data communications services through another teleprocessing monitor, such as CICS
- CA IDMS DDS—The distributed database system

The terms DB, DC, UCF, and DDS are used to identify the specific CA IDMS component only when it is important to your understanding of the product.

Using This Guide

If you are not familiar with system generation, the following information will assist you:

- Read DC/UCF System Generation (see page 21), DC/UCF Concepts (see page 31), and System Generation Compiler (see page 71) when first learning how to use the system generation compiler.
- Use the tables in System Definition (see page 131) to determine the system generation statements needed to define a DC/UCF system that meets your site-specific requirements.
- Refer to the syntax, syntax rules, and examples in SYSTEM Statement (see page 137), System Generation Statements (see page 201), and Teleprocessing Network Statements (see page 317), as needed when coding system generation statements.
- Refer to supplemental information provided in the appendixes as needed.

Syntax Diagram Conventions

The syntax diagrams presented in this guide use the following notation conventions:

`UPPERCASE OR SPECIAL CHARACTERS`

Represents a required keyword, partial keyword, character, or symbol that must be entered completely as shown.

`lowercase`

Represents an optional keyword or partial keyword that, if used, must be entered completely as shown.

`italicized lowercase`

Represents a value that you supply.

`lowercase bold`

Represents a portion of the syntax shown in greater detail at the end of the syntax or elsewhere in the document.

Points to the default in a list of choices.

Indicates the beginning of a complete piece of syntax.

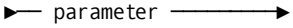
Indicates the end of a complete piece of syntax.

Indicates that the syntax continues on the next line.

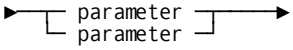
Indicates that the syntax continues on this line.

Indicates that the parameter continues on the next line.

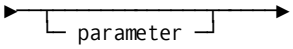
Indicates that a parameter continues on this line.



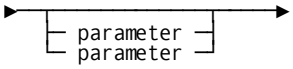
Indicates a required parameter.



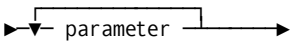
Indicates a choice of required parameters. You must select one.



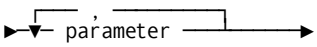
Indicates an optional parameter.



Indicates a choice of optional parameters. Select one or none.



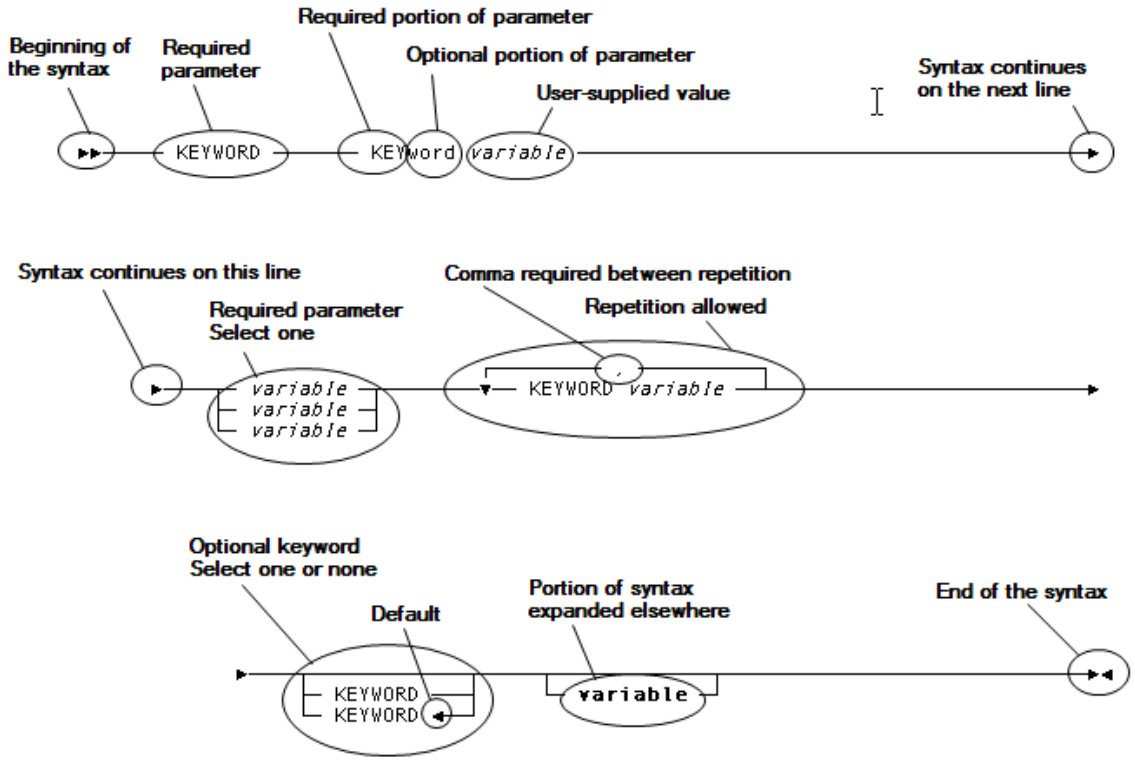
Indicates that you can repeat the parameter or specify more than one parameter.



Indicates that you must enter a comma between repetitions of the parameter.

Sample Syntax Diagram

The following sample explains how the notation conventions are used:



Chapter 2: DC/UCF System Generation

System generation is the process of defining and maintaining the system that controls central version and teleprocessing operations in the CA IDMS environment.

Central Version Operations

Central version operations enable multiple batch and online applications to access and update a CA IDMS database at the same time. The system controls the flow of information between the database management system (DBMS) and programs requesting access to the database. The system also monitors database activity and initiates automatic recovery procedures for applications that terminate abnormally.

Teleprocessing Operations

Teleprocessing operations enable users to execute online, transaction-oriented applications from multiple terminals at the same time. The teleprocessing network is managed either by DC or UCF:

- **DC** is the CA teleprocessing monitor. DC manages terminal input and output operations and all devices in the teleprocessing network.
- **UCF** is an interface that enables online CA IDMS applications and software components to be executed from terminals controlled by a teleprocessing (TP) monitor other than DC.

  UCF supports DC, CICS, CMS, and TSO.

A system that includes DC is called a **DC system**. A system that includes UCF and not DC is called a **UCF system**. Throughout this document, references to the **DC/UCF system** apply equally to DC systems and UCF systems.

CA IDMS DDS Network

You can define a DC/UCF system to be part of a DDS network. DDS allows DC systems located on different CPUs to communicate with one another.

Note: For more information about DDS, see the *CA IDMS DDS Design and Operations Guide*.

The System Generation Compiler

The system generation compiler is used to create and maintain a DC/UCF system definition. The compiler processes source system generation statements and populates the data dictionary with the entities that make up the system definition. The compiler uses the system definition to generate the executable form of the system.

UCF Systems Require UCF Macros

For UCF systems, you must also assemble and link edit macros that define TP-monitor dependent procedures and the characteristics of terminals controlled by the TP monitor. The modules generated from UCF macros are stored in libraries rather than in the data dictionary.

Note: For more information about defining UCF macros, see the *CA IDMS System Operations Guide*.

The Dictionary Contains System Definitions

A data dictionary can contain definitions of multiple DC/UCF systems. Each system is identified by a unique version number that you supply during system generation.

This section contains the following topics:

Online Components and System Tasks

A DC/UCF system can include CA IDMS online components and system tasks. Some online components are supplied with DC and UCF; others must be purchased as separate products. System tasks are supplied with DC and UCF.

Online Components

CA supplies the following online components for a DC/UCF system:

- **CA ADS**—A fourth-generation application development environment used to create and execute online applications that access and update CA IDMS databases
- **Automatic System Facility (ASF)**—A facility to create and update non-sql defined data tables
- **IDD menu facility**—A menu-driven facility to use the IDD Data Dictionary Definition Language (DDDL) compiler
- **CA IDMS Performance Monitor**—CA IDMS Performance Monitor A product to report on DC/UCF task activity
- **CA ICMS**—CA ICMS A product to link personal computers to the data management and storage capabilities of the mainframe computer
- **Online debugger**—A facility to detect, trace, and eliminate errors in programs running under the control of DC or UCF

- **CA IDMS Online Command Facility (OCF)**—CA IDMS Online Command Facility A facility used to create and maintain CA IDMS physical database definitions and SQL-defined databases
- **Online IDD**—An online version of the IDD DDDL compiler
- **CA IDMS Mapping Facility**—An online version of the facility used to define maps for communication between applications and terminal operators
- **CA OLQ**—A product to retrieve and format information from CA IDMS databases through an English-like query language or SQL
- **Online schema compiler**—An online version of the compiler used to create and update non-SQL defined schemas
- **Online subschema compiler**—An online version of the compiler used to create and update subschemas
- **Online system generation compiler**—An online version of the compiler used to define DC/UCF systems
- **Transfer control facility (TCF)**—A facility to control multiple sessions of one or more CA IDMS online development tools for a single user

System Tasks

CA-supplied system tasks are:

- **BYE** or **B** signs the user off from the DC/UCF system and terminates the connection with the system.
- **CLIST** executes a series of task statements that are in a module and stored in the data dictionary.
- **CLOD** erases logically deleted modules from the load area (DDLDCLOD) of the data dictionary.
- **DCMT** allows DC/UCF users to monitor system runtime activities and to update system definitions while a DC/UCF system is executing.
- **DCPROFIL** allows DC/UCF users to display information about the configuration of a DC/UCF system.
- **DCUF** provides user functions that control various aspects of a DC/UCF terminal session.
- **LOCKMON** allows DC/UCF users to display information about the lock status in their DC/UCF system.
- **LOOK** allows DC/UCF users to view the contents of selected load modules.
- **OLP (online PLOG)** allows DC/UCF users to display the current contents of the DDLDCLOG area online.
- **OPER** enables DC/UCF users to monitor system activity and to cancel active task threads.

- **QUED** erases expired queues from the queue area (DDLDCRUN) of the data dictionary.
- **SDEL** erases logically deleted users from the database security area (SYSUSER.DDLSEC).
- **SEND** transmits a user-supplied message to other DC/UCF terminals.
- **SHOWMAP** displays maps defined using the CA IDMS Mapping Facility.
- **SIGNOFF** signs the user off from the DC/UCF system but maintains the connection with the system.
- **SIGNON** or **S** signs the user on to the DC/UCF system.
- **SUSPEND** terminates UCF dedicated mode but maintains the connection with the UCF back end.

The SYSGEN members that must be included in the DC/UCF system definition for the CA IDMS online components and system tasks listed previously are presented in System Programs and Tasks (see page 411).

Data Dictionary Entities

A DC/UCF system is represented in the data dictionary by entity occurrences associated with one another through set relationships. When you define a DC/UCF system, the system generation compiler stores the following entities in the system dictionary:

- System
- Program
- Task
- Teleprocessing network entities
- Destination
- Queue

System Entity

The system entity identifies the system and its operating environment and defines system resource allocations and runtime characteristics. One system entity occurrence exists for each DC/UCF system.

In the data dictionary, extensions of the system entity contain:

- Definitions of the runtime environment for CA ADS, CA IDMS Mapping Facility, and CA OLQ
- 3270-type terminal control-key assignments for online components and for line-mode I/O

- Definitions of secondary 24-bit and 31-bit storage pools
- The default usage mode for IDD DDDL compiler access to the data dictionary
- Autotask definitions
- Alternative map tables for runtime mapping operations
- Load lists
- Information on predefined run units for system services such as security enforcement program loading and message access
- Information on resources and nodes located on remote DC/UCF systems
- Definition of an SQL Cache for caching of dynamic SQL statements.

Program Entity

The program entity identifies each program available to the system and defines runtime characteristics for the program (for example, whether the program can be used by multiple tasks at the same time). A program can be a CA-supplied program, a user program, a CA ADS dialog, a subschema, a database procedure, a map, an edit or code table, or an access module. One program entity occurrence exists for each program associated with a system.

Task Entity

The task entity defines a logical unit of online processing. A task is associated with one or more programs. One task entity occurrence exists for each task associated with a system.

Teleprocessing Network Entities

The teleprocessing network entities define the components of a teleprocessing network:

- The **line entity** identifies and defines runtime characteristics for a group of hardware devices (physical terminals) that use the same access method (for example, VTAM). One line entity occurrence exists for each line associated with a system.
- The **physical terminal entity** defines a teleprocessing device, such as a CRT terminal, a printer, or a teletypewriter. One physical terminal entity occurrence exists for each physical terminal associated with a line.
- The **logical terminal entity** defines processing characteristics for a physical terminal. One logical terminal entity occurrence exists for each physical terminal entity associated with a line (except DDS lines).

Destination Entity

The destination entity represents a group of users, logical terminals, or printer terminals as a single logical destination for messages or reports. One destination entity occurrence exists for each destination associated with a system.

Queue Entity

The queue entity defines a disk work area used to store records for subsequent processing. One queue entity occurrence exists for each queue associated with a system.

Entities can exist independently in the data dictionary (that is, not associated with a system). You can use the system generation compiler to copy unassociated entities into a system definition.

Source and Object Records

The system generation compiler stores two types of records in the data dictionary for each entity; source and object records.

Source Records

Source records represent independent entities. Source records are associated with DC/UCF systems through object records.

Object Records

Object records represent entities that participate in DC/UCF systems. Each entity in a system is represented by an object record that is connected to both the source record for that entity and the source record for the system. The object record for a system is connected only to the system source record.

Each object record contains a copy of the information in the source record with which it is associated. Only object records are used when the DC/UCF system is executed.

Because the system generation compiler uses separate records to represent an entity and the association between the entity and a system, one entity can participate in multiple systems. Only one source record exists for the entity; however, multiple object records exist, each connected to a different system.

More Information:

For more information about the data dictionary structures created by the system generation compiler, see System Generation Data Dictionary Structure (see page 407).

DC/UCF System Reports

You can report on DC/UCF systems by using CA IDMS reports.

Categories of DC/UCF System Reports

- Entities that make up DC/UCF system definitions (represented by source records in the data dictionary).
- Entities that participate in executable DC/UCF systems (represented by object records in the data dictionary).
- Messages. Messages are added, modified, and deleted in the data dictionary through the IDD DDDL compiler.
- Device definitions. Device definitions are added to the data dictionary during CA IDMS installation.
- Map definitions. Maps are added, modified, and deleted in the data dictionary through the mapping compiler.
- The contents of the data dictionary load area (DDLDCLOD).

The following table lists the available DC/UCF system reports.

DC/UCF System Reports

Report Description	Report Number
DC/UCF system options (source)	25
DC/UCF system options (object)	11
DDS listing of nodes	43
DDS listing of defined resources	44
CA ADS description (source)	45
CA ADS description (object)	40
CA OLQ system description (source)	46
CA OLQ system description (object)	41
Program description (source)	19
Program description (object)	04
Task description (source)	20
Task description (object)	05
Task description within program (source)	21
Network description by line (source)	14
Network description by line (object)	01

Report Description	Report Number
Network description by physical terminal (source)	15
Network description by physical terminal (object)	02
Network description by logical terminal (source)	17
Network description by logical terminal (object)	03
Physical terminal within line (source)	16
Logical terminal by physical terminal (source)	18
Destination report (source)	24
Destination report (object)	07
Queue description (source)	22
Queue description (object)	06
Queue description within task (source)	23
Messages in the data dictionary	28
Device definitions	29
Map record indexes	30
Map field indexes	31
List of maps by panel	32
List of maps	33
List of maps by record name	34
List of maps by element name	35
Data dictionary load area description	50

Note: For more information about samples of the DC/UCF system reports and instructions on generating the reports, see the *CA IDMS Reports Guide*.

Automatic Tuning

A new auto-tuning capability lets CA IDMS set the startup values for certain DC/UCF system configuration parameters based on historical information. The values are automatically adjusted over time in response to changes in workload. Auto-tuning relieves the DBA from having to monitor and adjust the parameter values manually.

The following system definition parameters are eligible for automatic tuning:

- RLE count
- RCE count
- DPE count
- SYSLOCKS

New clauses on the system generation SYSTEM statement enable or disable automatic tuning for each of these parameters.

How Automatic Tuning Works

When auto-tuning is enabled, CA IDMS begins to collect high water mark (HWM) information for the parameters being tuned. This information is collected on 24-hour intervals from the time the DC/UCF system is started. At the end of each interval, the statistics needed for tuning are updated and written to the AUTOTUNE member in SYSTRK and each HWM value is set to the current value of its associated parameter.

Statistical information is also collected at shutdown, but only if the system has been active for at least eight hours.

After five sets of statistics have been gathered and at the end of each interval thereafter, CA IDMS calculates a new value for each of the parameters being tuned. These values are used the next time the DC/UCF system is started after a normal shutdown. If the system is started after an abnormal termination, the parameter values from the previous execution are used. If you change the SYSGEN value of a tuned parameter, the new SYSGEN value is used the next time the system is started, and all historical information for the parameter is discarded.

New parameter values are recalculated at the end of each interval using the most recent HWM and information gathered from prior intervals. A smoothing algorithm is used so that abnormal conditions, such as runaway tasks, do not skew the results. Tuned values can both increase and decrease; however, they decrease more slowly than they increase.

You can use the DCMT DISPLAY AUTOTUNE command to see the current and new values for each of the tuned parameters and obtain graphs of HWM values over the last 32 time intervals.

Chapter 3: DC/UCF Concepts

This section contains the following topics:

Logging Options

Before defining a DC/UCF system, you need to be familiar with various aspects of DC/UCF operations.

A DC/UCF system records information on system activity in the system log.

What the System Log Contains

The log documents:

- System startups and shutdowns
- Terminal operator requests
- Abends and cancellations

Information written to the log includes DC/UCF system messages, statistics, trace information, and snap dumps.

Note: For more information about these topics and on starting up a DC/UCF system, monitoring system performance, and tuning the system, see the *CA IDMS System Operations Guide*.

Where You Define a Log File

Use the LOG parameter of the system generation SYSTEM statement to establish the log file assignment. You can assign the log either to the DDLDCLOG area of the data dictionary or to one or two sequential files.

More Information:

For more information about the LOG parameter, see SYSTEM Statement (see page 137).

More information:

SYSTEM Statement (see page 137)

Using the DDLDCLOG Area

LOG DATABASE Parameter

To direct the system log to the DDLDCLOG area of the data dictionary, specify LOG DATABASE in the system generation SYSTEM statement.

Benefits of Using the DDLDCLOG Area

Logging to the DDLDCLOG area provides the following benefits:

- The online version of the print log utility (online PLOG) can be used to display the current contents of the DDLDCLOG area at a terminal. Online PLOG is described in the *CA IDMS System Operations Guide*.
- All or selected portions of the log can be printed while the DC/UCF system is executing.
- The log can be archived while the DC/UCF system is executing.
- A partially full log does not need to be archived when the system is shut down. The DC/UCF system begins writing to the unused portion of the DDLDCLOG area at each system startup.

Archiving the Log Area

Use the ARCHIVE LOG utility statement to archive the log from the DDLDCLOG area and the PRINT LOG utility statement to print all or selected portions of the log. Instructions on using the ARCHIVE LOG and PRINT LOG utility statements are provided in the *CA IDMS Utilities Guide*.

Monitoring Available Space in the Log Area

When logging to the DDLDCLOG area, the DC/UCF system monitors the available space in the area. When the amount of unused space in the area halves, the system sends a message to the operator's console indicating the percentage of used space in the area. The message is issued, for example, when the log is 50% full, 75% full, 88% full, and so forth.

Users can check the percentage of used space in the log at any time by issuing a DCMT DISPLAY LOG command. DCMT commands are described in the *CA IDMS System Tasks and Operator Commands Guide*.

When the DDLDCLOG area is 100% full, the system halts execution and waits for the log to be archived. Typically, the WTOEXIT user exit is used to automate the archiving of the system log. User exits are described in the *CA IDMS System Operations Guide*.

Using Sequential Files

LOG FILE1/FILE2 Parameter

To direct the system log to sequential files, code the LOG FILE1/FILE2 parameter in the system generation SYSTEM statement.

Benefits of Logging to Sequential Files

Logging to sequential files can be useful when:

- A large log file is needed
- Access to the current contents of the log is not required while the system is executing

Sequential log files can be directed to disk or print devices. Logging to sequential disk files and logging to a print device are discussed separately.

z/VM systems: Logging to sequential disk files is not advisable under z/VM because disk I/O for the log is synchronous. The DC/UCF system suspends execution while awaiting completion of a synchronous I/O operation.

Logging to Sequential Disk Files

When logging to sequential disk files, you can assign the log either to a single disk file or to two alternate disk files.

Logging to a Single File

When logging to a single file, the system writes all log records to one sequential file. When the file becomes full, the system performs the following tasks:

1. Sends a message to the operator's console describing the condition
2. Continues to write to the file, overwriting records previously written to the file

The DC/UCF system writes log records to the beginning of the file at each system startup. If log records are to be saved, the appropriate operating system utility must be used to offload the file when the system is shut down.

Logging to Alternate Files

When logging to alternate files, the system writes log records to one file at a time. When the active file becomes full, the system performs the following tasks:

1. Closes the active file.
2. Sends a message to the operator's console describing the condition.
3. Opens the other file and begins logging to it. The full file can be offloaded while the system writes log records to the other file.

A full log file should be offloaded immediately. If the alternate file becomes full before the first (full) file is offloaded, the system begins logging to the first file again, overwriting records previously written to the file.

The DC/UCF system writes log records to the beginning of the first file at each system startup. If log records are to be saved, the appropriate operating system utility must be used to offload both files when the system is shut down.

Logging to a Print Device

Under z/OS

Specify a SYSOUT class for printed output (for example, SYSOUT=A) in the log-file DD statement of the DC/UCF startup JCL.

A log directed to a print device is not printed until the system is shut down. An alternate log file assignment is usually not necessary when logging to a print device under z/OS.

Note: This release of CA IDMS supports z/OS V2R10 as well as z/OS 1.1 and higher. However, we will always refer to z/OS in this document.

Under z/VSE

Specify either SYSLST or a specific print device in the LOG parameter of the SYSTEM statement. The following considerations apply:

- **SYSLST**—A log directed to SYSLST normally is not printed until the system is shut down. An alternate log file assignment is not necessary when logging to SYSLST.

  Note: Because SYSLST can be assigned to output media other than a print device, the DC/UCF startup JCL must specify the output medium required. Typically, SYSLST is assigned to a print device for DC/UCF logging. However, you can use SYSLST to direct the log to a tape device.

- **Specific print device**—The log can be directed to a specific print device under either of the following circumstances:
  - The system has available one or more printers other than the printer to which SYSLST is routed.
  - The system is running in a partition controlled by a spooler such as POWER/VS, where multiple dummy printers can be assigned within the partition.

A log directed to a specific print device can be printed while the system is active. **If you assign an alternate log file**, the system begins logging to the alternate file when the record count for the active file is exceeded. **If you do not assign an alternate log file**, the system closes and then immediately reopens the log file when the record count for the file is exceeded.

Under z/VM

Specify either PRINTER or the virtual address of a print device in the log-file FILEDEF command. A log directed to a print device can be printed while the system is active by closing and reopening the file.

Statistics Collection

A DC/UCF system collects and writes five types of statistics:

- System
- Task
- Transaction
- CA ADS dialog
- DC/UCF histograms

System Statistics

System statistics record data on a system-wide basis. System statistics are always collected. They are written to the system log:

- At normal system shutdown.
- At an interval specified by the STATISTICS parameter of the system generation SYSTEM statement.
- Upon explicit request with a DCMT WRITE STATISTICS command.

Task Statistics

Task statistics record data on a by-task basis. Task statistics are collected only if requested by means of the STATISTICS TASK WRITE parameter of the system generation SYSTEM statement. You can specify whether separate task CPU-time statistics are to be maintained for system-mode time and user-mode time. Statistics for a task are written to the system log when the task terminates.

Note: Collecting and writing tasks statistics generates a large amount of data and increases overhead.

Transaction Statistics

Transaction statistics record data on a logical unit of work which can span multiple tasks. Transaction statistics are collected only if task statistics collection is enabled.

The collection of transaction statistics is enabled either during system generation by means of the STATISTICS TASK TRANSACTION parameter of the SYSTEM statement or at runtime by means of the TRANSACTION parameter of the DCMT VARY STATISTICS command.

At runtime, the system collects transaction statistics only when requested to do so by a user program.

CA ADS Dialog Statistics

CA ADS dialog statistics record data on a by-dialog basis. Statistics can be collected for all dialogs or for selected dialogs. Dialog statistics can be collected only if transaction statistics collection is enabled.

The collection of dialog statistics is enabled either during system generation by means of the DIALOG STATISTICS parameter of the ADSO statement or at runtime by means of the DCMT VARY ADSO STATISTICS command. Individual dialogs are selected for statistics collection either during system generation by means of the ADSO DIALOG STATISTICS parameter of the PROGRAM statement or at runtime by means of the ADSO STATISTICS parameter of the DCMT VARY PROGRAM statement.

DC/UCF Systems Maintain Histograms

The DC/UCF system maintains additional statistics in the form of **histograms**. Histograms show statistical data for events in terms of frequency of occurrence within predefined value ranges. For example, one histogram may show the number of loads into the program pool of programs of up to 250 bytes, of 251- to 500-byte programs, of 501- to 750-byte programs, and so forth.

Types of Histograms Maintained by DC/UCF Systems

The system maintains the following histograms:

- **System-wide histograms** are always maintained.
- **By-task histograms** are maintained only if requested by means of the STATISTICS TASK COLLECT parameter of the system generation SYSTEM statement.
- **By-line histograms** are maintained only if requested by means of the STATISTICS LINE parameter of the system generation SYSTEM statement.

All histograms maintained by the system are written to the log whenever system statistics are written to the log.

You can run reports to retrieve statistics from the system log.

More Information:

- For more information about the SYSTEM statement, see System Statement (see page 137).
- For more information about DCMT commands, see the *CA IDMS System Tasks and Operator Commands Guide.*
- For more information about the ADSO and PROGRAM statements, see ADSO Statement (see page 201) and PROGRAM Statement (see page 260).
- For more information about the DCMT commands, see the *CA IDMS System Tasks and Operator Commands Guide.*
- For more information about running statistics reports, see the *CA IDMS Reports Guide.*
- For more information about the statistics collected by the DC/UCF system, see the *CA IDMS System Operations Guide.*

System Run Units

System run units are initiated by CA IDMS software components to satisfy requests for services. For example, loading a module from a load area or extracting message text from the message area.

Predefined System Run Units

A predefined system run unit is one which is defined in the DC/UCF system generation and is started during the DC/UCF system initialization.

System run units can be predefined for the following:

- **Load area (DDLDCLOD) processing**. Use the RUNUNITS FOR LOADER parameter of the system generation SYSTEM statement to predefine load-area run units for the default dictionary. Use the system generation RUNUNITS statement to predefine load-area run units for an alternate dictionary.

  Note: For more information about the RUNUNITS statement, see RUNUNITS Statement (see page 281).

- **Message area (DDLDCMSG) processing** by means of the RUNUNITS FOR MSGDICT parameter of the system generation SYSTEM statement.
- **Queue area (DDLDCRUN) processing** by means of the RUNUNITS FOR QUEUE parameter of the system generation SYSTEM statement.
- **Signon processing in the user catalog** by means of the RUNUNITS FOR SIGNON parameter of the system generation SYSTEM statement.
- **Destination processing** by means of the RUNUNITS FOR DEST parameter of the system generation SYSTEM statement.
- **Security enforcement for system resources** by means of the RUNUNITS FOR SECURITY parameter of the system generation SYSTEM statement.
- **Security enforcement for SQL** by means of the SQL SECURITY parameter of the system generation RUNUNITS statement.
- **Load area (DDLCATLOD) processing for SQL** by means of the SQL LOADER parameter of the system generation RUNUNITS statement.

How Predefined Run Units are Used

Predefined run units are initiated at startup and exist for the duration of system execution. At startup, the DC/UCF system allocates storage for each predefined run unit. The system maintains this storage until system shutdown.

Overflow Run Units

At runtime, if the number of predefined run units is insufficient to satisfy program processing requirements, the system initiates additional run units as needed. These additional run units are referred to as overflow run units. The system terminates overflow run units when they are no longer needed, freeing their storage.

An insufficient number of predefined run units can result in an excessive amount of journal activity. Only one BIND/FINISH sequence is issued for each predefined run unit, regardless of the number of requests the run unit is used to satisfy. Overflow run units, initiated on an as-needed basis, exist only to process individual requests. One BIND/FINISH sequence is issued per request. For example, if a single predefined run unit initiated at startup processes 100 signon requests, only one BIND/FINISH sequence is issued for those requests. If overflow run units process 100 signon requests, 100 BIND/FINISH sequences are issued.

External User Sessions

An external user session is a logical connection between a DC/UCF system and an application executing outside that DC/UCF system. An external user session is initiated when the application initiates the first request for services within the DC/UCF system and is terminated when the last service initiated by the application is terminated. When an external user session is initiated the user is effectively signed on to the DC/UCF system and is signed off when the user session terminates.

Types of External User Sessions

There are different types of external user sessions:

- External request units (ERUs)
- UCF sessions
- DDS sessions
- LU 6.2 sessions
- TCP/IP sessions

More Information:

For more information about system generation considerations for LU 6.2 sessions, see Teleprocessing Network Statements (see page 317) and SNA and LU 6.2 Considerations (see page 429).

More information:

Teleprocessing Network Statements (see page 317)
SNA and LU 6.2 Considerations (see page 429)

External Request Units

An external request unit is an online task initiated within a DC/UCF system to service database requests from an external user session.

An external request unit is initiated when a request for database services originates from:

- A batch application
- Another DC/UCF system (using either DC-to-DC communications through an SVC or DDS)
- Another TP monitor such as CICS.
- An application executing on the PC that uses CAICCI to communicate, such as CA Visual Express

All concurrent database transactions initiated by one user session and processed on the same back-end DC/UCF system are managed as a single external request unit. All database requests issued as part of the external request unit are serviced by the same back-end task.

Specifying Runtime Characteristics of ERUs

Specify resource limits, dispatching priority and other runtime characteristics of external request units using the system generation TASK statement.

By default all external request units are serviced by a task named RHDCNP3S. The attributes defined for the RHDCNP3S task are used for all external request units processed under that task code. Alternate task codes can be defined for external request units so that different runtime characteristics are used.

Note: For more information about specifying runtime characteristics of external request units, see the *CA IDMS System Operations Guide*.

System Generation Requirements

The following system generation parameters are related to external request unit processing:

- Task and program definitions for RHDCNP3S
- The MAXIMUM ERUS parameter of the SYSTEM statement determines the maximum number of concurrent non-DDS external request units that can be processed by a DC/UCF system
- CHKUSER TASKS parameter of the SYSTEM statement controls a mechanism for detecting abnormally terminated batch applications in z/OS and z/VSE
- EXTERNAL WAIT parameter on the SYSTEM and TASK statements determines the amount of time the system waits between external requests before assuming that the external user session has terminated
- Additional parameters to define a DDS environment

More information:

Abend Detection and Timed Functions (see page 43)
DDS Sessions (see page 41)
External Request Elements (see page 42)

DDS Sessions

DDS allows DC/UCF systems that are located on different CPUs to communicate with each other. Different access methods can be used for the communication: TCP/IP, VTAM, or CAICCI (Common Communications Interface).

To define the remote DC/UCF systems that will be accessed by another DC/UCF system using DDS, take the following steps:

1. Define the DC/UCF systems and the databases to be accessed using the system generation RESOURCE TABLE and NODE statements.
2. Depending on the access method to use, define the following entities:
   - CCI: define a CCI line
   - TCP/IP: define a DDSTCPIP type PTERM in a SOCKET line
   - VTAM: define a VTAM type PTERM in a DDS line
3. Define a task and program for RHDCNP3S.

You can specify execution characteristics for DDS sessions using the RHDCNP3S task, and you can define additional tasks for specific applications or front-end systems.

Note:

- For more information about defining and maintaining DDS, see the *CA IDMS DDS Design and Operations Guide*.
- For more information about specifying runtime characteristics of external request units, see the *CA IDMS System Operations Guide*.

More information:

NODE Statement—Defines a Node (see page 242)
RESOURCE TABLE Statement—Defines a Resource Table (see page 277)
CCI (see page 357)
SOCKET (see page 372)
DDS (see page 360)

UCF Sessions

UCF processing allows DC/UCF online tasks to be executed on behalf of terminals controlled by another terminal monitor front-end system. The front-end system forwards terminal input to the UCF back-end for processing and writes the output screen images received from the back-end to the terminal.

System Generation Requirements

The following SYSGEN parameters are related to UCF processing:

- A teleprocessing LINE statement of type UCFLINE
- Teleprocessing PTERM statements of type UCFTERM
- Teleprocessing LTERM statements for each PTERM
- MAXIMUM ERUS parameter of the SYSTEM statement, which limits the number of concurrently active UCF sessions

More Information:

- For more information about defining UCF lines and terminals, see UCFLINE (see page 386).
- For more information about setting up UCF, see the *CA IDMS System Operations Guide*.
- For more information about MAXIMUM ERUS, see External Request Elements (see page 42).

External Request Elements

External request elements (EREs) are control blocks used with SVC communications to maintain the link between an external user session and the DC/UCF system servicing its requests.

Each external request unit takes up one ERE. The ERE is dedicated to that request unit from the time the first service request is issued until all services for the user session are terminated.

EREs in a UCF Session

A UCF session requires the use of an ERE only while screen images are being transferred between the front-end and back-end systems. At other times, such as while the back-end task is executing or while the front-end system is waiting on a terminal interrupt, the UCF session does not hold an ERE. Therefore several UCF sessions can share a relatively small number of EREs.

Number of Available EREs

The number of EREs available is specified using the MAXIMUM ERUS parameter of the SYSTEM statement. When determining the value for this parameter considers the following:

- The value should be at least as high as the number of concurrent external sessions you wish to support.
- Allow for UCF requirements by increasing the number by an amount that is between 10% and 20% of the number of UCF terminals defined in the system generation.
- If all EREs are in use, a program or UCF front-end attempting to initiate a session receives a 1473 error status.

TCP/IP Sessions

TCP/IP allows communication between a DC/UCF system and any other system that supports TCP/IP. TCP/IP is supported in the following environments:

- z/OS
- z/VM
- z/VSE

To allow TCP/IP access within DC/UCF, define the TCP/IP SYSGEN entity using the TCP/IP statement. If generic listening or DDS using TCP/IP are used, the LISTENER and DDSTCPIP type PTERMS must be defined in a SOCKET line. Multiple lines of type SOCKET may be defined in a DC/UCF system, and starting with r17, all may be active at the same time.

More Information:

- For more information about the TCP/IP statement, see TCP/IP Statement (see page 308).
- For more information about the SOCKET LINE statement, see SOCKET (see page 372).
- For more information about the implementation of TCP/IP support within DC/UCF, see the *CA IDMS Callable Services Guide*.

Abend Detection and Timed Functions

The DC/UCF system uses the following mechanisms to detect abends, loops, and other abnormal processing conditions:

- Check-user tasks
- External wait time

- Inactive interval
- Resource timeout interval
- Runaway interval
- Ticker interval

Check-User Tasks

Check-user tasks are operating system subtasks attached by the DC/UCF system at startup.

How the DC/UCF System Uses Check-User Tasks

The system uses check-user tasks to detect abnormally terminated batch external request units running under the central version as follows:

1. The DC/UCF system associates a check-user task with a batch program when the first BIND request is issued by that program. An external request unit (ERUS) task is started to process the normal requests for the external request unit. A check-user task is also started when a UCFBATCH program is started. Check-user tasks are not associated with external request units from a CICS front-end or from another CA IDMS-DC/UCF front-end.
2. The check-user task attempts to enqueue a unique resource held by the batch interface module for the program. While the request unit exists, the resource is not available to the check-user task.
3. If the batch program terminates the run-unit using a FINISH or ROLLBACK or if the batch program terminates abnormally, the check-user task is then able to enqueue the resource.
4. If the batch program has explicitly ended the request unit, then the ERUS task will have already been terminated. If the batch job has ended abnormally, the ERUS task will still be active. The check-user task informs the DC/UCF system that the batch request unit has terminated.
5. The DC/UCF system aborts the ERUS task.

What Happens if No Check-User Task is Available when a Batch Request Unit is Started: The system starts the ERUS task normally. The system notes that there is no check-user task associated with the ERUS task. If a check-user task becomes available while the ERUS task is still active, then that check-user task will be associated with the ERUS task and the regular enqueue mechanism will go into effect. If the ERUS task terminates normally before any check- user task is available, then the system simply discards the notation of a potential need for a check-user task.

How You Define Check-User Tasks

The check-user mechanism is controlled by the CHKUSER TASKS parameter of the system generation SYSTEM statement. Use this parameter to specify the number of subtasks to be attached by the system. Specifying zero disables the check-user mechanism.

Note: For more information about the SYSTEM statement, see SYSTEM Statement (see page 137).

How Many Check-User Tasks Should Be Defined

Check-user tasks are associated only with batch jobs (DML access or UCFBATCH). There is never a need for more check-user tasks than the maximum number of batch request units which will be active simultaneously. In most cases, only a few check-user tasks will be needed. A batch job may start when no check-user task is available. Suppose that job terminates abnormally before a check-user task becomes available. A check-user task will become associated with the corresponding ERUS task as soon as some other batch job terminates and its check-user task becomes available. The system will then abort the ERUS task which had been started for the program that terminated abnormally.

External Wait Time

External wait time is the amount of time the DC/UCF system waits for an external user session to issue a database request before assuming that it has terminated. When the external wait time elapses, the system abnormally terminates the external request unit with an error status of *nn*69 and initiates recovery procedures.

How You Define External Wait Time

Use the EXTERNAL WAIT parameter of the system generation SYSTEM statement to specify the external wait time or to disable the external-wait mechanism.

The TASK statement may be used to override the EXTERNAL WAIT time specified on the SYSTEM statement.

Note: For more information about the SYSTEM statement, see SYSTEM Statement (see page 137).

The following considerations apply to specifying an external wait time:

- If the value specified is high, abends can go undetected for long periods of time, making valuable resources unavailable to other programs.
- If the value specified is low, the system may determine that a program has abended when, in fact, it has not.

Inactive Interval

The inactive interval is the amount of time the DC/UCF system permits a task to wait for a resource. When the inactive interval expires, the system abnormally terminates the task.

How You Define an Inactive Interval

Use the INACTIVE INTERVAL parameter of the system generation SYSTEM statement to specify the inactive interval or to disable the inactive-interval mechanism. You can use the STALL parameter of the DCMT VARY TIME command at runtime to override the system generation specification.

How to Override the Inactive Interval

You can override the inactive interval for individual tasks either during system generation by means of the INACTIVE INTERVAL parameter of the TASK statement or at runtime by means of the STALL parameter of the DCMT VARY TASK command.

More Information:

- For more information about the SYSTEM statement, see SYSTEM Statement (see page 137).
- For more information about the TASK statement, see TASK Statement (see page 291).
- For more information about the DCMT commands, see the *CA IDMS System Tasks and Operator Commands Guide*.

Internal Wait Time

Internal wait time is the amount of time the DC/UCF system permits an external request unit to wait for a resource (for example, a locked area or a storage allocation). When the internal wait time elapses, the system abnormally terminates the request unit with an error status of *nn*00 or *nn*69 and initiates recovery procedures.

How to Implement an Internal Wait Time

The INTERNAL WAIT parameter is accepted by the SYSGEN compiler, but it is not functional. Default wait time limits for external run-units on internal resources are controlled by the INACTIVE INTERVAL clause of the TASK parameter for the RHDCNP3S task.

You can specify wait times for individual batch or CICS run units by defining a TASK statement to the system definition of the CV. The name of the task must be the name of the batch program that first establishes the connection to the CV or the CICS task code.

Note:

- For more information about the SYSTEM statement, see SYSTEM Statement (see page 137).
- For more information about the TASK statement, see TASK Statement (see page 291).

Resource Timeout Interval

The resource timeout interval is the amount of time the DC/UCF system permits a terminal to be inactive. Terminal activity occurs when the user presses a control key (such as ENTER or PF1) that passes data to the system.

When the resource timeout interval expires, the system invokes the resource timeout program. Typically, the resource timeout program releases the resources held by the terminal and returns control to the DC/UCF system.

How You Define the Resource Timeout Interval

Use the RESOURCE TIMEOUT parameter of the system generation SYSTEM statement to specify the resource timeout interval and the resource timeout program or to disable the resource-timeout mechanism.

How to Override the Resource Timeout Specification

Use the RESOURCE parameter of the DCMT VARY TIME command at runtime to override the system generation specifications.

You can override the resource timeout specifications for individual terminals:

- During system generation by means of the RESOURCE TIMEOUT parameter of the TASK statement.
- At runtime by means of the RESOURCE INTERVAL and RESOURCE PROGRAM parameters of the DCMT VARY TASK command.
- At program execution time by means of the resource timeout parameters of the applicable DML statement. In Assembler, resource timeout specifications are overridden by means of the RESINT and RESPGM parameters of the #RETURN statement. In COBOL and PL/I, resource timeout specifications are overridden by means of the TIMEOUT parameter of the DC RETURN statement.

Task level overrides apply when the task is the last task to be executed from the terminal.

More Information:

- For more information about the SYSTEM statement, see SYSTEM Statement (see page 137).
- For more information about the TASK statement, see TASK Statement (see page 291).
- For more information about the DCMT commands, see the *CA IDMS System Tasks and Operator Commands Guide*.
- For more information about the DML statements, see the *CA IDMS DML Reference Guide* for the applicable language.

Runaway Interval

The runaway interval is the amount of time the DC/UCF system permits a task to execute without returning control to the system. A task returns control to the system for each system service call and each database operation. When the runaway interval expires, the system abnormally terminates the task.

How You Define a Runaway Interval

Use the RUNAWAY INTERVAL parameter of the system generation SYSTEM statement to specify the runaway interval or to disable the runaway-interval mechanism. You can use the RUNAWAY parameter of the DCMT VARY TIME command at runtime to override the system generation specification.

The runaway interval is useful for detecting and terminating looping programs. However, this mechanism does not catch all tasks that contain errors in program logic. For example, the runaway-interval mechanism will not detect a loop in which the same database operation is performed repeatedly.

Program loops that include system service calls or database operations can be detected by means of limits on task resource usage.

More Information:

- For more information about the SYSTEM statement, see SYSTEM Statement (see page 137).
- For more information about DCMT commands, see the *CA IDMS System Tasks and Operator Commands Guide.*
- For more information about limits on task resource usage, see Resource Management (see page 51)

Ticker Interval

The ticker interval determines the frequency with which the DC/UCF system checks for time-related events (such as runaway tasks).

How You Define a Ticker Interval

Use the TICKER INTERVAL parameter of the system generation SYSTEM statement to specify the ticker interval. You can use the TIMER parameter of the DCMT VARY TIME command at runtime to override the system generation specification.

To be effective, the ticker interval must be less than or equal to the lowest nonzero value specified for the following timed functions:

- Deadlock detection interval
- External wait time
- Inactive interval
- Resource timeout interval
- Runaway interval

Typically, the ticker interval for a DC/UCF system used exclusively for batch processing is larger than the ticker interval for a system used for online (or both online and batch) processing.

More Information:

- For more information about the SYSTEM statement, see SYSTEM Statement (see page 137).
- For more information about the DCMT commands, see the *CA IDMS System Tasks and Operator Commands Guide*

Database Locks

Database locks control concurrent access to database resources: areas or individual records and rows. Locks are used to ensure that applications only see committed changes. CPU is consumed to acquire locks and storage is consumed in recording them. The greater the number of locks held concurrently, the greater the amount of storage needed.

Note: For more information about database locking, see the *CA IDMS Database Administration Guide*.

Locking Related Parameters

The following SYSTEM statement parameters are related to database locking:

- RETRIEVAL LOCK/NOLOCK controls whether record locks are acquired for areas readied in shared retrieval.
- UPDATE LOCK/NOLOCK controls whether record locks are acquired for areas readied in protected update.
- SYSLOCKS estimates of the maximum number of database locks that will be held at any time.
- LOCK LIMIT specifies the maximum number of database locks that can be concurrently held by a transaction.

Controlling Record Locking for the System

The RETRIEVAL and UPDATE parameters control whether record locks are acquired for areas readied in certain modes. By specifying NOLOCK, you reduce the number of locks acquired, but expose retrieval applications to the possibility of accessing modified records whose changes haven't been committed.

Note: For more information about setting these options, see the *CA IDMS Database Administration Guide*.

Estimating Maximum Locks for the System

The SYSLOCKS parameter provides an estimate of the maximum number of locks held concurrently. It is used in conjunction with MAX TASKS and the number of LTERMS defined to the system to calculate the amount of operating system storage acquired at startup to hold lock-related information. If more storage is needed because of a spike in the number of concurrently held locks, additional storage will be acquired from the storage pool and freed when no longer needed. Although this process allows the system to continue to service lock requests, it costs additional CPU resources to acquire and free the storage and it could lead to fragmentation of the storage pool or short-on-storage conditions. Consequently, it is important to provide a realistic value for the SYSLOCKS parameter.

The best way to determine a value for this parameter is through trial and error. Start with a value from another system that executes a similar mix of transactions or accept the system generation default value. After executing a typical work load, use either LOCKMON or DCMT DISPLAY LOCK STATISTICS to determine whether secondary lock storage was acquired. If secondary storage was acquired frequently, increase the SYSLOCKS value. Ideally, you want to avoid any overflow storage acquisitions; however, infrequent acquisitions may be acceptable.

Limiting Locks Acquired by Task

You can limit the number of locks acquired by tasks on a task-by-task basis or for all tasks within a system. You use the LOCK LIMIT clause of the SYSTEM statement to limit locks set by all tasks within a system. You use the LOCK LIMIT clause of the TASK statement to override the system limit for a specific task.

Resource Management

The performance of a DC/UCF system depends upon several factors in your environment. One major factor is the availability of resources at runtime. There are system generation parameters that you can establish when you define a DC/UCF system that can impact resource availability and utilization at runtime. The following aspects of resource management and the system generation parameters that affect them are discussed in this section:

- How the system keeps track of the resources used by a task
- How the system detects tasks that are deadlocked
- How you can limit the resources used by a task

Task Resource Usage

Control Blocks that Manage Resources

The DC/UCF system uses control blocks to manage task usage of resources:

- The **task control element (TCE)** represents an active task. The TCE includes timer information for the task and serves as an anchor for all resources used by the task while it is running.
- The **resource control element (RCE)** represents a resource in use by one or more tasks. The RCE contains the id of the task for which the RCE was created, indicates the number of tasks currently using the resource, and identifies the resource.
- The **resource link element (RLE)** links a task to a resource. One RLE exists for each resource in use by a given task. The RLE contains a pointer to the next RLE used by the task.

The DC/UCF system allocates all TCEs, RCEs, and RLEs at startup using specifications stored by the system generation compiler. The compiler calculates the number of each type of element to be allocated, as follows:

Calculating the Number of TCEs

At startup, the system calculates the maximum number of tasks of all types that will be allowed to be active at any one given time. The system allocates that number of TCEs.

The number of TCEs is calculated to be equal to:

- The MAXIMUM TASKS value specified on the system generation SYSTEM statement.
- Plus the value specified by the MAXIMUM ERUS parameter of the system generation SYSTEM statement.
- Plus a value calculated for various system tasks. This value includes the following:
  - Plus 1 for each line included in the system definition.
  - Plus 2 for the system control tasks, MASTER and DBRC.
  - Minus 1 for each line defined as an operator's console.
  - Plus 1 for each pre-defined run unit included in the RUN UNIT clause of the SYSTEM statement.
  - Plus 1 for the Deadlock Detection task.
  - Plus 1 for the Printer task.
  - Plus 1 (3 if running multi-tasking) if the LOG DATABASE clause of the SYSTEM statement as specified.
  - Plus 3 if running as a member of a data sharing group.
  - Plus 2 if Performance Monitor is active.
  - Plus an indeterminate number which may be reserved for other miscellaneous system functions.

The maximum number of active TCEs can be modified at run time by using the DCMT VARY ACTIVE TASKS MAX TASK command.

Note: For more information see the section "DCMT VARY ACTIVE TASK" in the *System Tasks and Operator Commands Guide*.

Specifying RCEs and RLEs

The numbers of **RCEs and RLEs** are specified by the RCE COUNT and RLE COUNT parameters of the system generation SYSTEM statement. You can specify explicit values in these parameters, or you can allow the compiler to calculate the values for you:

- The compiler calculates the number of **RCEs** to equal 25 times the number of TCEs.
- The compiler calculates the number of **RLEs** to equal 40 times the number of TCEs.

At Runtime

At startup, the system allocates the specified number of RLEs and RCEs above the 16 Mb line. When an executing CA IDMS system exhausts its primary allocation of RCEs and/or RLEs, it creates a secondary allocation in XA storage. The size of the secondary allocation is 25% of the value defined in the SYSTEM statement.

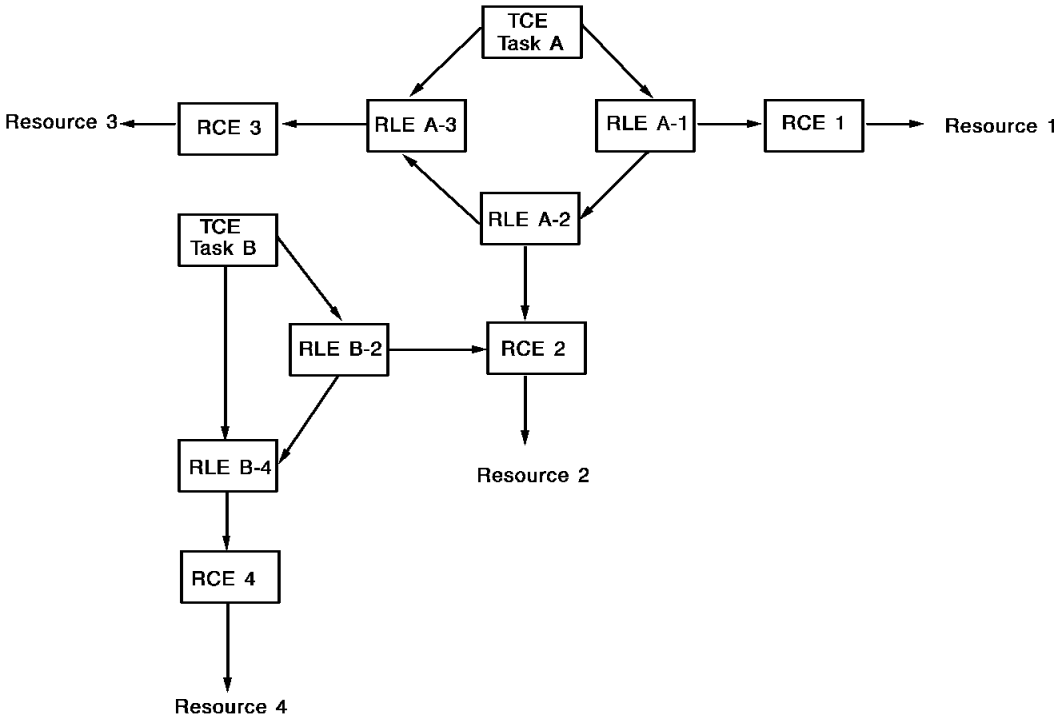
The following considerations apply to specifying the RCE COUNT and the RLE COUNT values:

- The number of RCEs and RLEs required to satisfy processing needs varies with the applications in use.
- For performance, secondary allocations of RCEs and RLEs should be avoided.
- Specifying too high a value for the RCE COUNT or RLE COUNT parameter results in wasted space.

Note: For more information about the SYSTEM statement, see SYSTEM Statement (see page 137).

The following figure illustrates the control blocks used to manage task resource usage.

Resource Management Control Blocks



Deadlock Detection

A deadlock is an unresolved contention for the use of a resource. Resources are either DC/UCF system resources or database resources. Different control block structures are used to track contention for DC/UCF system resources and database resources. Although deadlocks are tracked using different control block structures, the same deadlock detection mechanism is used to resolve deadlocks.

You can control the allocation of some system resources used by the deadlock detection mechanism with parameters on the system generation SYSTEM statement. The discussion that follows briefly describes how the system detects and manages both DC/UCF system and database deadlocks to help you establish appropriate values for these parameters.

DC/UCF System Deadlocks

Control blocks

The DC/UCF system uses three control blocks to detect deadlocked tasks:

- Internal event control block (ECB)—Each resource in use by a task is associated with an internal event control block (ECB). The ECB is used when another task must wait for the resource.

  For example, one task may be using a nonconcurrent program. When another task requests the program, the requesting task must wait for the ECB associated with the program to be posted.

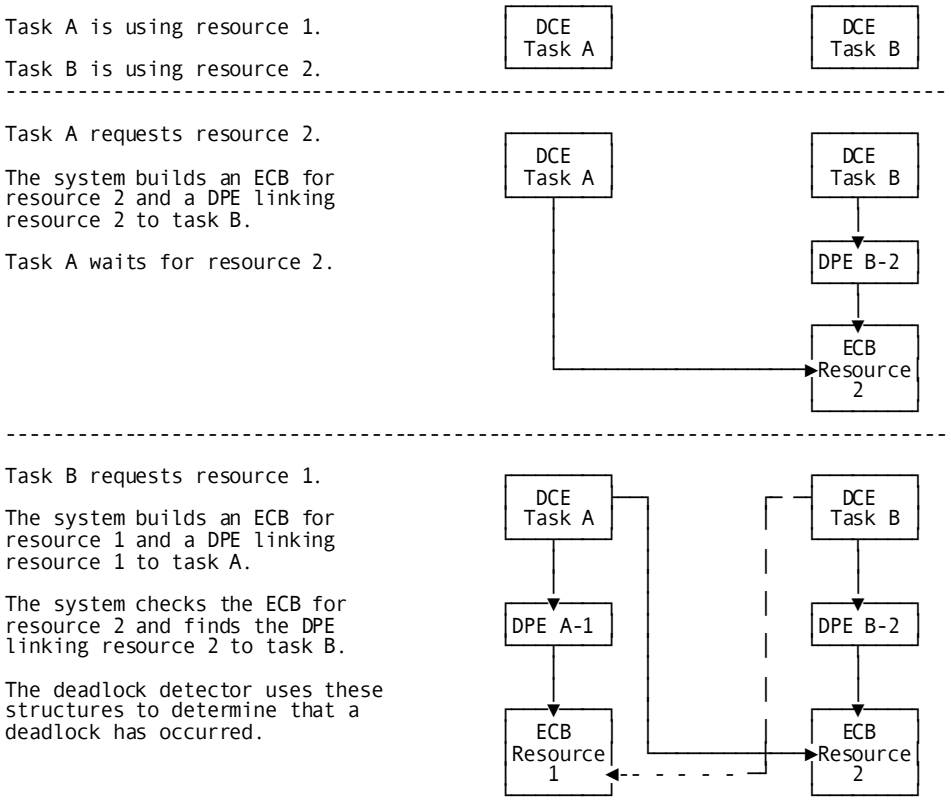
- Dispatch control element (DCE)—Each active task is associated with a dispatch control element (DCE). The DCE is used by the dispatcher to determine the status of the task (for example, waiting or ready to run). If the task is waiting for a resource, the DCE points to the ECB associated with the resource.

- Deadlock prevention element (DPE)—When a task must wait for a resource that is in use by one or more other tasks, the system creates one deadlock prevention element (DPE) for each task already using the resource. The DPEs link the DCEs for the tasks to the ECB for the resource.

These structures are used by the deadlock detector to verify that two or more tasks are in a deadlock.

Detecting Deadlocks for DC/UCF System Resources

The following figure illustrates how the system uses control blocks to detect deadlocks.



Specifying a DPE Count

The DC/UCF system allocates all DPEs at startup. The number of DPEs is specified by the DPE COUNT parameter of the system generation SYSTEM statement. You can specify an explicit value in this parameter, or you can allow the system generation compiler to calculate the value for you. The compiler calculates the number of DPEs to equal:

- The number of TCEs to be allocated by the system
- Multiplied by 20
- Plus 1 for each physical terminal included in the system definition

Note: For more information about the DPE COUNT parameter, see SYSTEM Statement (see page 137).

At Runtime

At startup, the system allocates the specified number of DPEs above the 16 Mb line. When an executing CA IDMS system exhausts its primary allocation of DPEs, it creates a secondary allocation in XA storage. The size of the secondary allocation is 25% of the value defined in the SYSTEM statement.

The following considerations apply to specifying the DPE COUNT value:

- For performance, secondary allocations of DPEs should be avoided.
- Specifying too high a value for the DPE COUNT parameter results in wasted space.

Database Resource Deadlocks

Lock Entities

The system uses three distinct entities to track contention for database resources:

- Lock—Each resource in use by a task is represented by a lock. The lock identifies the resource and other information about the resource such as its usage mode. All locks for the same resource are chained together so that all tasks sharing the resource can be identified.
- Lock wait—When a task requires access to a database resource that is unavailable, a lock wait is created to indicate that the task is waiting on a database resource. The lock wait contains the ECB that the task is waiting on. All lock waits for the same resource are chained together so that all tasks waiting on the resource can be identified.
- Lock resource—The lock resource defines the db-key that has been locked. Each lock is chained to the resource it has been placed on. Similarly, all locks placed on the same db-key are chained off the resource that defines the db-key.

How the System Detects a Deadlock

The mechanism used to detect a deadlocked task is the same for both DC/UCF system resources and database resources.

Deadlock detection is carried out in these major phases:

1. **Identifying stalled tasks**—To identify tasks that are stalled, all DCEs in the system are examined. Any DCE found stalled while waiting on a resource is entered into the deadlock detection matrix (DDM). All subsequent processing begins with the DCE address stored in the DDM table. This eliminates scanning all DCEs in the system.
2. **Identifying task dependencies**—Next, the dependencies between the stalled tasks are identified. The deadlock detection matrix is updated to reflect these relationships. For each task, a bit in the deadlock detection matrix is enabled for the tasks it is waiting on.

3. **Identifying deadlocks**—To determine the tasks involved in a deadlock, each pair of deadlocked tasks is examined. From this examination, one of the tasks is identified as the victim.
4. **Selecting a victim**—The task running for the shortest period of time is chosen as the victim of the two tasks as long as:
   - The priority of the victim task is less than that of the other task
   - The victim task's wait was not entered with COND=NONE and the other task's wait was entered with COND=DEAD.

   The task running for the shortest period of time is chosen as the victim because most likely is has consumed fewer resources than a longer running task. As a result, less duplication of work should be required when the victim is restarted, with these exceptions:
   - If the other task is of a higher priority, implying that it is of more importance
   - If the victim task entered the deadlock with COND=NONE and the other task specified COND=DEAD. In this case, the task specifying COND=DEAD is chosen as the victim since COND=DEAD indicates that the task is designed to handle and recover from deadlock situations. This prevents an abend.

Victim Selection User Exit

The algorithm used to select a victim in a deadlock situation may not be optimal for your installation or applications. A user exit is provided to allow victims to be selected based upon your requirements. The exit is passed the TCE addresses of each pair of deadlocked tasks and may take one of two actions:

- Choose one of the tasks as the victim task
- Return control to the deadlock detector by requesting that the default deadlock detection logic be applied

Note: For more information about the Victim Selection user exit, see the *CA IDMS System Operations Guide*.

Detecting Deadlocks

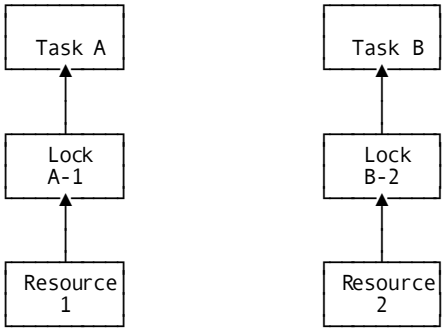
The following figure illustrates how the deadlock detection mechanism detects deadlocks.

Task A is using resource 1.

Task B is using resource 2.

A lock is created for resource 1 and resource 2.

Every lock is connected to the task that owns the resource.

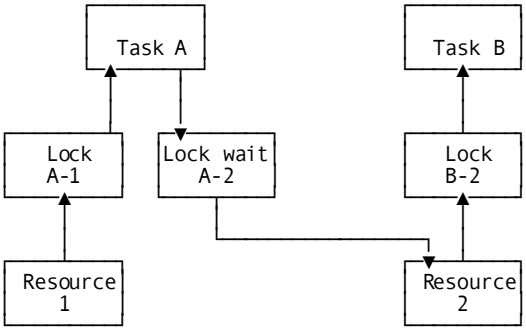


Task A requests resource 2.

A lock wait is created to indicate that task A is waiting on resource 2.

Task A points to the lock wait for resource 2. The lock wait points to resource 2 to indicate the resource it is waiting on.

Task A waits on resource 2.



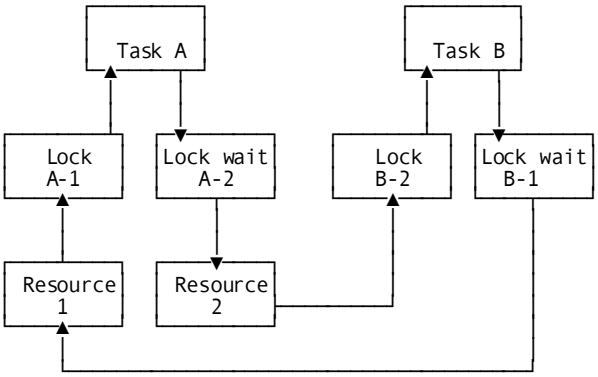
Task B requests resource 1.

A lock wait is created to indicate that task B is waiting on resource 1.

Task B waits.

When the deadlock detector is activated, it finds both task A and task B waiting on resource 2 and may then check for deadlocks.

The lock wait-to-resource chain shows the resource that the task is waiting on. The resource-to-lock-to task chain shows which tasks own a given resource. Using this information, the deadlock detector can determine tasks that are deadlocked.



Deadlock Detection Interval

You can control the frequency with which the deadlock detection mechanism searches for deadlocked tasks using the DEADLOCK DETECTION parameter of the SYSTEM statement.

The DEADLOCK DETECTION parameter allows you to specify the amount of time that elapses before the deadlock detection mechanism searches for deadlocked tasks.

You can use the DCMT VARY DEADLOCK command at runtime to override the system generation specification.

More Information:

- For more information about the SYSTEM statement, see SYSTEM Statement (see page 137).
- For more information about the DCMT commands, see the *CA IDMS System Tasks and Operator Commands Guide*.

Limits on Task Resource Usage

Using system generation parameters, you can limit task usage of the following resources:

- System service calls
- Database I/O operations
- Record locks
- Storage

You can establish limits for online tasks. Since external request units are processed using online task, limits may also be specified for them.

You use the following parameters to define online task limits and control their enforcement.

Establishing Resource Limits

The CALL/DBIO/LOCK/STORAGE LIMIT FOR ONLINE TASKS parameter of the system generation SYSTEM statement defines the limit for each resource.

Overriding Limits

You can override these limits:

- During system generation by means of the LIMIT ONLINE parameter of the TASK statement
- Or at runtime by means of the DCMT VARY TASK command

Enforcing Defined Limits

The LIMITS FOR ONLINE ARE ENABLED/DISABLED/ OFF parameter of the system generation SYSTEM statement controls the enforcement of defined limits. You can override the system generation specification at runtime by means of the DCMT VARY LIMITS command.

Note: Limits on task resource usage can be enforced only if TASK is specified on the Statistics parameter of the SYSTEM statement. Task statistics are described briefly under Statistics Collection (see page 35).

Limiting the Number of Application Threads

You can achieve additional control over task resource usage by limiting the number of threads that can be active concurrently for a given task. For tasks that are large consumers of system resources, you should include the MAXIMUM CONCURRENT THREADS parameter in the system generation TASK statement. Alternatively, the MAXIMUM CONCURRENT parameter of the DCMT VARY TASK command can be used at runtime to limit the number of concurrently active task threads.

More Information:

- For more information about the SYSTEM statement, see SYSTEM Statement (see page 137).
- For more information about the TASK statement, see TASK Statement (see page 291).
- For more information about DCMT commands, see the *CA IDMS System Tasks and Operator Commands Guide.*

Program Pools

A program pool is an area of storage in the DC/UCF region/partition that is used for loading both resident and nonresident nonresident programs. Typically, program pools hold:

- CA ADS applications
- CA ADS dialogs
- Database procedures
- Edit and code tables
- Maps
- Programs invoked by online tasks (both CA-supplied and user-written)
- Subschemas
- Access modules
- Relational command modules

A DC/UCF system can include up to four program pools. Each pool must be a different type. The following table describes each type of program pool.

Note: The page size of the reentrant pools (512 bytes) can be smaller than the page size of the standard program pools (4K bytes) because the storage protect key of reentrant pages never needs to change. User programs are not permitted to modify reentrant pages. The smaller page size reduces the amount of unusable space in the reentrant pools.

Type of Pool	Characteristics
24-bit program pool	■ Mandatory for each DC/UCF system ■ Page size 4K bytes (allocated in 4K increments) ■ Defined by the PROGRAM POOL parameter of the system generation SYSTEM statement
24-bit reentrant pool	■ Optional; for reentrant programs (for example, CA ADS dialogs, subschemas, and programs defined as reentrant in a system generation PROGRAM statement) ■ Page size 512 bytes (allocated in 512-byte increments) ■ Defined by the REENTRANT POOL parameter of the system generation SYSTEM statement

Type of Pool	Characteristics
31-bit program pool	■ Optional (only for operating systems that support 31-bit addressing); for programs with a residency mode (RMODE) of ANY ■ Page size 4K bytes (allocated in 4K increments) ■ Defined by the XA PROGRAM POOL parameter of the system generation SYSTEM statement
31-bit reentrant pool	■ Optional (only for operating systems that support 31-bit addressing); for reentrant programs with a residency mode (RMODE) of ANY ■ Page size 512 bytes (allocated in 512-byte increments) ■ Defined by the XA REENTRANT POOL parameter of the system generation SYSTEM statement

Specify at Least One 24-bit Program Pool

Every DC/UCF system must include the 24-bit program pool. The minimum size for this pool is 4K. The size that you specify in the system definition depends on the size and number of nonreentrant and quasireentrant programs that may be executed concurrently.

Note: Program pool space is allocated in 4K increments. For example, a 3K module is allocated 4K; a 5K module is allocated 8K.

Typically, a DC/UCF system includes the 24-bit reentrant pool. When you are first defining the system, the recommended value for the size of this pool is 1200K if ASF is used under the system and 500K if ASF is not used.

Resident programs, including nucleus and driver modules, are loaded into the appropriate program pools at DC/UCF startup. The system automatically increases the size of each pool by the amount of space occupied by the resident programs in the pool.

Under those operating systems that support 31-bit addressing, the system attempts to load all modules created by CA IDMS compilers and all programs with an RMODE of ANY into the applicable 31-bit pool, if defined. If the 31-bit pool does not contain adequate space, the system loads the program into the corresponding 24-bit pool.

Note: For more information about program loading under systems supporting the XA feature, see the *CA IDMS System Operations Guide*.

Storage Pools

A storage pool is an area of storage in the DC/UCF region/partition from which the system and programs executing under the system acquire space for work areas and control blocks. Typically, storage pools hold:

- Program variable storage
- COBOL working storage
- Variable portions of CA ADS dialogs
- Variable portions of subschema tables and access modules
- Currency blocks
- Database lock tables
- Buffer pools (if IDMS storage is specified on the DMCL BUFFER statement or through the DCMT VARY BUFFER command)
- Secondary allocations of null PDEs
- User trace buffers

256 Storage Pools is the Maximum

A DC/UCF system can include up to 256 storage pools. Each pool is identified by a unique number. The following table describes the storage pools that you can define.

Pool Id	Characteristics
Storage pool 0	■ Primary storage pool ■ Mandatory for each DC/UCF system ■ Located in 24-bit address space ■ Defined by the STORAGE POOL parameter of the system generation SYSTEM statement
Storage pools 1 through 127	■ Secondary storage pools ■ Optional ■ Located in 24-bit address space ■ Defined by the system generation STORAGE POOL statement

Pool Id	Characteristics
Storage pools 128 through 254	■ Secondary storage pools ■ Optional (only for operating systems that support 31-bit addressing) ■ Located in 31-bit address space ■ Defined by the system generation XA STORAGE POOL statement
Storage pool 255	■ Secondary storage pool ■ Located in 31-bit address space ■ Defined by the XA STORAGE POOL parameter of the SYSTEM statement

Storage Pools 0 and 255

Every DC/UCF system must include storage pool 0. It should be large enough to contain the amount of variable non-XA storage required by both CA-supplied and user-written programs (for example, CA ADS dialogs, system tasks, and CA OLQ).

Storage pool 0 also serves as an "overflow" pool for those storage types for which no non-XA secondary storage pool exists. Overflow occurs when there is no secondary storage pool that has enough space available for a storage request.

Every DC/UCF system must include storage pool 255. It should be large enough to contain the amount of variable XA storage needed by the DC/UCF system for internal house-keeping storage (for example, communication buffers, report printing and scratch management). When starting a DC/UCF system, the generated pool 255 is dynamically extended with a secondary pool 255 that contains internal house-keeping storage needed during startup.

Displaying the Actual Size of Storage Pools

You can use the DCMT DISPLAY STORAGE command to determine the actual size of the pools.

More Information:

- For more information about DCMT commands, see the *CA IDMS System Tasks and Operator Commands Guide*.
- For more information about runtime allocation of XA storage pools, see the *CA IDMS System Operations Guide*.

Increasing the Efficiency of Storage Pool Usage

Here are some suggestions to make storage pool usage more efficient.

Define a Storage Cushion

Define a storage cushion for one or more storage pools. A storage cushion is space reserved in a storage pool for use by tasks that are already executing. Use of a storage cushion helps prevent space in the storage pool from being exhausted.

When the amount of unused space in storage pool 0 is smaller than the storage cushion, the DC/UCF system is said to be short on storage. The system starts no new tasks and uses the cushion to satisfy storage requests from tasks that are already executing. Storage cushions in secondary storage pools are also used only when the system is short on storage.

When space in storage pool 0 is freed and the amount of unused space exceeds the storage cushion, the system accepts requests to start new tasks. Additionally, the system no longer uses the cushion to satisfy storage requests from tasks that are already executing.

Use the CUSHION parameter of the system generation SYSTEM statement to specify the size of the cushion for storage pool 0. For secondary storage pools, use the CUSHION parameter of the corresponding system generation STORAGE POOL or XA STORAGE POOL statement.

More Information:

- For more information about the SYSTEM statement, see SYSTEM Statement (see page 137).
- For more information about the STORAGE POOL and XA STORAGE POOL statements, see STORAGE POOL Statement (see page 286) and XA STORAGE POOL Statement (see page 313).

Size of the Cushion for Storage Pool 0

Typically, the size of the cushion for storage pool 0 is calculated to equal:

- The value specified by the STORAGE POOL parameter of the system generation SYSTEM statement
- Plus 3
- Divided by three times the value specified by the MAXIMUM TASKS parameter of the system generation SYSTEM statement

CA ADS Runtime System

Direct the CA ADS runtime system to calculate the amount of storage required for record buffer blocks (RBBs) instead of using the size specified in the system generation ADSO statement. Calculated storage reduces the amount of wasted space in the storage pool but increases CPU usage.

To take full advantage of calculated storage, include as many records as possible either in the application global records or in the first dialog in the application thread. Either of these strategies minimizes the allocation and release of RBBs during links to lower-level dialogs and programs.

Use the STORAGE MODE IS CALCULATED parameter of the system generation ADSO statement to request calculated storage.

Note: For more information about the ADSO statement, see ADSO Statement (see page 201).

Define a Fast Mode Threshold

The fast mode threshold is the point at which the DC/UCF system writes CA ADS record buffer blocks (RBBs) and statistics control blocks to the scratch area (DDLDCSCR) across a pseudo-converse. If the total size of the RBBs and statistics control blocks in all storage pools exceeds the fast mode threshold, the system writes the RBBs and statistics control blocks to scratch.

The fast mode threshold applies only when the system generation ADSO statement specifies RESOURCES ARE FIXED. If the ADSO statement specifies RESOURCES ARE RELOCATABLE, RBBs and statistics control blocks are always written to scratch across a pseudo-converse.

Use the FAST MODE THRESHOLD parameter of the system generation ADSO statement to specify a fast mode threshold.

Note: For more information about the ADSO statement, see ADSO Statement (see page 201).

Relocatable Threshold

Define a relocatable threshold for one or more storage pools. The relocatable threshold is the point at which the DC/UCF system writes relocatable storage to the scratch area (DDLDCSCR) across a pseudo-converse.

Relocating storage makes more efficient use of the storage pool but increases I/O to the scratch area. You should define a threshold such that the system relocates storage only when the storage pool is heavily used.

Use the RELOCATABLE THRESHOLD parameter of the system generation SYSTEM statement to specify the relocatable threshold for storage pool 0. For secondary storage pools, use the RELOCATABLE THRESHOLD parameter of the corresponding system generation STORAGE POOL or XA STORAGE POOL statement.

More Information:

- For more information about the SYSTEM statement, see SYSTEM Statement (see page 137).
- For more information about the STORAGE POOL and XA STORAGE POOL statements, see STORAGE POOL Statement (see page 286) and XA STORAGE POOL Statement (see page 313).

Define Secondary Storage Pools

Define secondary storage pools from which user programs can obtain storage space. Defining secondary storage pools allows the isolation of user-program storage from system storage and helps prevent the system from stalling when user programs require large amounts of storage space.

Operating systems that support 31-bit addressing: If secondary storage pools are defined, at least one of the pools should be in 24-bit memory (that is, non-XA).

You can assign one or more types of storage to each secondary storage pool that you define. To minimize the number of control tables that the system must search for a particular type of storage, however, you should assign each type of storage to no more than one storage pool.

Use the STORAGE POOL and XA STORAGE POOL statements to define secondary storage pools.

Note: For more information about these statements, see STORAGE POOL Statement (see page 286) and XA STORAGE POOL Statement (see page 313).

Segregating User and System Storage

As mentioned in the previous section, segregating user and system storage helps to prevent the system from stalling when a user program uses large amounts of storage. This storage segregation is also a prerequisite for enabling the High Performance Storage Protect feature.

Note: For more information about the High Performance Storage Protect feature, see Storage Protection (see page 68).

System generation permits defining four types of user-oriented storage: user, user-kept, shared, and shared-kept, as well as two types of system storage: database and terminal.

The storage pools must be defined in such a manner that all forms of user-oriented storage are segregated from the system storage. In other words, define both an XA and a non-XA storage pool for user storage types. Storage types: user, user-kept, shared, and shared-kept, can be together, but they must be defined to secondary storage pools and must be isolated from any storage pools that contain database or terminal type storage.

To segregate user and system storage, perform the following steps:

1. In SYSGEN, define at least one storage pool in the range 128 to 254 to support types user, user-kept, shared, and shared-kept. In addition, no pool can be defined to support type ALL (the default) or a mixture of these types and system (database or terminal) storage.
2. To remove user storage types from pool 0, you must SYSGEN at least one pool in the range of 1 to 127 that supports types user, user-kept, shared, and shared-kept. In addition, no pool can be defined to support type ALL (the default) or a mixture of these types and system (database or terminal) storage.

Storage Protection

DC/UCF storage protection protects pages in the system region/partition from being overwritten.

Generally, storage protection is used for developing, debugging, and testing new programs to ensure that the programs do not overwrite the storage allocated to production programs. To preserve operating system integrity and protect CA IDMS from user written code, storage protect should always be used. A special form of storage protect is available for the production system which provides negligible processing overhead yet protects CA IDMS and the operating system from user written code.

How to Implement Storage Protection

Storage protection is implemented through storage protect keys provided in the hardware. The DC/UCF system uses a primary protect key and an alternate protect key:

- When the system nucleus has control of the DC/UCF region/partition, all storage pages in the region/partition are set to the primary protect key. The nucleus executes with the program status word (PSW) set to the primary protect key which allows the system nucleus to modify any page in the region/partition.
- When a program is executing in user mode, all non-fully reentrant pages used by the program are set to the alternate protect key. All other pages remain set to the primary protect key. The program executes with the PSW set to the alternate protect key which allows the program to modify only those pages set to the alternate key. If the program attempts to modify a page set to the primary protect key, the program is terminated abnormally.

- When key 9, the default, is used as the alternate protect key, all user storage and non-reentrant programs are swapped into key 9 at startup, and only the PSW key is changed during program execution. Thereby, providing negligible CPU overhead compared to running without storage protection, while still protecting both the CA IDMS system and the operating system from user written code. The non-reentrant programs and the user storage are not protected from each other. This is explicitly intended for the high performance requirements of the production CV. Program development should not be done with key 9 as the alternate protect key.

System Generation Parameters

Use the following system generation parameters to control the use of storage protection:

- STORAGE KEY parameter of the SYSTEM statement—defines the value of the alternate protect key.
- PROTECT/NOPROTECT parameter of the SYSTEM statement—enables or disables the use of storage protection.
- PROTECT/NOPROTECT parameter of the PROGRAM statement—specifies whether the program being defined runs with the alternate protect key when the SYSTEM statement specifies PROTECT.

More Information:

- For more information about the SYSTEM statement, see SYSTEM Statement (see page 137).
- For more information about the PROGRAM statement, see PROGRAM Statement (see page 260).

Enabling High Performance Storage Protect

This feature is explicitly intended for servicing the high performance requirements of the production CV. Assuming that a storage protected system has already been successfully created, the following steps can be used to enable this feature:

1. On the existing system, display all the storage pools (DCMT DISPLAY ALL STORAGE POOLS), taking note of what pools support any type of user storage, that is, user, user-kept, shared, shared-kept, or ALL.
2. Follow the instructions under Segregating User and System Storage (see page 67).
3. In SYSGEN, on the system statement, specify STORAGE KEY IS 9.
4. Generate and start the system. If the storage pool definitions have not been properly set, message DC004001 HPSPO HAS BEEN DISABLED DUE TO INCORRECT STORAGE POOL DEFINITIONS is issued at startup.

Chapter 4: System Generation Compiler

This section contains the following topics:

Compiler Activities

The system generation compiler maintains DC/UCF systems according to statements that you submit either online or through a batch job. You can direct the compiler to perform three types of activities:

- Store and update a system definition
- Validate a system definition
- Generate the executable form of a system

Store and Update a System Definition

For each type of entity in a system definition, corresponding statements allow you to add, modify, delete, display, and punch occurrences of the entity. For example, to add a task to a system definition, you submit an ADD TASK statement. Additional statements allow you to add, modify, delete, display, and punch the portions of a system definition that are stored as an extension of the system entity.

When you submit a statement to add a system to the data dictionary, the system generation compiler creates a system source record. When you submit a statement to add an entity other than system (a component entity), the compiler creates a source record for the entity, if one does not already exist, and an object record connecting the entity to the system you are defining.

More Information:

- For more information about compiler activities in response to add, modify, and delete requests, see Adding, Modifying, and Deleting Entities (see page 82).
- For more information about compiler activities in response to display and punch requests, see Displaying and Punching Entities (see page 86).

Validate a System Definition

You submit a VALIDATE statement to request that the system generation compiler cross-check the relationships between entities in the system definition. For example, in response to the VALIDATE statement, the compiler verifies that each physical terminal is associated with a single logical terminal.

Explicitly requesting validation of the system definition is an optional activity. The system generation compiler automatically cross-checks relationships before generating the executable form of a system.

Note: For more information and syntax for the VALIDATE statement, see VALIDATE Statement (see page 107).

Generate the Executable Form of a System

You submit a GENERATE statement to request that the system generation compiler perform the following tasks:

- Validate the system definition
- Create the object record for the system entity
- Copy information from new and/or updated source records into the corresponding object records
- Calculate defaults and modify values where applicable
- Complete the connections between:
  - Programs and tasks
  - Tasks and queues
  - Lines and physical terminals
  - Physical terminals and logical terminals
  - Destinations and logical terminals
- Flag all entities in the system as executable

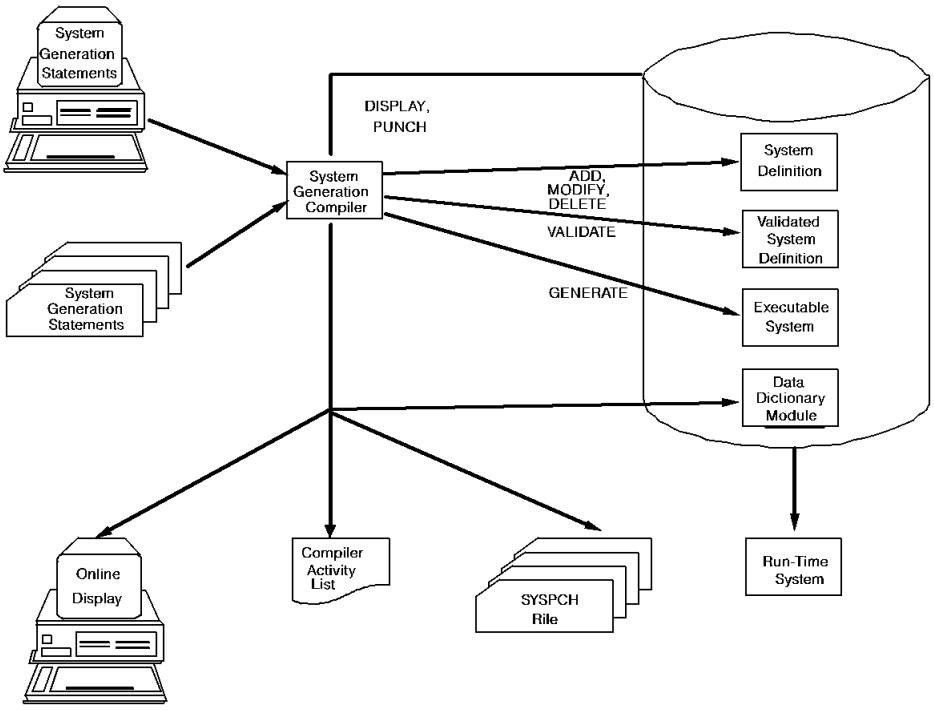
Additional steps are required to create the routine used to start up a DC/UCF system.

More Information:

- For more information about system startup, see the *CA IDMS System Operations Guide*.
- For more information and syntax for the GENERATE statement, see GENERATE Statement (see page 108).

System Generation Compiler Activities

The following figure illustrates the activities of the system generation compiler.



System Definition Backup

Before modifying an executable system, you should duplicate the system definition. The duplicate definition provides a backup system that can be generated and executed if the modified system fails to start up.

To duplicate a system definition:

1. Display the system definition online as syntax
2. Modify the system version number
3. Resubmit the system definition to the compiler

Note: For more information about using the online system generation compiler to modify entities, see Online System Generation (see page 114).

Currency

The system generation compiler uses currency to determine:

- The system with which a component entity is associated
- The line with which a physical terminal is associated
- The physical terminal with which a logical terminal is associated

Accordingly, the compiler maintains currency for systems, lines, and physical terminals.

System Currency

System currency is established by an ADD, MODIFY, DISPLAY, or PUNCH SYSTEM statement. Until you submit one of these statements to the compiler, no system is current.

System currency is the only way to associate an entity with a system. You must establish system currency before you can add, modify, delete, display, or punch component entities.

System currency changes each time the compiler processes an ADD, MODIFY, DISPLAY, or PUNCH SYSTEM statement for a different system. No system is current after the compiler processes a DELETE SYSTEM statement.

All statements that you submit to add or delete component entities apply to the current system. For example, to add program MYPROG to system 12, you must first make system 12 current:

```
MODIFY SYSTEM 12.
ADD PROGRAM MYPROG.
```

Line Currency

Line currency is established by an ADD, MODIFY, DISPLAY, or PUNCH LINE statement. Until you submit one of these statements to the compiler, no line is current.

Line currency changes each time the compiler processes an ADD, MODIFY, DISPLAY, or PUNCH LINE statement for a different line. No line is current after the compiler processes a DELETE LINE statement.

Statements that you submit to add or delete a physical terminal apply to the current line. For example, to add physical terminal PT001 to line L001, you must first make line L001 current:

```
MODIFY LINE L001.
ADD PTERM PT001.
```

You can override line currency for a specific physical terminal by including the IN LINE parameter in the PTERM statement.

Physical Terminal Currency

Physical terminal currency is established by an ADD, MODIFY, DISPLAY, or PUNCH PTERM statement. Until you submit one of these statements to the compiler, no physical terminal is current.

Physical terminal currency changes each time the compiler processes an ADD, MODIFY, DISPLAY, or PUNCH PTERM statement for a different physical terminal. No physical terminal is current after the compiler processes a DELETE PTERM statement.

Statements that you submit to add or delete a logical terminal apply to the current physical terminal. For example, to associate logical terminal LT001 with physical terminal PT001, you must first make physical terminal PT001 current:

```
MODIFY PTERM PT001.
ADD LTERM LT001.
```

You can override physical terminal currency for a specific logical terminal by including the PTERM parameter in the LTERM statement.

Coding Considerations

When coding input for the system generation compiler, you should consider the following:

- Statement format
- Delimiters

- Quotation marks
- Input lines
- Comments
- Carriage control statements

Statement Format

System generation statements that reference entities have five parts.

1. Verb

The verb specifies the action to be taken by the system generation compiler:

- The **action verbs** are:
  - **ADD** establishes a new entity occurrence in the data dictionary.
  - **MODIFY** updates an existing entity occurrence.
  - **DELETE** removes an existing entity occurrence from the data dictionary.
- The **display verbs** are:
  - **DISPLAY** displays one or more existing entity occurrence definitions.
  - **PUNCH** displays one or more existing entity occurrence definitions and writes the definitions either to the SYSPCH file or to a data dictionary module.

  If you omit the verb from a system generation statement, the compiler supplies a verb.

ADD is the default verb when either of the following conditions applies:

- The specified entity occurrence does not exist in the data dictionary.
- The specified entity occurrence exists in the data dictionary but does not participate in the current system.

MODIFY is the default verb when the specified entity occurrence exists in the data dictionary and already participates in the current system.

The action verb DELETE and the display verbs DISPLAY and PUNCH must always be specified explicitly.

2. Entity Type Name

The entity type name identifies the type of entity to which the statement applies. The entity type name can also identify extended characteristics of the system entity.

Valid Entity Type Names

The following are the valid entity type names.

ADSO	LTERM	QUEUE
AUTOTASK	MAPTYPE	RESOURCE TABLE
DESTINATION	NODE	RUNUNITS
IDD	OLM	SQL CACHE
KEYS	OLQ	STORAGE POOL
LINE	PROGRAM	SYSTEM
LOADLIST	PTERM	TASK
TCP/IP		
XA STORAGE POOL		

3. Entity Occurrence Name

The entity occurrence name identifies a specific occurrence of the named entity type. For example, in the following statement, UPDCUST is the entity occurrence name:

```
ADD PROGRAM UPDCUST.
```

Occurrences of the following entities can be further identified by a version number: destinations, lines, logical terminals, physical terminals, programs, queues, and tasks.

The following entity type names are not accompanied by an entity occurrence name: ADSO, IDD, OLM, OLQ, RESOURCE TABLE, RUNUNITS, TCP/IP, and SQL CACHE.

4. Parameters

The **parameters** either define characteristics of the entity occurrence or specify display options for the entity occurrence definition. For example, in the following statement, the LANGUAGE IS COBOL parameter defines the program's source language:

```
ADD PROGRAM ADDCUST LANGUAGE IS COBOL.
```

Parameters can be either optional or required, as indicated in the syntax, and can be coded in any order. If a statement contains multiple occurrences of the same parameter, the system generation compiler uses the last occurrence coded.

5. End of Statement

The period terminates a system generation statement and is required in all statements. The period can directly follow the last word in the statement, can be separated from the last word by blanks, or can be coded on a separate line.

Note: You can establish recognition of the semicolon as an alternate end of statement character if you specify the SEMICOLON ALTERNATE END OF SENTENCE IS ON clause on the SET OPTIONS statement or if this option has been activated by the IDD DDDL compiler as a default for the dictionary. For more information about the SET OPTIONS statement, see SET OPTIONS Statement (see page 99).

The following example illustrates the parts of a typical system generation statement:

Using IS and '=' Interchangeably

You can use the equal sign (=) in place of the word 'IS' in any system generation statement.

The equal sign (=) is not shown in the system generation syntax diagrams in this document.

Delimiters

You must use one or more blanks as delimiters between words in a system generation statement. Commas, semicolons, and colons, which are treated as blanks by the compiler, can be used as additional delimiters to enhance readability.

Note: You cannot use the semicolon as a delimiter if it has been established as an alternate statement terminator.

Quotation Marks

Use Quotation Marks with User-Supplied Names

You must use quotation marks to enclose user-supplied names containing one or more embedded blanks or punctuation marks (that is, apostrophes, colons, commas, parentheses, periods, quotation marks, and semicolons). If the closing quotation mark is omitted, the compiler interprets the name to include everything on the line up to the end of the input column range.

Single Quotation Mark is Installation Default

The single quotation mark (') is the default established during installation. This default can be changed to the double quotation mark (") with the IDD DDDL compiler. You can use the SET OPTIONS statement to establish either quotation mark as the standard for the current session.

Note: For more information about the SET OPTIONS statement, see SET OPTIONS Statement (see page 99).

If the current standard quotation mark is embedded in a user-supplied name, the quotation mark must be coded as two consecutive quotation marks. For example, the name MARY'S PROGRAM must be coded as 'MARY''S PROGRAM' if the single quotation mark (') is the current standard. If the double quotation mark (") is the current standard, MARY'S PROGRAM must be coded as "MARY'S PROGRAM".

Non-quoted Letters Converted to Upper Case

All input submitted to the system generation compiler that is not in quotes is converted to upper case. Input submitted not in quotes in lower case is automatically converted to upper case.

Input Lines

80-Character Card-Image Format

You submit system generation statements to the compiler in an 80-character card-image format. The range of columns within which you can code the statements is determined by the SET OPTIONS statement. The maximum range is 1 through 80. The default range is 1 through 79 for online input and 1 through 72 for batch input.

Note: For more information about the SET OPTIONS statement, see SET OPTIONS Statement (see page 99).

Code Statements on Single or Multiple Lines

Each system generation statement can be coded on a single line or on multiple lines within the input column range. Additionally, multiple statements can be coded on a single line.

The following considerations apply to continuing a statement on another line:

- No continuation character is required.
- Words cannot be split across lines.

  Note: The compiler views a user-supplied name within quotation marks as a single word.

Using Blank Lines

To enhance readability, you can include blank lines at any point among the input statements. Blank lines are ignored by the compiler.

The following examples show two acceptable input formats for the same system generation statement:

Example 1

```
MODIFY SYSTEM 30 PROGRAM POOL IS 300.
```

Example 2

```
MODIFY SYSTEM 30
  PROGRAM POOL IS 300
  .
```

Comments

How to Indicate a Comment

You can include comments among the statements submitted to the system generation compiler. Use any of the following symbols on an input line preceding the comment text to indicate that the remainder of the line is a comment:

- Asterisk (*) (Must be coded in position 1 to be accepted as a comment)
- Asterisk and plus sign (*+)
- Two dashes (--)

When the system generation compiler encounters the initial symbol, it disregards the entire line of input.

Comment Lines Redisplayed with ECHO or LIST Option

Although comment lines are not interpreted as system generation statements, they are redisplayed along with other input lines if the ECHO or LIST option of the SET OPTIONS statement is in effect. Note, however, that comment lines beginning in positions 1 and 2 of an input line with an asterisk and a plus sign (*+) or two dashes (--) are not echoed.

Note: For more information about the SET OPTIONS statement, see SET OPTIONS Statement (see page 99).

Carriage Control Statements

SKIP and EJECT Statements

The SKIP and EJECT carriage control statements are used to format the CA IDMS/DC SYSGEN Compiler Activity List. SKIP directs the compiler to insert one, two, or three blank lines in the listed output. EJECT directs the compiler to continue printing the listed output on a new page. Typically, EJECT is used to format the CA IDMS/DC SYSGEN Compiler Activity List by entity type. These statements are not printed, nor do they affect the operation of the system generation compiler.

When used online, both SKIP and EJECT cause the compiler to insert a single blank line in the displayed output.

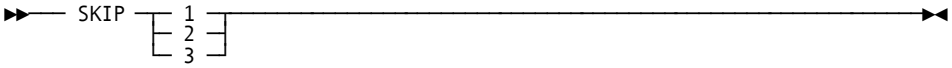
Code SKIP and EJECT Between Statements

The SKIP and EJECT statements can be coded between any two system generation statements, but each must be the only statement in the input line. These statements do not include a terminating period.

Syntax for the SKIP and EJECT statements is shown below. The keyword SKIP and the specified integer cannot be separated. For example, SKIP1 is valid; SKIP 1 is invalid.

SKIP Statement Syntax

SKIP statement syntax



SKIP Statement Parameters

1

Directs the compiler to insert one blank line in the CA IDMS/DC SYSGEN Compiler Activity List.

2

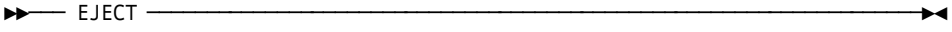
Directs the compiler to insert two blank lines in the CA IDMS/DC SYSGEN Compiler Activity List.

3

Directs the compiler to insert three blank lines in the CA IDMS/DC SYSGEN Compiler Activity List.

EJECT Statement Syntax

EJECT statement syntax



EJECT Statement Parameters

EJECT

Directs the compiler to continue printing the listed output on a new page.

Adding, Modifying, and Deleting Entities

The action verbs ADD, MODIFY, and DELETE direct the system generation compiler to store, update, or remove system definitions in the data dictionary.

Note: For more information about specific ADD/MODIFY/DELETE syntax for each entity type, see SYSTEM Statement (see page 137), System Generation Statements (see page 201), and Teleprocessing Network Statements (see page 317).

ADD Verb

The **ADD** verb adds system and component entity definitions to the data dictionary and associates component entities with the current system. ADD also establishes currency for systems, lines, and physical terminals.

When adding an entity, you can explicitly specify characteristics of the entity and/or you can accept one or more default characteristics. Component entities added to an existing system are not reflected in the executable form of the system until the next successful GENERATE statement for that system. You must generate the system definition before bringing it up.

How the Compiler Handles ADD Requests

The system generation compiler responds to ADD requests, as follows:

- **In response to an ADD SYSTEM request**, the compiler creates a system source record. The system object record is not created until the compiler successfully processes a GENERATE statement.
- **In response to an ADD request for a component entity that does not exist in the data dictionary**, the compiler creates both a source record for the entity and an object record that associates the entity with the current system.
- **In response to an ADD request for a component entity that already exists in the data dictionary but that is not associated with the current system**, the compiler creates an object record that associates the entity with the current system. If you explicitly specify entity characteristics in the ADD request, the system generation compiler also modifies the source record for the entity. Characteristics not explicitly overridden remain unchanged.

Object Records are Flagged for Update

Object records created in response to ADD requests are flagged for update. These records do not yet contain a copy of the information in the corresponding source records. In response to a GENERATE statement, the system generation compiler copies the information about the entity from the source record to the object record and removes the update flag.

Using DEFAULT IS ON Option

The system generation compiler accepts the ADD verb in reference to an existing system or to a component entity already associated with the current system only if you have specified DEFAULT IS ON in the SET OPTIONS statement. When DEFAULT IS ON has been specified, the system generation compiler changes the ADD verb to MODIFY for existing entities.

Note: For more information and syntax for the SET OPTIONS statement, see SET OPTIONS Statement (see page 99).

The following table illustrates system generation compiler actions in response to ADD requests.

Statements	Compiler Actions
ADD SYSTEM 20.	Adds source record for system 20 and sets system 20 current.
ADD TASK X. (system 20 current)	Adds source and object records for task X. Object is connected to system 20 source record and is flagged for update (U).
ADD SYSTEM 30.	Adds source record for system 30 and sets system 30 current.
ADD TASK X. (system 30 current)	Adds object record for task X. Object is connected to system 30 source record and is flagged for update (U).
GENERATE. (system 30 current)	Adds object record for system 30. Copies information from task X source record to task X object record for system 30 and removes update flag.
MODIFY SYSTEM 20. GENERATE.	Sets system 20 current and adds object record for system 20. Copies information from task X source record to task X object record for system 20 and removes update flag.

MODIFY Verb

The **MODIFY** verb updates existing system and component entity definitions in the data dictionary. MODIFY also establishes currency for systems, lines, and physical terminals.

When modifying an entity, you must explicitly specify all characteristics that are to be changed. Characteristics not explicitly modified remain unchanged. Changes made to a system and its component entities are not reflected in the executable form of the system until you successfully generate that system with its changed characteristics. When any of the SYSGEN entities are modified, a GENERATE statement must be executed before recycling CV. If the SYSGEN is not successfully generated, the modified entities may not be recognized the next time CA IDMS CV is started.

The system generation compiler responds to MODIFY requests, as follows:

- **In response to a MODIFY SYSTEM request**, the compiler updates the system source record with any explicitly specified characteristics. The next successful GENERATE statement for the system causes the compiler to copy information from the system source record into the system object record.
- **In response to a MODIFY statement for a component entity**, the compiler updates the source record for the entity with any explicitly specified characteristics. The compiler also places update flags on all object records associated with the entity. A successful GENERATE statement for a system that includes the entity causes the compiler to copy information from the modified source record into the object record that connects the entity to the system.

What the Compiler does on a MODIFY

The following table illustrates system generation compiler actions in response to MODIFY requests.

Statements	Compiler Actions
MODIFY SYSTEM 20 MAX TASKS IS 15.	Sets system 20 current and modifies source record for system 20.
MODIFY TASK X DISABLED. (system 20 current)	Modifies source record for task X and flags all task X object records for update (U).
MODIFY TASK Y DISABLED. (system 20 current)	Modifies source record for task Y and flags all task Y object records for update (U).

Statements	Compiler Actions
GENERATE. (system 20 current)	Copies information from source record for system 20 to object record for system 20 and from source records for tasks X and Y to object records connected to system 20. Removes flags from updated object records.
MODIFY SYSTEM 30. GENERATE.	Sets system 30 current. Copies information from source record for system 30 to object record for system 30 and from source records for tasks X and Y to object records connected to system 30. Removes flags from updated object records.

DELETE Verb

The **DELETE** verb disassociates component entities from systems and deletes system and component entities from the data dictionary. Deletions of component entities from a system are not reflected in the executable form of the system until the next successful GENERATE statement for that system.

How the Compiler Handles a DELETE Action

The system generation compiler responds to DELETE requests, as follows:

- **In response to a DELETE SYSTEM request**, the compiler deletes both the source and object records for the system and all object records that connect component entities to the system. To prevent the inadvertent deletion of entity definitions, the compiler does not delete source records for component entities when deleting a system. A GENERATE statement is not required after a DELETE SYSTEM statement.

  To delete source records for component entities that no longer participate in any systems (as a result of DELETE SYSTEM requests), you can use the IDD DDDL compiler.

  Note: For more information about using the DDDL compiler to delete entities, see the *CA IDMS IDD DDDL Reference Guide*.

- **In response to a DELETE request for a component entity**, the compiler places a delete flag on the object record that connects the entity to the current system. A successful GENERATE statement for the system causes the compiler to delete the flagged object record. If no other object records exist for the entity (that is, if the entity is not associated with any other system), the compiler also deletes the source record for the entity.

Note: The system generation compiler deletes source records only for entities created through the system generation compiler. You must use the IDD DDDL compiler to delete entities created through the DDDL compiler.

The following table illustrates system generation compiler actions in response to DELETE requests.

Statements	Compiler Actions
	Status before deletions.
DELETE SYSTEM 20.	Deletes source and object records for system 20 and object records connecting tasks X, Y, and Z to system 20.
MODIFY SYSTEM 30. DELETE TASK X.	Sets system 30 current. Places delete flag (D) on object record connecting task X to system 30.
MODIFY SYSTEM 40. DELETE TASK X.	Sets system 40 current. Places delete flag (D) on object record connecting task X to system 40.
DELETE TASK Y. (system 40 current)	Places delete flag (D) on object record connecting task Y to system 40.
GENERATE. (system 40 current)	Deletes object records connecting tasks X and Y to system 40. Copies information from source record for system 40 to object record for system 40.
MODIFY SYSTEM 30. GENERATE.	Sets system 30 current. Deletes object record connecting task X to system 30 and source record for task X. Copies information from source record for system 30 to object record for system 30.

Displaying and Punching Entities

The display verbs DISPLAY and PUNCH list system and component entity definitions from the dictionary. DISPLAY and PUNCH also establish currency for system, lines, and physical terminals. For component entity definitions other than system, a successful DISPLAY or PUNCH request reflects only the presence of the definition in the dictionary, NOT an assurance that the definition is associated with the current system. To confirm this association, use a DISPLAY ALL *entity-type* request, which lists the component entities associated with the current system.

How the Compiler Handles the DISPLAY Verb

DISPLAY causes the compiler to list the requested entity definition either online at the terminal or in batch mode in the CA IDMS/DC SYSGEN Compiler Activity List (described under Batch System Generation (see page 118)).

When DISPLAY is used online, you can edit the displayed definition and resubmit it as input to the compiler.

Note: For more information about resubmitting displayed output, see Online System Generation (see page 114).

How the Compiler Handles the PUNCH Verb

PUNCH causes the compiler to display the requested entity definition and to write the definition either to the SYSPCH file or to a data dictionary module.

A definition written to the SYSPCH file can be edited and resubmitted as input to the compiler in batch mode. A module containing punched definitions can be included in other system definitions.

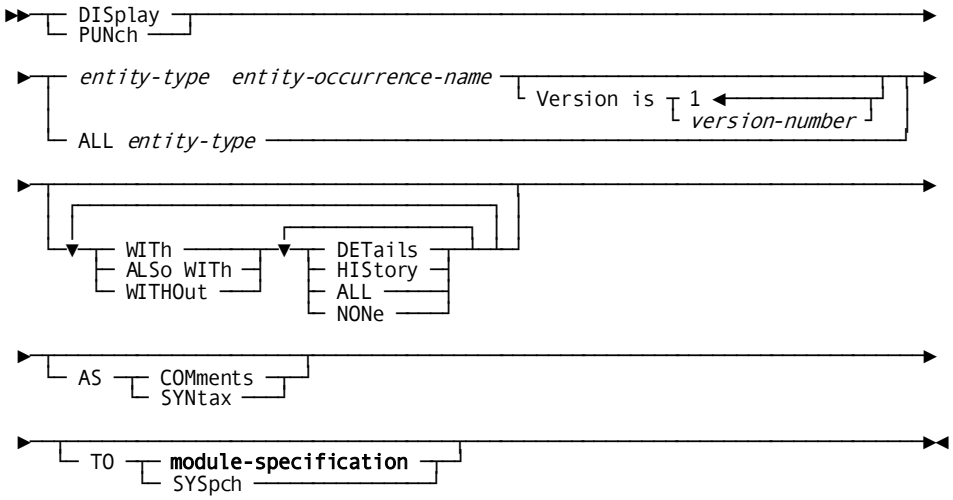
Note: For more information about including modules in system definitions, see INCLUDE Statement (see page 111).

Default Actions with the DISPLAY and PUNCH

DISPLAY and PUNCH statement defaults are determined by the SET OPTIONS statement. You can override the SET OPTIONS options in the individual DISPLAY and PUNCH statements that you submit to the compiler.

Note: For more information about the SET OPTIONS statement, see SET OPTIONS Statement (see page 99).

DISPLAY Syntax



DISPLAY Parameters

entity-type

Identifies the type of entity to be displayed or punched.

Entity-type must be a valid system generation entity type.

Note: For more information about valid entity types, see Statement Format (see page 76).

entity-occurrence-name

Specifies a single entity occurrence to be displayed or punched.

Entity-occurrence-name must be the name of an existing occurrence of the specified entity type. The named occurrence does not have to be associated with the current system, line, or physical terminal.

Version is *version-number*

Qualifies the named entity occurrence with a version number.

Version-number must be an integer in the range 1 through 9,999. The default is 1.

ALL *entity-type*

Directs the system generation compiler to display or punch either all entities associated with a specific system or all occurrences of the named entity type associated with the current system. *Entity-type-name* must be a valid system generation entity type.

Note: For more information about valid entity types, see Statement Format (see page 76).

WITh

Directs the system generation compiler to override the options specified by the DISPLAY WITH and DISPLAY ALSO WITH parameters of the SET OPTIONS statement and to include only the indicated information in the displayed or punched definition. The override applies to the current DISPLAY/PUNCH request only.

ALSo WITh

Directs the system generation compiler to include the indicated information in the displayed or punched definition in addition to the information included because of the options specified by the DISPLAY WITH and DISPLAY ALSO WITH parameters of the SET OPTIONS statement. The additional information is included for the current DISPLAY/PUNCH request only.

WITHOut

Directs the system generation compiler to exclude the indicated information from the information included in the displayed or punched definition because of the options specified by the DISPLAY WITH and DISPLAY ALSO WITH parameters of the SET OPTIONS statement. The information is excluded for the current DISPLAY/PUNCH request only.

DETails

Includes or excludes the entity-specific characteristics that make up the entity definition.

HIStory

Includes or excludes the dates when the entity definition was created and last updated and the identification of the users who created and last updated the definition (given by the PREPARED BY and REVISED BY parameters). History is maintained only for the following entity types: DEFAULT PROGRAM, DESTINATION, LINE, LOGICAL TERMINAL, PHYSICAL TERMINAL, PROGRAM, QUEUE, SYSTEM, and TASK.

ALL

Includes or excludes both the entity history and the details of the entity definition.

NONe

Includes only the name and version number (if applicable) of the entity occurrence in the displayed or punched definition.

NONE is meaningful only with WITH.

AS

Specifies whether the displayed or punched definition appears as comments or syntax.

COMments

Specifies that each line of the entity definition is displayed or punched as a comment.

Comment lines generated by the compiler are indicated by an asterisk and a plus sign (*+) in the first two columns and are ignored when resubmitted to the compiler.

SYNtax

Specifies that the displayed or punched definition appears in syntax format. Definitions that are displayed (online only) or punched (online and batch) as syntax can be edited and resubmitted to the compiler as input.

TO

For PUNCH statements only, specifies the destination of the punched output.

module-specification

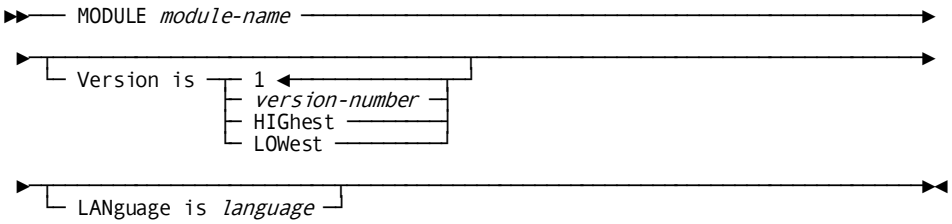
Causes the compiler to write punched output to the specified module.

Expanded syntax for *module-specification* is presented next.

SYSpch

Causes the compiler to write punched output to the SYSPCH file.

MODULE Syntax



MODULE Parameters

MODule *module-name*

Identifies a module previously defined in the data dictionary.

Note: For information on defining modules, refer to the *CA IDMS IDD DDDL Reference Guide*.

Version is

Qualifies the named module with version number.

version-number

Specifies an explicit version number.

Version-number must be an integer in the range 1 through 9,999. The default is 1.

HIGhest

Specifies the highest existing version of the named module.

LOWest

Specifies the lowest existing version of the named module.

LANguage is *language*

Qualifies the named module with a language.

Example: MODULE

The following screens show system generation compiler responses to three sample DISPLAY/PUNCH requests. The default options specified by the DISPLAY parameter of the SET OPTIONS statement are WITH ALL and AS COMMENTS.

```
          SYSGEN 17.0    NO ERRORS    DICT=CORPDICT    1/17    cv-name
DISPLAY ALL SYSTEM 9 WITH NONE.
*+   ADD SYSTEM 9
*+       .
*+   ADD ADSO
*+       .
*+   ADD OLM
*+       .
*+   ADD PROGRAM RHDCBYE
*+       .
*+   ADD PROGRAM PXT001
*+       .
*+   ADD PROGRAM PXT002
*+       .
*+   ADD TASK TXT001
*+       .
*+   ADD TASK TXT002
*+       .
```

```
          SYSGEN 17.0    NO ERRORS    DICT=CORPDICT    1/15     cv-name
PUNCH ALL PROGRAMS WITHOUT DETAILS.
*+   ADD PROGRAM RHDCBYE
*+       DATE CREATED IS      09/29/07
*+       DATE LAST UPDATED IS 09/30/07
*+       PREPARED BY ABC
*+       REVISED  BY ABC
*+       .
*+   ADD PROGRAM PXT001
*+       DATE CREATED IS      09/30/07
*+       PREPARED BY ABC
*+       .
*+   ADD PROGRAM PXT002
*+       DATE CREATED IS      09/30/07
*+       PREPARED BY ABC
*+       .
```

```
          SYSGEN 17.0    NO ERRORS    DICT=CORPDICT    1/26     cv-name
DISPLAY TASK TXT001 AS SYNTAX.
     ADD TASK TXT001
*+       DATE CREATED IS      09/30/07
*+       PREPARED BY ABC
         ENABLED
         EXTERNAL
         INACTIVE INTERVAL IS SYSTEM
         INVOKES PROGRAM PXT001
         INPUT
         NOJOURNAL
         NOMAP
         PRINT KEY IS SYSTEM
         PRIORITY IS 100
         RESOURCE TIMEOUT INTERVAL IS SYSTEM PROGRAM IS SYSTEM
         NOSAVE
         LOCATION IS BELOW
         STORAGE LIMIT IS SYSTEM
         LOCK LIMIT IS SYSTEM
         CALL LIMIT IS SYSTEM
```

```
          SYSGEN 17.0    PAGE 2 LINE 1  DICT=CORPDICT    24/26  cv-name
         DBIO LIMIT IS SYSTEM
         MAXIMUM CONCURRENT THREADS IS OFF
         AREA ACQUISITION THRESHOLD IS OFF RETRY FOREVER
         PROTOCOL IS DEFRESP
         .
                        * * *   END OF DATA   * * *
```

Compiler-Directive Statements

Compiler-directive statements direct the execution of the system generation compiler:

- **SIGNON** initiates an online session or batch run of the system generation compiler.
- **SIGNOFF** terminates an online session or batch run of the system generation compiler.
- **SET OPTIONS** establishes default processing options for the current online session or batch run of the system generation compiler.
- **DISPLAY/PUNCH OPTIONS** lists either the default processing options established in the data dictionary or the processing options in effect for the current online session or batch run of the system generation compiler.
- **VALIDATE** directs the system generation compiler to cross-check the relationships among all components of the current system.
- **GENERATE** instructs the system generation compiler to validate (see above) the current system and, if validation is successful, to produce the executable form of the system.
- **COPY** copies all or portions of an existing system definition into a new or other existing system definition.
- **INCLUDE** submits as input to the system generation compiler statements stored as a module in the data dictionary.

Each compiler-directive statement is described below.

SIGNON Statement—Initiates an Online or a Batch Session

The SIGNON statement initiates an online or batch session of the system generation compiler and allows you to specify:

- The id and password of the user to be signed on to the system if not already signed on
- The data dictionary to be accessed by the compiler in a multiple dictionary environment

  Note: The teleprocessing network for a DC/UCF system can be defined only in a data dictionary that contains device definitions. Device definitions are stored in the installation default dictionary during installation. For more information about storing device definitions in a data dictionary, see the *CA IDMS Installation and Maintenance Guide—z/OS*.
- The node that controls the dictionary to be accessed by the compiler
- The usage mode in which each dictionary area is to be accessed

How the Compiler Performs a Signon Operation

When invoked, the system generation compiler automatically performs a signon operation using:

- The id of the user that is currently signed on to the DC/UCF system or the user running the batch job
- The current session default dictionary
- The current session default dictionary node

Therefore, you typically do not need to issue an explicit SIGNON statement after you invoke the compiler.

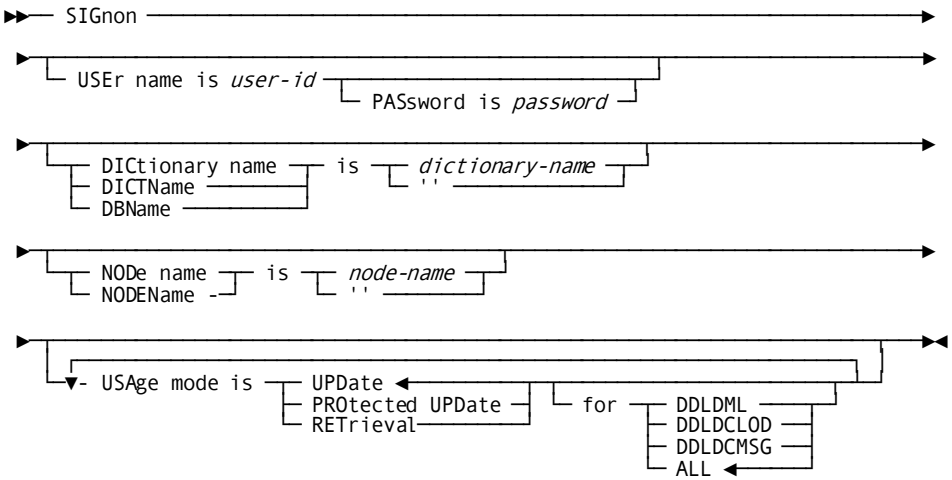
When You Need to Code a SIGNON Statement

The SIGNON statement is required if any of the following conditions apply:

- If you have not signed on to the system and the DC/UCF system definition to be accessed is secured in the central security system, then you must issue a SIGNON statement. In this case, the SIGNON statement must include a user ID and a password (if the user ID is associated with a password). The signon also results in your being signed on to the DC/UCF system.

  If you are already signed on to the DC/UCF system, you cannot enter a user ID or password on the IDD SIGNON statement.
- You want to establish new compiler session parameters; that is, you want to access a different dictionary, or access a dictionary area in a different usage mode. SIGNON forces the termination of the current compiler session and initiates a new session with the specified parameters.
- You want to access one or more areas of the data dictionary in a usage mode other than shared update.

SIGNON Statement Syntax



SIGNON Statement Parameters

USEr name is *user-id*

Identifies the user who is signing on to the DC/UCF system.

User-id must be the identifier of a user defined to the CA IDMS central security facility.

This parameter is allowed only when running the system generation compiler online and no previous DC/UCF signon has been issued.

PASsword is *password*

Specifies the password assigned to the user.

You must provide a password if the specified user id is associated with a password. You should omit the PASSWORD parameter if the specified user id is not associated with a password.

DICtionary name/DICTName/DBName is

Specifies the data dictionary to be accessed by the system generation compiler.

If you omit the DICTIONARY NAME parameter from the SIGNON statement the compiler accesses the current session default dictionary. If no session default dictionary has been established, the compiler accesses the default dictionary established by the database name table in effect for the runtime environment.

DICTIONARY NAME, DICTNAME, and DBNAME are synonyms and can be used interchangeably.

dictionary-name

Explicitly specifies the name of the data dictionary to be accessed.

The dictionary name specified must be defined in the database name table in effect for the local mode session or for the DC/UCF system controlling access to the dictionary.

''

Indicates the default data dictionary:

- **Online or in batch mode under the central version**, the compiler accesses the system default dictionary as defined in the database name table for the system from which you initiated the compiler session or by the system identified by the NODE NAME parameter below.
- **In local mode**, the compiler accesses the default dictionary defined by the database name table in effect for the local mode session.

NODe name/NODEName is

Identifies the node that controls the data dictionary to be accessed by the system generation compiler.

If you omit the NODE NAME parameter from the SIGNON statement:

- **Online or batch under the central version**, the compiler uses the current session default dictionary node if one has been established otherwise the request is forwarded to the node associated with the dictionary in the resource table of the DC/UCF system.
- **In local mode**, the NODE NAME parameter is not used.

node-name

Explicitly specifies the name of the node (DC/UCF system) controlling access to the dictionary accessed by the system generation compiler.

Node-name must be the name of a DC/UCF system defined in the CA IDMS communications network.

''

Directs the compiler to route the request based solely on the dictionary name ignoring any session default dictionary node.

USAge mode is

Specifies the usage mode in which the compiler is to access the data dictionary.

UPDate

Directs the compiler to ready the dictionary in shared update usage mode. You can perform both update and retrieval operations against the dictionary. If the compiler is executing online or in batch mode under the central version, other users can also perform both update and retrieval operations against the dictionary.

UPDATE is the default when you omit the USAGE MODE parameter from the SIGNON statement.

PROtected UPDate

Directs the compiler to ready the dictionary in protected update usage mode. You can perform both retrieval and update operations against the dictionary. If the compiler is executing online or in batch mode under the central version, other users can access the dictionary only in shared retrieval usage mode while the compiler is active. While the compiler is waiting for input, other users can access the dictionary in an update usage mode.

RETrieval

Directs the compiler to ready the dictionary in shared retrieval usage mode. You can perform only retrieval operations against the dictionary. If the compiler is executing online or in batch mode under the central version, other users can access the data dictionary in a retrieval or update usage mode.

for

Indicates the area of the data dictionary to which the specified usage mode applies.

Areas not explicitly specified are readied in the default usage mode, shared update.

DDLDML

Directs the compiler to ready the DDLDML area in the specified usage mode.

DDLDCLOD

Directs the compiler to ready the load area in the specified usage mode.

DDLDCMSG

Directs the compiler to ready the message area in the specified usage mode.

ALL

Directs the compiler to ready the DDLDML, DDLDCLOD, and DDLDCMSG areas in the specified usage mode.

Example: SIGNON Statement

The following example is a sample SIGNON statement:

```
SIGNON
  DICTIONARY NAME IS TSTDICT
  USAGE MODE IS RETRIEVAL FOR DDLDCMSG.
```

This statement has the following effects:

- The compiler accesses dictionary TSTDICT.
- The DDLDCMSG area of the dictionary is readied in shared retrieval usage mode. The DDLDML and DDLDCLOD areas are readied in shared update usage mode.

SIGNOFF Statement

The SIGNOFF statement signals the end of an online session or batch run of the system generation compiler. SIGNOFF causes the compiler to:

- Display a transaction summary
- Free all resources held by the compiler
- Remove the session from the list of active sessions maintained by the transfer control facility (if executing under TCF)

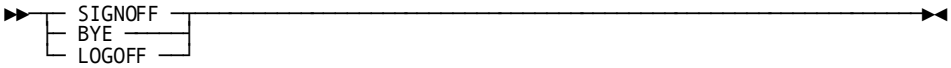
Online, SIGNOFF *does not* transfer control to DC/UCF or TCF. The CLEAR key, or the top-line command CLEAR, must follow SIGNOFF to exit the system generation compiler.

Note: For more information about top-line commands, see the *CA IDMS Common Facilities Guide*.

The SIGNOFF statement is recommended as the best way to terminate a compiler session; however, SIGNOFF is not required to terminate a session:

- **Online**, you can terminate a compiler session by entering the top-line command END.
- **In batch mode**, the system generation compiler assumes a SIGNOFF statement if none is present at the end of the input file.

SIGNOFF Statement Syntax



SIGNOFF, BYE, and LOGOFF are synonyms and can be used interchangeably.

Example: SIGNOFF Statement

The following sample screen shows the system generation compiler response to a SIGNOFF statement:

```
          SYSGEN 17.0    NO ERRORS              END OF COMPILER  cv-name
SIGNOFF.
*+ I DC601073  SIGNOFF ACCEPTED                                          WORD  1
              ** TRANSACTION SUMMARY **
ENTITY                ADD MODIFY REPLACE DELETE DISPLAY
..................... ... ...... ....... ...... .......

SYSTEM                  0      1       0      0       0
PROGRAM                 3      0       0      1       0
TASK                    0      2       0      1       0
LINE                    0      0       0      0       2
PTERM                   0      0       0      0       2

NO ERRORS OR WARNINGS ISSUED FOR THIS COMPILE
```

The system generation compiler ignores any statements following a SIGNOFF statement. In the following example, the SIGNON and MODIFY SYSTEM statements are ignored:

```
SIGNOFF.
SIGNON DICTIONARY=OTHERDD.
MODIFY SYSTEM 77 PROGRAM POOL IS 560.
```

In the example, in which the user tried to end one session and begin another, elimination of the SIGNOFF statement would have produced the expected results.

SET OPTIONS Statement

The SET OPTIONS statement establishes processing options for the current system generation compiler session. The processing options determine:

- Disposition of ADD statements issued for existing entities
- Format of and information included in displayed or punched entity definitions
- Format of compiler input and output
- End-of-file indicator
- Quotation mark

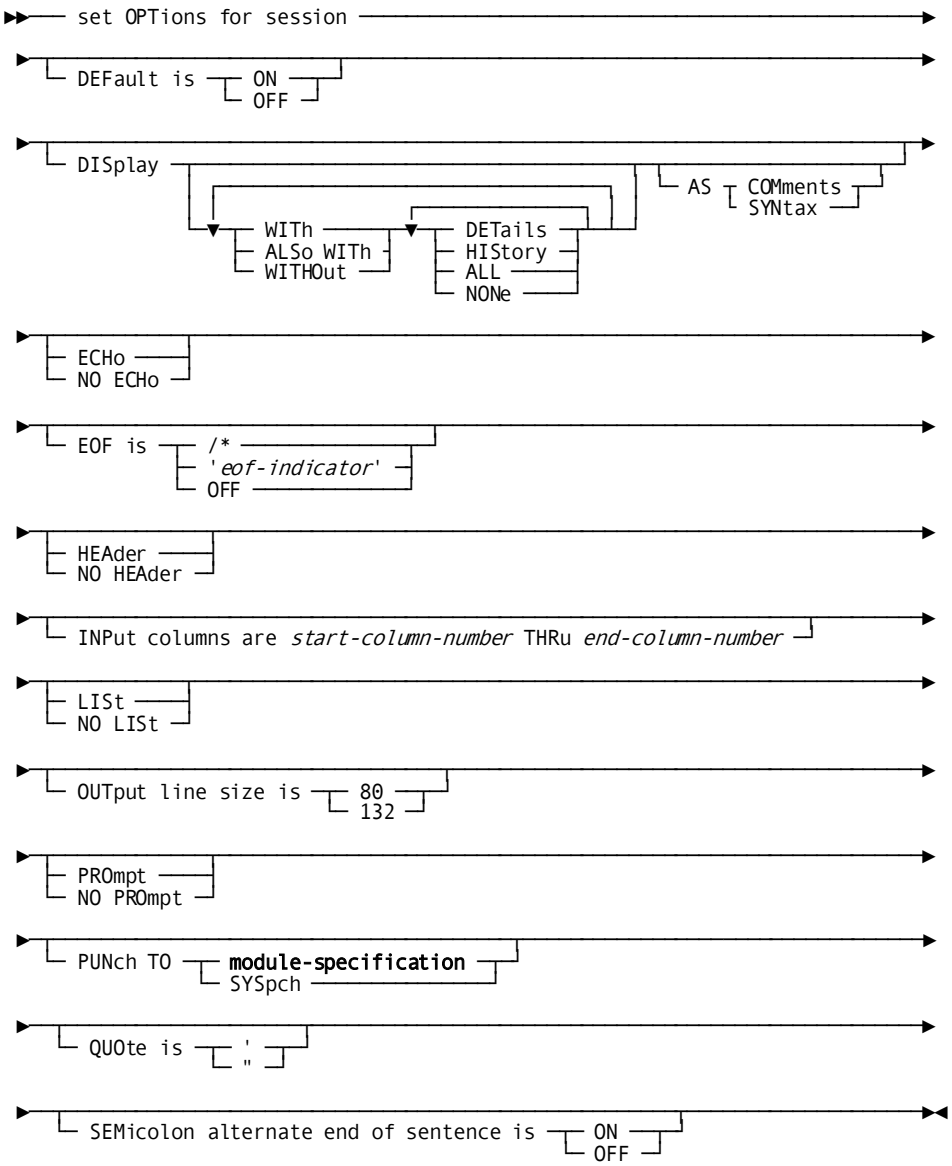
Processing options remain in effect until explicitly changed by a SET OPTIONS statement. You can override the processing options that affect displayed and punched definitions in the individual entity statements. You cannot override any other compiler processing options on an individual basis.

Processing Options You Can Change

The following table lists the installation defaults for processing options that can be changed by the system generation compiler SET OPTIONS statement.

Option	Batch Default	Online Default
DEFAULT IS	OFF	OFF
DISPLAY WITH	ALL	ALL
DISPLAY AS	COMMENTS	COMMENTS
ECHO/NO ECHO	ECHO	ECHO
EOF IS	/*	/*
HEADER/NO HEADER	HEADER	NO HEADER
INPUT COLUMNS ARE	1 THRU 72	1 THRU 79
LIST/NO LIST	LIST	LIST
OUTPUT LINE SIZE IS	132	80
PROMPT/NO PROMPT	NO PROMPT	Line mode device: PROMPT 3270: NO PROMPT
PUNCH TO	SYSPCH	SYSPCH
SEMICOLON ALTERNATE END OF SENTENCE	Default established through DDDL compiler	Default established through DDDL compiler
QUOTE IS	'	'

SET OPTIONS Statement Syntax



SET OPTIONS Statement Parameters

DEFault is

Determines whether the system generation compiler accepts or rejects ADD statements that reference existing entity occurrences.

ON

Directs the compiler to accept ADD statements that reference existing entity occurrences. The compiler interprets the statements as MODIFY statements and issues the message ADD CHANGED TO MODIFY.

OFF

Directs the compiler to reject ADD statements that reference existing entity occurrences. The compiler issues an error message and terminates processing of the statement.

DISplay

Determines the format of and information included in displayed or punched entity definitions.

WITh

Directs the compiler to override all previously established display options and to include only the indicated information in displayed or punched definitions.

ALSo WITh

Directs the compiler to include the indicated information in displayed or punched definitions in addition to any information included because of previously established display options.

WITHOut

Directs the compiler to exclude the indicated information from information included in displayed or punched definitions because of previously established display options.

DETails

Includes or excludes the entity-specific characteristics that make up the entity definition.

HIStory

Includes or excludes the dates when the entity definition was created and last updated and the identification of the users who created and last updated the definition (given by the PREPARED BY and REVISED BY parameters). History is maintained only for the following entity types: DEFAULT PROGRAM, DESTINATION, LINE, LOGICAL TERMINAL, PHYSICAL TERMINAL, PROGRAM, QUEUE, SYSTEM, TASK, and USER.

ALL

Includes or excludes both the entity history and the details of the entity definition.

NONe

Includes only the name and version number (if applicable) of the entity occurrence in the displayed or punched definition.

NONE is meaningful only with WITH.

AS

Specifies whether displayed or punched definitions appear as comments or syntax.

COMments

Specifies that each line of the entity definition is displayed or punched as a comment. Comment lines generated by the compiler are indicated by an asterisk and a plus sign (*+) in the first two columns and are ignored when resubmitted to the compiler.

SYNtax

Specifies that the displayed or punched definition appears in syntax format. Definitions that are displayed (online only) or punched (online and batch) as syntax can be edited and resubmitted to the compiler as input.

ECHo

Specifies that the system generation compiler is to redisplay each input line (online) or to print each input line in the CA IDMS/DC SYSGEN Compiler Activity List (in batch mode). Comment lines that begin with an asterisk and a space (*) in positions 1 and 2 are echoed. Comment lines that begin with an asterisk and a plus sign (*+) or two dashes (--) in positions 1 and 2 of an input line are not echoed.

ECHO has the same effect as the LIST option. The ECHO option is ignored when the NO LIST option is in effect.

NO ECHo

Directs the system generation compiler not to redisplay input lines, whether errors are present.

NO ECHO is useful when statements are submitted one line at a time (for example, from a hard-copy terminal or from a TSO or CMS terminal during a batch run of the compiler).

When NO ECHO is in effect, the LIST/NO LIST option is ignored.

Note: The NO ECHO option suppresses execution of the SKIP and EJECT carriage control statements. For more information about carriage control statements, see Carriage Control Statements (see page 81).

EOF is

Specifies the logical end-of-file indicator.

eof-indicator

Specifies the logical end-of-file indicator as a two-character value enclosed in quotation marks. The installation default is /* for both online and batch processing.

When the end-of-file indicator is coded in the first two input columns of the input range, the compiler processes only the statements that precede the indicator. The compiler does not recognize statements that follow the end-of-file indicator.

OFF

Specifies that no end-of-file indicator is active.

HEAder

For batch mode only, specifies that header lines that identify the system generation compiler are to be printed on each page of the CA IDMS/DC SYSGEN Compiler Activity List.

For sample pages of the CA IDMS/DC SYSGEN Compiler Activity List with header lines, see Batch System Generation (see page 118).

NO HEAder

For batch mode only, specifies that no header lines are to be printed on the pages of the CA IDMS/DC SYSGEN Compiler Activity List.

INPut columns are *start-column-number* THRu *end-column-number*

Specifies the column range for statements input to the system generation compiler:

- *Start-column-number* must be an integer in the range 1 through 70
- *End-column* must be an integer in the range 10 through 80

Start-column-number and *end-column-number* must be at least 10 columns apart.

LISt

Specifies that the system generation compiler is to redisplay each input line (online) or to print each input line in the CA IDMS/DC SYSGEN Compiler Activity List (in batch mode). Comment lines that begin with an asterisk and a plus sign (*+) are not echoed.

LIST has the same effect as the ECHO option. The LIST option is ignored when the NO ECHO option is in effect.

NO LISt

Specifies that the system generation compiler is to redisplay only input lines that contain errors.

The NO LIST option is ignored when the NO ECHO option is in effect. When NO LIST is in effect, the ECHO option is ignored.

Note: The NO LIST option suppresses execution of the SKIP and EJECT carriage control statements. For more information about carriage control statements, see Carriage Control Statements (see page 81).

OUTput line size is

Specifies the width of header and message lines in the terminal display or batch activity listing.

80

Header and message lines contain 80 characters.

When the output line size is 80, line numbers are not displayed.

132

Header and message lines contain 132 characters.

PROmpt

Directs the system generation compiler to issue the prompt ENTER when it is ready to accept input.

PROMPT is useful when statements are submitted from a dial-up device or from a TSO or CMS terminal during a batch run of the compiler.

NO PROmpt

Directs the system generation compiler not to issue prompts for input.

PUNch to

For PUNCH statements only, specifies the destination of the punched output.

module-specification

Causes the compiler to write punched output to the specified module.

Expanded syntax for *module-specification* is presented as part of the DISPLAY and PUNCH syntax described in Displaying and Punching Entities (see page 86).

SYSpch

Causes the compiler to write punched output to the SYSPCH file.

QUOte is

Specifies the quotation mark for the current compiler session.

'

The quotation mark is the single quotation mark (').

"

The quotation mark is the double quotation mark (").

SEMicolon alternate end of sentence is

Indicates whether the semicolon is to be recognized as an alternative end-of-statement character. If an option is not selected, the default is established by the IDD DDDL SEMICOLON ALTERNATE END OF SENTENCE IS statement.

ON

Specifies that both semicolons and periods are to be recognized as end-of-statement characters.

OFF

Specifies that the semicolon is *not* recognized as an alternative end-of-statement character.

Example: SET OPTIONS Statement

The following sample SET OPTIONS statement instructs the compiler to list DISPLAY/PUNCH output in syntax format and to redisplay each line of input:

```
SET OPTIONS FOR SESSION
  DISPLAY AS SYNTAX
  ECHO.
```

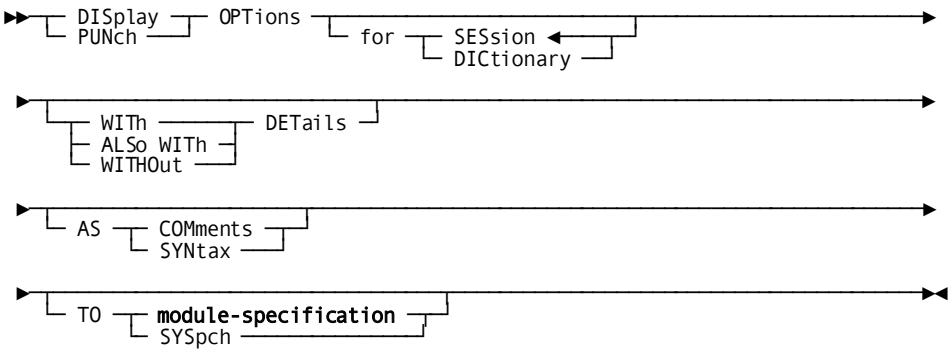
The sample SET OPTIONS statement shown next, establishes // as the end-of-file indicator for the current compiler session and specifies that subsequent input must be coded within columns 5 and 70:

```
SET OPTIONS FOR SESSION
  EOF IS '//'
  INPUT COLUMNS ARE 5 THRU 70.
```

DISPLAY/PUNCH OPTIONS Statement

The DISPLAY/PUNCH OPTIONS statement allows you to view either signon information and default processing options for the current session or the default processing options established in the data dictionary.

DISPLAY/PUNCH OPTIONS Statement Syntax



DISPLAY/PUNCH OPTIONS Statement Parameters

for

Specifies whether the system generation compiler is to display the processing options for the current session or for the dictionary.

SESsion

Directs the compiler to list the processing options in effect for the current session.

SESSION is the default when you omit the FOR parameter from the DISPLAY/PUNCH OPTIONS statement.

DICtionary

Directs the compiler to list the processing options established for the data dictionary. The date the dictionary was created and the date of the most recent update to the dictionary are included in the listing.

WITh DETails

Directs the compiler to display all processing options.

ALSo WITh DETails

Directs the compiler to display all processing options.

You must specify either WITH DETAILS or ALSO WITH DETAILS to display the processing options if the current display option for the session does not include DETAILS.

WITHOut DETails

Directs the compiler to display only the keywords SET OPTIONS FOR SESSION or SET OPTIONS FOR DICTIONARY.

AS

Specifies whether the processing options are displayed or punched as comments or syntax.

COMments

Specifies that each line of the processing options is displayed or punched as a comment.

Comment lines generated by the compiler are indicated by an asterisk and a plus sign (*+) in the first two columns and are ignored when resubmitted to the compiler.

SYNtax

Specifies that the displayed or punched processing options appear in syntax format. Statements that are displayed (online only) or punched (online and batch) as syntax can be edited and resubmitted to the compiler as input.

TO

For PUNCH statements only, specifies the destination of the punched output.

module-specification

Causes the compiler to write punched output to the specified module.

Expanded syntax for *module-specification* is presented as part of the DISPLAY and PUNCH syntax described in Displaying and Punching Entities (see page 86).

SYSpch

Causes the compiler to write punched output to the SYSPCH file.

Example: DISPLAY/PUNCH OPTIONS Statement

The following sample screen shows the system generation compiler response to a DISPLAY OPTIONS request.

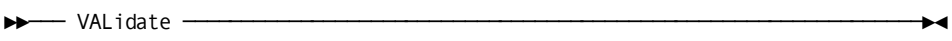
```
                      SYSGEN 17.0  NO ERRORS    DICT=CORPDICT   1/16   cv-name
DISPLAY OPTIONS FOR SESSION AS COMMENTS.
*+   SET OPTIONS FOR SESSION
*+       NODE NAME IS ' '
*+       DICTIONARY NAME IS CORPDICT
*+       USAGE MODE IS UPDATE
*+       QUOTE IS '
*+       EOF IS '/*'
*+       DEFAULT IS OFF
*+       NO PROMPT
*+       ECHO
*+       LIST
*+       NO HEADER
*+       INPUT COLUMNS ARE 1 THRU 79
*+       OUTPUT LINE SIZE IS 80
*+       PUNCH TO SYSPCH
*+       .
```

VALIDATE Statement

The VALIDATE statement directs the system generation compiler to cross-check the relationships between entities in a system definition. You must establish system currency before you submit a VALIDATE statement.

You can issue a VALIDATE statement to ensure that a correct system definition exists before processing continues. A system is not executable, however, nor do component entities participate in an executable system, until the compiler successfully processes a GENERATE statement for the system.

VALIDATE Statement Syntax



Example: VALIDATE Statement

The following sample screen shows the system generation compiler response to a VALIDATE statement:

```
                    SYSGEN 17.0  2 ERRORS      DICT=CORPDICT   1/9   cv-name
VALIDATE.
*+ E DC301030  UPDATE OF TASK 'TXT002' BUT PROGRAM TO BE INVOKED DOES   WORD  2
*+ - DC301030  NOT EXIST
*+ E DC301030  UPDATE OF TASK 'TXT009' BUT PROGRAM TO BE INVOKED DOES   WORD  2
*+ - DC301030  NOT EXIST

*+ W DC301019  WARNING  -  ERRORS FOUND DOING SYSTEM VALIDATION         WORD  2
```

Note: For more information about the validation process, see Compiler Activities (see page 71).

GENERATE Statement

The GENERATE statement directs the system generation compiler to validate a system definition and, if validation is successful, to create the executable form of the system. A DC/UCF system is not executable until the compiler successfully processes a GENERATE statement for the system.

When processing a GENERATE statement, the compiler updates object records in the data dictionary. If validation is not successful, however, no updating occurs and the system is not executable.

You must establish system currency before you submit a GENERATE statement.

GENERATE Statement Syntax

Note: For more information about the compiler response to a GENERATE statement, see Compiler Activities (see page 71).

COPY Statement

The COPY statement copies entity definitions from one system to another. An entire system definition or portions of a system definition can be copied. When the copy operation is completed, system currency is set to the system receiving the copied definitions.

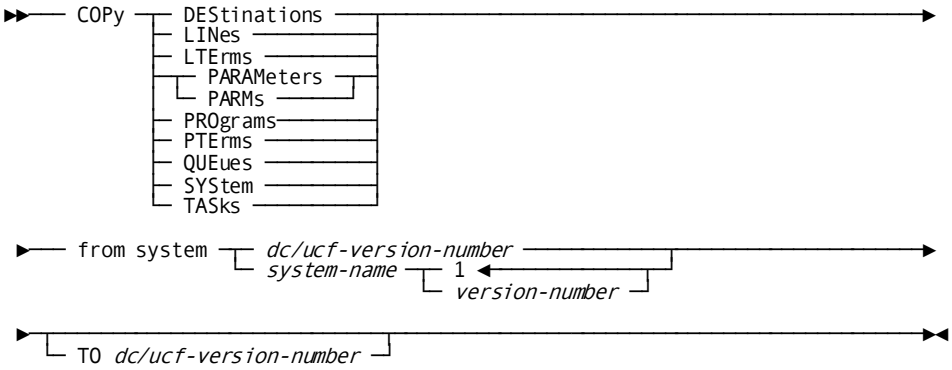
You can use the COPY statement to copy definitions from systems defined with the system generation compiler or the IDD DDDL compiler. However, definitions copied from IDD-defined entities are not complete for system generation purposes.

The SYSTEM and PARAMETERS options create new systems. All other options modify existing systems.

COPY Statement Authorization

To perform this operation	You need this authority or privilege
Copy the system entity or system parameters from one DC/UCF system (source) to another DC/UCF system (target)	DCADMIN authority or CREATE on the system ID of the source system
Copy non-system entities (PROGRAMS, TASKS, LINES, PTERMS, LTERMS, DESTINATIONS, and QUEUES) from one DC/UCF system (source) to another DC/UCF system (target)	DCADMIN authority or DISPLAY on the system ID of the source system *and* ALTER on the system ID of the target system
Copy system entity from one IDD system (source) to another IDD system (target)	DCADMIN authority or CREATE on the system ID of the source IDD system. The IDD system ID is created internally as *SYSTnnnn* where *nnnn* is the version number of the IDD system.
Copy non-system entities from one IDD system (source) to another IDD system (target)	DCADMIN authority or ALTER on the system ID of the target system

COPY Statement Syntax



COPY Statement Parameters

DEStinations

Copies all destination definitions.

LINes

Copies all line definitions.

LTErms

Copies all logical terminal definitions.

PARAMeters/PARMs

Copies the portions of the system definition that are defined by the following statements: ADSO, AUTOTASK, DEFAULT PROGRAM, IDD, KEYS, LOADLIST, MAPTYPE, OLM, OLQ, RUNUNITS, SQL CACHE, STORAGE POOL, SYSTEM, and XA STORAGE POOL.

PARAMETERS and PARMS are synonyms and can be used interchangeably.

PROgrams

Copies all program definitions.

PTErms

Copies all physical terminal definitions.

QUEues

Copies all queue definitions.

SYStem

Copies the entire system definition.

TASks

Copies all task definitions.

from system

Identifies the system whose definition is being copied.

dc/ucf-version-number

Specifies the version number of a DC/UCF system defined in the data dictionary with the system generation compiler.

dc/ucf-version-number must be an integer in the range 1 through 9,999.

system-name

Specifies the name of a system defined in the data dictionary with the IDD DDDL compiler.

version-number

Qualifies the named system with a version number.

Version-number must be an integer in the range 1 through 9,999. The default is 1.

TO *dc/ucf-version-number*

Identifies the system to which the specified definition is being copied. *dc/ucf-version-number* must be an integer in the range 1 through 9,999, with the following restrictions:

- **If you specify SYSTEM or PARAMETERS**, *dc/ucf-version-number* cannot be the version number of an existing system. The compiler creates a new system with the specified version number and copies the appropriate portions of the definition to the new system.
- **If you specify an option other than SYSTEM or PARAMETERS**, *dc/ucf-version-number* must be the version number of an existing system. The compiler copies the appropriate portions of the definition to the existing system.

Example: COPY Statement

When copying component entity definitions, the compiler works more efficiently if the system to which the definitions are being copied does not already include any occurrences of the entity. For example, if system 9 is to include all the same programs as system 8 plus the programs PXT078 and PXT079, the first set of statements shown next would add the programs to system 9 more efficiently than would the second set of statements:

Recommended:

```
COPY PROGRAMS FROM SYSTEM 8 TO 9.
ADD PROGRAM PXT078.
ADD PROGRAM PXT079.
```

Not recommended:

```
ADD PROGRAM PXT078.
ADD PROGRAM PXT079.
COPY PROGRAMS FROM SYSTEM 8 TO 9.
```

INCLUDE Statement

The INCLUDE statement submits statements stored as a module in the data dictionary to the system generation compiler. Modules containing system generation statements can be added to the data dictionary by using the IDD DDDL compiler. Each statement must be complete and must conform to the processing options established for input statements for the current session.

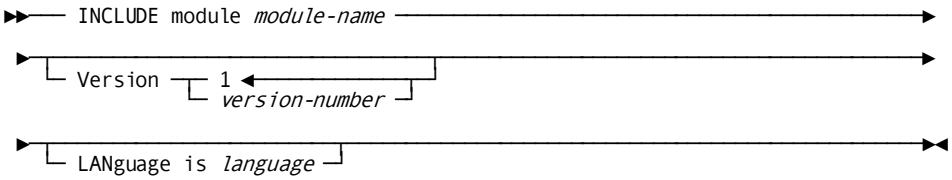
You can code any number of INCLUDE statements in the system generation source input. Upon encountering an INCLUDE statement, the compiler retrieves and processes each statement from the named module. When the compiler reaches the end of an included module, it continues processing with the next statement (if any) after the INCLUDE statement.

Note: Included modules cannot be nested; that is, a module that is the object of an INCLUDE statement cannot itself contain an INCLUDE statement. Only one INCLUDE statement can be coded on a line.

INCLUDE Statement Authorization

To use the INCLUDE statement you must have IDD authority in the data dictionary.

INCLUDE Statement Syntax



INCLUDE Statement Parameters

module *module-name*

Specifies the module to be included.

Module-name must be the name of a data dictionary module containing system generation statements.

Version *version-number*

Qualifies the module name with a version number.

Version-number must be an integer in the range 1 through 9,999. The default is 1.

LANguage is *language*

Qualifies the module name with a language.

If the data dictionary contains two or more modules with the specified name and version number, the INCLUDE statement must specify a language.

Example: INCLUDE Statement

The next example illustrates the use of the INCLUDE statement. Assume that the data dictionary includes the modules SYSDPT01 version 2 and TSKDPT01 version 1, which contain the following system generation statements:

SYSDPT01 version 2:

```
DEFAULT TEMPORARY PROGRAM
  LANGUAGE IS ASSEMBLER
  NOSAVEAREA.
PROGRAM TEST6.
PROGRAM TEST7.
```

TSKDPT01 version 1:

```
TASK TTASK6 INVOKES PROGRAM TEST6 INPUT.
TASK TTASK7 INVOKES PROGRAM TEST7 NOINPUT.
```

When the following statements are submitted to the system generation compiler, system 5 is modified to include the programs defined in module SYSDPT01 version 2, the tasks defined in module TSKDPT01 version 1, and the queue TESTQ as defined in the QUEUE statement:

```
MODIFY SYSTEM 5.
INCLUDE MODULE SYSDPT01 VERSION 2.
INCLUDE TSKDPT01.
QUEUE TESTQ INVOKES TASK TTASK7 THRESHOLD 5.
```

Compiler Messages

The system generation compiler lists error, warning, and informational messages as comments immediately following the statements to which they apply. At the end of each message line, the compiler indicates the position in the statement of the word that caused the message to be issued.

Message Lines Begin with '*+'

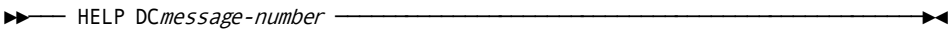
Each message line begins with an asterisk followed by a plus sign (*+) in the first two columns. You do not need to erase compiler-generated messages when resubmitting displayed or punched output. The compiler ignores lines that begin with *+.

Transaction Summary

At the end of an online compiler session or batch run of the compiler, the transaction summary generated by the SIGNOFF statement indicates the total number of E-level and W-level messages issued during the compiler session. Additionally, when the compiler is executed online, the number of E-level messages produced for each group of statements processed is displayed in the top-line message area.

Messages issued by the compiler are documented in *CA IDMS Messages and Codes Guide*. You can use the HELP DC command to display a description of any message issued by the system generation compiler.

Compiler Messages Syntax



Compiler Messages Parameter

message-number

Specifies the 6-digit number associated with the error, warning, or informational message. The characters DC and the message number cannot be separated. For example, to display a description of the message with identifier 601014, you would enter:

```
HELP DC601014
```

Execution Modes

You can execute the system generation compiler either online or in batch mode. All system generation statements are valid in both modes and produce the same response except as noted in the descriptions of the individual statements.

Online System Generation

The Compiler Uses a Text Editor

When executing online, the system generation compiler uses a text editor that operates independently of the compiler. The text editor writes input to and output from the compiler to a work file allocated for each online session. The contents of the work file are displayed at the terminal. You can manipulate and modify the contents of the work file by using the text editor commands. Instructions for using the text editor are presented in the *CA IDMS Common Facilities Guide*.

Invoking the Online Compiler

You can invoke the online system generation compiler under the transfer control facility (TCF). TCF allows you to switch between the system generation compiler and other CA IDMS online development tools without terminating the current compiler session. Instructions for using TCF are presented in the *CA IDMS Common Facilities Guide*.

The following aspects of online system generation are discussed below:

- An online session
- Online system modification
- Copying definitions from another dictionary
- Session recovery

Online Session

An online session begins when you invoke the system generation compiler using the task code defined to the host TP monitor. The installation default task code for the system generation compiler is SYSGEN.

The screen displayed by the compiler is formatted for use with the online text editor. The top line identifies the compiler, as shown next. The remainder of the screen is used for input and output.

```
                SYSGEN 17.0  PAGE 1 LINE 1  DICT=CORPDICT   EMPTY  cv-name
```

After invoking the compiler, you enter system generation statements in the input/output area of the screen:

- **Enter the SIGNON statement** if necessary (as described under SIGNON Statement (see page 93)).
- **Enter the SET OPTIONS statement**, if appropriate, to establish processing options for the session.
- **Enter ADD, MODIFY, DELETE, DISPLAY, and PUNCH statements and compiler-directive statements** as needed to define and generate DC/UCF systems. Statements must be entered in accordance with the guidelines presented under Coding Considerations (see page 75).

The following sample screen shows system generation statements that have been entered by the user but not yet processed by the compiler:

```
                SYSGEN 17.0   PAGE 1 LINE 1  DICT=CORPDICT    EMPTY   cv-name
modify system 9.
display all tasks with none.
add task txt078 invokes program pxt078.
add task txt079 invokes program pxt079.
```

The following sample screen shows the compiler response to the statements shown on the previous screen. Because the ECHO option of the SET OPTIONS statement is in effect, the compiler redisplays the input lines along with the output. The SET OPTIONS statement is described in SET OPTIONS Statement (see page 99).

```
                    SYSGEN 17.0 NO ERRORS   DICT=CORPDICT     1/12   cv-name
MODIFY SYSTEM 9.
DISPLAY ALL TASKS WITH NONE.
*+   ADD TASK TXT001
*+       .
*+   ADD TASK TXT002
*+       .
*+   ADD TASK TXT003
*+       .
*+   ADD TASK TXT005
*+       .
ADD TASK TXT078 INVOKES PROGRAM PXT078.
ADD TASK TXT079 INVOKES PROGRAM PXT079.
```

To terminate an online compiler session:

1. **Enter the SIGNOFF statement** in the input/output area.
2. **Press the CLEAR key** to return to the host TP monitor or to TCF (if executing under TCF).

Alternatively, you can use the top-line command END to terminate an online compiler session. Top-line commands are described in the *CA IDMS Common Facilities Guide*.

Online System Modification

How to Modify an Entity Definition Online

You can modify an entity definition online:

1. **Use the DISPLAY or PUNCH verb to display the entity definition as syntax**. The DISPLAY and PUNCH verbs are described under 4.6, "Displaying and Punching Entities".
2. **Modify the definition by typing over the displayed syntax**. You can make changes to the entire work file by scrolling through the file and by using the top-line command APPLY (or a control key associated with the APPLY command) to apply the changes to the files without submitting the syntax to the compiler.
3. **Submit the modified syntax to the compiler by using the top-line command UPDATE** (or a control key associated with the UPDATE command).

The top-line commands are documented in the *CA IDMS Common Facilities Guide*.

Considerations when Modifying a System Online

When modifying a system online, the following considerations apply:

- Be sure that currency is established on the correct system before submitting the modified syntax to the compiler. If necessary, you can insert an ADD or MODIFY SYSTEM statement into the work file to establish the appropriate currency.

  Note: For more information about system currency, see Currency (see page 74).

- Be sure that all syntax to be resubmitted to the compiler is in syntax, not comment, format. You can use the space bar to remove the *+ from syntax lines that are displayed as comments.

- Entity definitions are displayed as ADD statements. Be sure to change ADD to the appropriate verb before submitting the modified syntax to the compiler.

  If the processing options for the session specify DEFAULT IS ON, the compiler changes ADD statements for existing entities to MODIFY statements. You use the SET OPTIONS statement to establish processing options for a session.

  Note: For more information about the SET OPTIONS statement, see SET OPTIONS Statement (see page 99).

- All system generation statements in the work file (not just the displayed statements) are processed when the UPDATE command is executed. Be sure to erase any statements that you do not want to resubmit to the compiler.

- Be sure to submit VALIDATE and GENERATE statements, as appropriate, for the systems that you modify. VALIDATE (VALIDATE Statement (see page 107)) and GENERATE (GENERATE Statement (see page 108)) are described under Compiler-Directive Statements (see page 93).

Copying Definitions from Another Dictionary

You can use the online system generation compiler to copy entity definitions from one data dictionary to another:

1. Sign on to the dictionary containing the definition to be copied.
2. Display the definition to be copied as syntax.
3. Insert a SIGNON statement that names the dictionary to which the definition is to be copied at the beginning of the work file.

   Note: For more information about the SIGNON statement, see SIGNON Statement (see page 93).

4. Use the top-line command UPDATE (or a control key associated with the UPDATE command) to submit the contents of the work file to the system generation compiler. Top-line commands are documented in the *CA IDMS Common Facilities Guide*.

Session Recovery

The system generation compiler updates the data dictionary as it processes the syntax that you submit. In the event that either the compiler or the DC/UCF system terminates abnormally during an online compiler session, updates already made to the data dictionary are unaffected.

After a Compiler Abend

After a compiler abend, you can resume the abended session after recovery has occurred. When you enter the task code to invoke the compiler, the online session resumes with the processing options that were in effect before the abend and the current work file intact.

After a DC/UCF System Abend

After a DC/UCF system abend, the work file and all session options are lost. When you enter the task code to invoke the compiler, the compiler initiates a new online session.

Note: If the system terminates while an online session is suspended, the work file and all session options are lost.

Batch System Generation

Running the Compiler in Batch Mode

When executing in batch mode, the system generation compiler reads source statements from an input file and writes all output except punched definitions to the CA IDMS/DC SYSGEN Compiler Activity List. The compiler writes punched definitions either to the SYSPCH file or to a data dictionary module.

The batch compiler can run either under the central version or in local mode. To ensure data integrity when using local mode operations, you should either back up the data dictionary before executing the system generation compiler or perform journaling during compiler execution.

Running in Local Mode

When running in local mode, the compiler cannot ready in an update usage mode any areas already held by a DC/UCF system in an update usage mode. An update usage mode is required for:

- The **DDLDML area** when the source input includes an ADD, MODIFY, DELETE, VALIDATE, or GENERATE statement.
- The **DDLDCLOD area** when the source input includes a GENERATE statement for a system that includes an added or modified resource table (as a result of NODE and RESOURCE TABLE statements).

JCL used to execute the system generation compiler in batch mode is presented next for z/OS, z/VSE, and z/VM systems, followed by a sample CA IDMS/DC SYSGEN Compiler Activity List.

z/OS Systems

Central Version JCL

The following JCL is used to execute the system generation compiler under the central version.

RHDCSGEN

```
//         EXEC PGM=RHDCSGEN,REGION=1024K
//STEPLIB  DD DSN=idms.dba.loadlib,DISP=SHR
//         DD DSN=idms.custom.loadlib,DISP=SHR
//         DD DSN=idms.cagjload,DISP=SHR
//sysctl   DD DSN=idms.sysctl,DISP=SHR
//dcmsg    DD DSN=idsm.sysmsg.ddldcmsg,DISP=SHR
//SYSLST   DD SYSOUT=A
//SYSPCH   DD SYSOUT=A
//SYSIDMS  DD *
DMCL=dmcl-name
Put other SYSIDMS parameters here, as appropriate
/*
//SYSIPT   DD *

Put source system generation statements here
/*
//*
```

idms.dba.loadlib	Name of the CA IDMS load library containing the DMCL and database name table load modules

idms.custom.loadlib	Data set name of the load library containing the customized CA IDMS load modules
idms.cagjload	Data set name of the load library containing the vanilla CA IDMS software
idms.sysctl	Data set name of the SYSCTL file
sysctl	DDname of the SYSCTL file
idms.sysctl	Data set name of the SYSCTL file
dcmsg	DDname of the system message area (DDLDCMSG)
idms.sysmsg.ddldcmsg	Data set name of the system message area (DDLDCMSG)
SYSIDMS	DDname of the SYSIDMS parameter file used to specify physical requirements of the environment (i.e. DMCL, dictionary name), runtime directives, and operating system-dependent file information

Note: For more information about SYSIDMS parameters, see the *CA IDMS Common Facilities Guide*.

Local Mode JCL

To execute the system generation compiler in local mode:

- Remove the SYSCTL DD statement
- Insert the following statements after the STEPLIB DD statements:

```
//dcdml    DD DSN=idms.system.ddldml,DISP=SHR
//dclod    DD DSN=idms.system.ddldclod,DISP=SHR
//sysjrnl  DD DSN=idms.tapejrnl,DISP=
```

idms.system.ddldml	Data set name of the system dictionary definition area (DDLDML)
idms.system.ddldclod	Data set name of the system dictionary definition load area (DDLDCLOD)
idms.tapejrnl	Data set name of the tape journal file
dcdml	DDname of the system dictionary definition area (DDLDML)
dclod	DDname of the system dictionary definition load area (DDLDCLOD)
dcmsg	DDname of the system message area (DDLDCMSG)

sysjrnl	DDname of the tape journal file (if the DMCL uses a tape journal)

z/VSE Systems

Central Version JCL

The following JCL is used to execute the system generation compiler under the central version.

RHDCSGEN

```
// EXEC PROC=IDMSLBLS
// UPSI    b                          if specified in the IDMSOPTI module
// EXEC    RHDCSGEN

Input source system generation statements here

/*
```

You can define a SYSCTL file in the JCL to override IDMSOPTI specifications for central version operations. The SYSCTL file definition is included in the IDMSLBLS procedure (shown next).

IDMSLBLS	Name of the procedure provided at installation that contains file definitions for CA IDMS dictionaries and databases. For a complete listing of IDMSLBLS, see IDMSLBLS Procedure for z/VSE JCL (see page 455).
b	Appropriate one- through eight-character UPSI bit switch, as specified in the IDMSOPTI module

Local Mode JCL

To execute the system generation compiler in local mode:

- Remove the UPSI specification.
- Insert the following statement before the EXEC statement:

```
// TLBL    sys009,'idms.tapejrnl',,nnnnnn,,f
// ASSGN   sys009,TAPE,vol=nnnnnn
```

idms.tapejrnl	File-id of the tape journal file
sys009	Logical unit assignment of the tape journal file

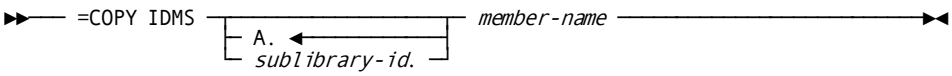
Store Source Statements in a Source Library

You can store some or all of the source statements to be submitted to the system generation compiler as a member in a source statement library. To copy the library member into the job stream, you use the =COPY facility, which is implemented through the =COPY IDMS statement.

The =COPY IDMS statement identifies the source statement library member. You code the statement in the JCL along with other source statements (if any) to be submitted to the compiler. You can code multiple =COPY IDMS statements to identify multiple source statement library members that contain different system generation statements.

=COPY IDMS statements and source system generation statements can be intermixed in the JCL. The source statements are submitted to the compiler in the order in which they occur, whether they are coded directly in the JCL or copied in through the =COPY facility.

Sublibrary ID Syntax



Sublibrary ID Parameters

sublibrary-id

Identifies the source statement sublibrary that includes the member identified by *member-name*. The default is A.

member-name

Identifies the source statement library member that contains the source statements to be submitted to the system generation compiler.

Note: If the source statements are stored as a member in a private source statement library, the DLBL file type for the library must be specified as DA.

z/VM Systems

Central Version

The following z/VM commands are used to execute the system generation compiler under the central version.

RHDCSGEN

```
FILEDEF SYSLST PRINTER
FILEDEF SYSIPT DISK sgen input a
EXED IDMSFD
OSRUN RHDCSGEN
```

sysipt	DDname for user-defined system generation statements modules
sgen input a	File identifier of the file containing the source system generation statements
ppp	Record length of the sysipt data file
nnn	Blocksize of the sysipt data file
IDMSFD	z/VM EXEC that defines all system-required FILEDEFs, TXTLIBs, and LOADLIBs
RHDCSGEN	Program name to be executed from the z/VM LOADLIB

Local Mode

To execute the system generation compiler in local mode, perform one of the following:

- Link RHDCSGEN with an IDMSOPTI program that specifies local as the execution mode
- Specify *LOCAL* as the first input parameter of the filename, type, and mode identified by SGEN INPUT A in the IDMSFD exec
- Modify the OSRUN statement:

  ```
  OSRUN RHDCSGEN PARM='*LOCAL*'
  ```

  Note: This option is valid only if the OSRUN command is issued from a System Product interpreter or an EXEC2 file.

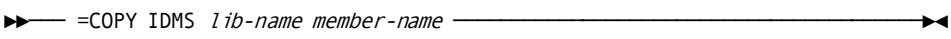
To create the SYSIPT file, enter these z/VM commands:

```
XEDIT sysipt data a (NOPROF
INPUT

Put system generation input statements here
                                                -→ Hit enter of end input
FILE
```

Instructions for creating an IDMSOPTI module are presented in *CA IDMS System Operations Guide*.

Note: For more information about central version and local mode operations in the z/VM environment, see the *CA IDMS Installation and Maintenance Guide—z/VM*.

Lib-name Syntax



Lib-name Parameters

lib-name

Identifies the link name of a library containing the member identified by *member-name*.

member-name

Identifies the library member that contains the source statements to be submitted to the system generation compiler.

CA IDMS/DC SYSGEN Compiler Activity List

What the Activity List Contains

The CA IDMS/DC SYSGEN Compiler Activity List contains all text output by the system generation compiler, including echoed input lines, responses to DISPLAY requests, and compiler-generated messages. When the output line size is 132, as specified in the SET OPTIONS statement, each echoed line begins with a line number, and messages issued by the compiler bear the line number of the line to which they refer. When the output line size is 80, the CA IDMS/DC SYSGEN Compiler Activity List does not show line numbers. The SET OPTIONS statement is described under SET OPTIONS Statement (see page 99).

A sample CA IDMS/DC SYSGEN Compiler Activity List is shown next.

```
RHDCSGEN  17.0                      CA, INC.                       DATE         TIME       PAGE
volser             CA IDMS/DC SYSGEN COMPILER ACTIVITY LIST       mm/dd/yy     hhmmssss    pppp

000001    SIGNON USER ABC PASSWORD ?    DICTIONARY CORPDICT.

000003    ADD SYSTEM 9
000004      MAXIMUM ERUS IS 20
000005      MAXIMUM TASKS IS 50
000006      PROGRAM POOL IS 100
000007      REENTRANT POOL IS 200
000008      STORAGE POOL IS 1000.
000009    ADD ADSO.
000010    ADD OLM.

000012    ADD PROGRAM RHDCBYE.
000013    ADD PROGRAM PXT001
000014      LANGUAGE IS ASSEMBLER.

000016    ADD TASK TXT001
000017      INVOKES PROGRAM PXT001.

000019    GENERATE.

000019*+ I DC301018  NO ERRORS FOUND DOING SYSTEM VALIDATION
-*+   ****  SYSTEM 09 GENERATION SUMMARY  ****
-*+      ENTITY     UPDATE  DELETE  TOTALS
 *+   ............  ......  ......  ......
 *+   PROGRAMS          2       0       2
 *+   TASKS             1       0       1
 *+   QUEUES            0       0       0
 *+   LINES             0       0       0
 *+   PTERMS            0       0       0
 *+   LTERMS            0       0       0
 *+   DESTINATIONS      0       0       0
```

```
RHDCSGEN  17.0                      CA, INC.                        DATE         TIME       PAGE
volser              CA IDMS/DC SYSGEN COMPILER ACTIVITY LIST       mm/dd/yy     hhmmssss    pppp

000021    DISPLAY ALL SYSTEM 9 WITH DETAILS.
*+   ADD SYSTEM 9
*+       ABEND STORAGE IS 200
*+       ABRU NOSNAP
*+       CHKUSER TASKS IS 0
*+       CUSHION IS 0
*+       CVNUMBER IS 0
*+       CWA SIZE IS 0
*+       DPE COUNT IS DEFAULT
*+       NODUMP
*+       ECB LIST IS DEFAULT
*+       EXTERNAL WAIT IS 600
*+       INACTIVE INTERVAL IS OFF
*+       INTERNAL WAIT IS 1800
*+       JOURNAL RETRIEVAL
*+       LOG TYPE OS FILE1 CDMSLOGA
*+       MAXIMUM ERUS IS 20
*+       MAXIMUM TASKS IS 50
*+       NEW COPY IS MANUAL
*+       OPERATING SYSTEM IS MVS
*+       PAGE RELEASE IS NO
*+       PRINT KEY IS OFF
*+       PRINTER CHECKPOINT IS OFF
*+       PROGRAM POOL IS 100
*+       NOPROTECT
*+       RCE COUNT IS DEFAULT
*+       REENTRANT POOL IS 200
*+       REPORT RETENTION IS 7
*+       RESOURCE TIMEOUT INTERVAL IS FOREVER PROGRAM IS RHDCBYE VERSION
*+            1
*+       RETRIEVAL NOLOCK
*+       RLE COUNT IS DEFAULT
*+       RUNAWAY INTERVAL IS 10
*+       RUNUNITS FOR QUEUE = 1
*+       RUNUNITS FOR MSGDICT = 1
*+       RUNUNITS FOR SYSTEM/DEST = 1
*+       RUNUNITS FOR LOADER = 1
*+       RUNUNITS FOR SIGNON = 1
*+       RUNUNITS FOR SECURITY = 1
*+       RUPRTY IS 100
*+       QUEUE JOURNAL ALL
*+       STACKSIZE IS 1200
*+       STATISTICS INTERVAL OFF NOLINE NOTASK
*+       STORAGE KEY IS 9
*+       STORAGE POOL IS 1000
```

```
RHDCSGEN  17.0                        CA, INC.                          DATE         TIME       PAGE
volser              CA IDMS/DC SYSGEN COMPILER ACTIVITY LIST       mm/dd/yy     hhmmssss    pppp

*+       SVC IS NO
*+       SYSCTL IS NO
*+       SYSLOCKS IS 0
*+       SYSTRACE OFF
*+       TICKER INTERVAL IS 1
*+       TRANSACTION LOG IS OFF DDNAME IS CDMSTLF
*+       UNDEFINED PROGRAM COUNT IS ( 0 0 )
*+       UPDATE NOLOCK
*+       USERTRACE OFF
*+       XA PROGRAM POOL IS 0
*+       XA REENTRANT POOL IS 0
*+       LIMITS FOR ONLINE ARE OFF
*+       LIMITS FOR EXTERNAL ARE OFF
*+       .
*+   ADD ADSO
*+       ADSTASK IS ADS
*+       ADS2TASK IS ADS2
*+       ADS2TCF TASK IS ADS2U
*+       ACTIVITY LOG IS YES
*+       AUTOSTATUS IS YES OPTIONAL
*+       COBOL MOVE IS NO
*+       DIAGNOSTIC SCREEN IS YES
*+       FAST MODE THRESHOLD IS 6000
*+       MAXIMUM LINKS IS 10
*+       MENU IS USER
*+       NEWPAGE MAPOUT IS NO
*+       PRIMARY POOL IS 4000
*+       SECONDARY POOL IS 2000
*+       RESOURCES ARE FIXED
*+       DIALOG STATISTICS OFF
*+       STATUS DEFINITION RECORD IS ADSO-STAT-DEF-REC OPTIONAL
*+       .
*+   ADD OLM
*+       DATA FIELD CHARACTER IS X'6D'
*+       DELIMIT CHARACTER IS X'1C'
*+       FIELD SELECT CHARACTER IS X'6C'
*+       FIELD START CHARACTER IS X'1E'
*+       TRANSLATE CHARACTER IS C'@'
*+       NEW COPY IS NO
*+       FIELD EDIT IS NO
*+       NUMERIC FIELD ORDER IS STANDARD
*+       NUMERIC FIELD DECIMAL-POINT IS PERIOD
*+       PAGE FORWARD PFKEY IS PF8
*+       PAGE BACKWARD PFKEY IS PF7
*+       PAGING STORAGE IS 10
*+       QUEUE RETENTION IS 255
*+       .
*+   ADD PROGRAM RHDCBYE
```

```
RHDCSGEN  17.0                      CA, INC.                        DATE         TIME       PAGE
volser             CA IDMS/DC SYSGEN COMPILER ACTIVITY LIST       mm/dd/yy     hhmmssss    pppp

*+       CONCURRENT
*+       DUMP THRESHOLD IS 0
*+       ENABLED
*+       ERROR THRESHOLD IS 5
*+       ISA SIZE IS 0
*+       LANGUAGE IS COBOL
*+       NOMAINLINE
*+       NEW COPY IS ENABLED
*+       OVERLAYABLE
*+       PROGRAM
*+       PROTECT
*+       QUASIREENTRANT
*+       NONRESIDENT
*+       REUSABLE
*+       SAVEAREA
*+       .
*+   ADD PROGRAM PXT001
*+       CONCURRENT
*+       DUMP THRESHOLD IS 0
*+       ENABLED
*+       ERROR THRESHOLD IS 5
*+       ISA SIZE IS 0
*+       LANGUAGE IS ASSEMBLER
*+       NOMAINLINE
*+       NEW COPY IS ENABLED
*+       OVERLAYABLE
*+       PROGRAM
*+       PROTECT
*+       QUASIREENTRANT
*+       NONRESIDENT
*+       REUSABLE
*+       SAVEAREA
*+       .
*+   ADD TASK TXT001
*+       ENABLED
*+       EXTERNAL
*+       INACTIVE INTERVAL IS SYSTEM
*+       INVOKES PROGRAM PXT001
*+       INPUT
*+       NOJOURNAL
*+       NOMAP
*+       PRINT KEY IS SYSTEM
*+       PRIORITY IS 100
*+       RESOURCE TIMEOUT INTERVAL IS SYSTEM PROGRAM IS SYSTEM
*+       NOSAVE
*+       LOCATION IS BELOW
*+       TRANSACTION START
```

```
RHDCSGEN  17.0                      CA, INC.                        DATE         TIME       PAGE
volser             CA IDMS/DC SYSGEN COMPILER ACTIVITY LIST       mm/dd/yy     hhmmssss    pppp

*+       STORAGE LIMIT IS SYSTEM
*+       CPU LIMIT IS SYSTEM
*+       TIME LIMIT IS SYSTEM
*+       LOCK LIMIT IS SYSTEM
*+       CALL LIMIT IS SYSTEM
*+       DBIO LIMIT IS SYSTEM
*+       MAXIMUM CONCURRENT THREADS IS OFF
*+       .
```

```
RHDCSGEN  17.0                      CA, INC.                        DATE         TIME       PAGE
volser              CA IDMS/DC SYSGEN COMPILER ACTIVITY LIST       mm/dd/yy     hhmmssss    pppp

000023     SIGNOFF.
000023*+ I DC601073  SIGNOFF ACCEPTED
```

```
RHDCSGEN  17.0                      CA, INC.                      DATE       TIME      PAGE
                  CA IDMS/DC SYSGEN COMPILER ACTIVITY LIST     mm/dd/yy   hhmmssss   pppp

             ** TRANSACTION SUMMARY **
ENTITY                ADD MODIFY REPLACE DELETE DISPLAY
..................... ... ...... ....... ...... .......

SYSTEM                  1      0       0      0       1
ADSO                    1      0       0      0       1
OLM                     1      0       0      0       1
STORAGE POOL            0      0       0      0       1
XA STORAGE POOL         0      0       0      0       1
AUTOTASK                0      0       0      0       1
KEYS                    0      0       0      0       1
OLQ                     0      0       0      0       1
MAPTYPE                 0      0       0      0       1
IDD                     0      0       0      0       1
PROGRAM                 2      0       0      0       1
DEFAULT PERM PROGRAM    0      0       0      0       1
DEFAULT TEMP PROGRAM    0      0       0      0       1
TASK                    1      0       0      0       1
LINE                    0      0       0      0       1
PTERM                   0      0       0      0       1
LTERM                   0      0       0      0       1
DESTINATION             0      0       0      0       1
QUEUE                   0      0       0      0       1

NO ERRORS OR WARNINGS ISSUED FOR THIS COMPILE
```

Chapter 5: System Definition

This chapter outlines the system generation statements that you use to define:

- The basic DC/UCF system configured to perform database services
- The DC teleprocessing network
- The UCF teleprocessing environment
- Online components of the DC/UCF system
- Products that function online under the DC/UCF system

This section contains the following topics:

Basic System

The following table presents the system generation statements that you use to define the basic DC/UCF system.

Statements	Comments
SYSTEM	One for each DC/UCF system to be defined in the data dictionary
DEFAULT PROGRAM	One each time you want to change default characteristics for subsequent program definitions
IDD	One to define default usage modes for IDD DDDL-compiler access to the data dictionary
LOADLIST	One for each load list to be available to the DC/UCF system at runtime
NODE	One to identify the communications method that is used by the DC/UCF system to access other nodes in the network

Statements	Comments
PROGRAM	One for each database procedure not link edited with a subschema One for each subschema not eligible for automatic program definition at runtime
RESOURCE TABLE	One to define the location (node) of remote resources that the DC/UCF system accesses
RUNUNITS	One for each alternate dictionary for which you want to predefine load-area run units One for each database catalog containing SQL-defined and SQL security objects for which you want to predefine load-area run units One for signon run units you wish to predefine
STORAGE POOL	One for each secondary 24-bit storage pool
XA STORAGE POOL	One for each 31-bit storage pool (for systems supporting 31-bit addressing only)

Note: To facilitate the monitoring and maintenance of the system, the data dictionary, and the database, a system configured primarily to perform database services for batch programs should include the following online components:

- The DCMT and OPER system tasks
- The online DDDL compiler
- The online schema compiler
- The online command facility
- The online subschema compiler

More Information

- For more information about the SYSTEM statement, see SYSTEM Statement (see page 137).
- For more information about the LINE (LINE Statement (see page 318)), PTERM (PTERM Statement (see page 322)), and LTERM (LTERM Statement (see page 327)) statements, see Teleprocessing Network Statements (see page 317).
- For more information about the remaining statements in the table, see System Generation Statements (see page 201).

DC Teleprocessing Network

The following table presents the system generation statements that you use to define the DC teleprocessing network. These statements are coded in addition to the statements used to define the basic system to create a system that includes the teleprocessing monitor DC.

Statements	Comments
LINE	One CCI line statement, or one DDS LINE statement with a specific VTAM type PTERM, or one SOCKET LINE statement with a specific DDSTCPIP type PTERM
PTERM	One for each physical terminal associated with each line
LTERM	One for each physical terminal
TCP/IP	For DC programs that want to use the SOCKET interface, or if SOCKET lines are defined

Note: For more information about the LINE (LINE Statement (see page 318)), PTERM (PTERM Statement (see page 322)), and LTERM (LTERM Statement (see page 327)) statements, see Teleprocessing Network Statements (see page 317).

UCF Teleprocessing Environment

The following table presents the system generation statements that you use to define the UCF teleprocessing environment. These statements are coded in addition to the statements used to define the basic system and, if appropriate, the statements used to define the DC teleprocessing network to create a system that includes UCF.

Note: To define the UCF front end, you must assemble and link edit the appropriate macros for the TP monitor in use.

Statements	Comments
LINE statement	One to define the UCF line
PTERM statement	One for each physical terminal associated with the UCF line
LTERM statement	One for each physical terminal associated with the UCF line

More Information:

- For more information about the UCF macros, see the *CA IDMS System Operations Guide*.
- For more information about the LINE (LINE Statement (see page 318)), PTERM (PTERM Statement (see page 322)), and LTERM (LTERM Statement (see page 327)) statements, see Teleprocessing Network Statements (see page 317).

Online Components

The following table presents the system generation statements that you use to define the online components of the DC/UCF system. These statements are coded in addition to the statements used to define the basic system, the DC teleprocessing network, and/or the UCF teleprocessing environment to create a DC/UCF system that includes online components.

Statements	Comments
AUTOTASK	One for each autotask to be invoked at DC/UCF system startup and/or shutdown
DESTINATION	One for each group of users, logical terminals, or printers to which data is routed
KEYS	One for each table of control-key assignments to be used with online applications executing under the DC/UCF system
MAPTYPE	One for each alternative map table to be associated with users of the DC/UCF system
PROGRAM	One for each program and map associated with each of the CA IDMS products in the DC/UCF system. **Note:** For more information, see System Programs and Tasks (see page 411). One for each edit or code table, map, or CA ADS dialog not eligible for automatic program definition at runtime One for each user program
QUEUE	One for each predefined queue associated with the DC/UCF system
TASK	One for each task used to invoke the CA IDMS online components that are used under the DC/UCF system. **Note:** For more information, see System Programs and Tasks (see page 411). One for each user task

Note: For more information about the statements in the table, see System Generation Statements (see page 201).

Online Products

The following table presents the system generation statements used to define CA IDMS products that function online under the DC/UCF system. These statements are coded in addition to the statements listed in the preceding tables in this chapter to create a DC/UCF system that includes CA ADS, CA ICMS, Performance Monitor, Online mapping facility, and CA OLQ.

Statements	Comments
CA ADS and CA ADS/Batch:	
ADSO	One to define dialog-generation and runtime characteristics of the CA ADS environment
PROGRAM	One for each program and map supplied with CA ADS
TASK	One for each task used to invoke the application and dialog generators and the CA ADS runtime system
Performance Monitor:	
PROGRAM	One for each program and map supplied with Performance Monitor
TASK	One for each task used to invoke the Performance Monitor
CA ICMS (Information Center Management System):	
PROGRAM	One for each program and map used by IDB™ Manager and IDB Communications
TASK	One for each task used to invoke IDB Manager or IDB Communications
CA OLQ:	
OLQ	One to define runtime characteristics of CA OLQ
PROGRAM	One for each program and map supplied with CA OLQ
TASK	One for each task used to invoke CA OLQ
Online mapping facility (OLM):	
OLM	One to define runtime characteristics of OLM
PROGRAM	One for each program and map supplied with OLM
TASK	One for each task used to invoke OLM

More Information:

- For more information about the LINE (LINE Statement (see page 318)), PTERM (PTERM Statement (see page 322)), and LTERM (LTERM Statement (see page 327)) statements, see Teleprocessing Network Statements (see page 317).
- For more information about system tasks and programs, see System Programs and Tasks (see page 411).

DDS Network

The following table presents the system generation statements that you use to define the DDS network (CA IDMS DDS users only). These statements are coded in addition to the statements listed in the preceding tables in this chapter to define a DC/UCF system in a DDS network.

Statements	Comments
LINE	One CCI LINE statement, or one DDS LINE statement with a specific VTAM type PTERM, or one SOCKET LINE statement with a specific DDSTCPIP type PTERM.
PTERM	One for each physical terminal that routes data to and from other DDS nodes concurrently
LTERM	One for each PTERM defined

Note: For more information about the LINE (LINE Statement (see page 318)) and PTERM (PTERM Statement (see page 322)) statements, see Teleprocessing Network Statements (see page 317).

Chapter 6: SYSTEM Statement

The SYSTEM statement is used to establish various characteristics of the DC/UCF runtime system. Each DC/UCF system definition includes one SYSTEM statement.

This chapter presents the syntax for the SYSTEM statement and describes each SYSTEM statement parameter. Additionally, information on using various parameters and examples are provided.

Parameters are presented in alphabetical order. ADD/MODIFY/DELETE and DISPLAY/PUNCH syntax are presented together and the syntax rules follow the presentation of both types of syntax. Syntax rules presented in are not repeated unless special considerations apply.

This section contains the following topics:

SYSTEM Statement Parameters

SYSTEM statement parameters determine the behavior of the DC/UCF runtime system with respect to:

- Abend handling and timed functions
- Backup and recovery
- The operating environment
- Print control
- Program management
- Record locking
- Resource management
- Run-unit management
- Storage management
- Storage protection
- System monitoring
- Task management

Function of SYSTEM Statement Parameters

The following table briefly describes the function of each SYSTEM statement parameter. The parameters are grouped by the categories listed above.

Parameters	Descriptions
Abend Handling and Time Parameters	**Activate mechanisms to detect and process abending programs and tasks**
ABEND STORAGE	Allocates storage for abend processing in the event of a storage stack overflow in a task control element
CHKUSER TASKS	Allocates check-user subtasks to detect abnormally terminated external request units
DEADLOCK DETECTION INTERVAL	Specifies the frequency with which the system checks for deadlocks
EXTERNAL WAIT	Specifies the amount of time the system waits for an external request unit to issue a database request
INACTIVE INTERVAL	Specifies the amount of time the system permits a task to wait for a resource
INTERNAL WAIT	Specifies the amount of time the system permits an external request unit to wait for a resource
QUIESCE WAIT	Specifies the amount of time the system permits a task to wait for a quiesce operation to terminate before abnormally terminating the task
RECOVERY WAIT	Specifies the amount of time the system permits a task to wait for a resource to be recovered by a failed data sharing group member before abnormally terminating the task
RESOURCE TIMEOUT	Specifies the amount of time the system permits a terminal or external request unit to be inactive and identifies the program the system invokes to handle resources associated with a terminal or external request unit that remains inactive beyond the specified time limit
RUNAWAY INTERVAL	Specifies the amount of time the system permits a task to execute without returning control to the system
SNAP SYSTEM	Specifies whether to write a system snap dump to the DC/UCF log.

Parameters	Descriptions
SNAP SYSTEM PHOTO	Specifies whether to write a system photo snap to the DC/UCF log.
SNAP TASK	Specifies whether to write a task snap dump to the DC/UCF log.
SNAP TASK TRACE	Specifies whether to write task traces to the DC/UCF log.
SNAP TASK PHOTO	Specifies whether to write a task photo snap to the DC/UCF log.
TICKER INTERVAL	Specifies the frequency with which the system checks for time-related events (such as runaway tasks)
Backup and Recovery Parameters	**Control journaling options**
JOURNAL/NOJOURNAL RETRIEVAL	Specifies whether the system writes BGIN and ENDJ checkpoints to the journal file for transactions that perform no updates
JOURNAL FRAGMENT INTERVAL	Specifies the number of journal blocks to be written to the journal file before the system writes a dummy segment record to the journal file
JOURNAL TRANSACTION LEVEL	Directs the system to defer journal I/O based on the number of active transactions running in the system
QUEUE JOURNAL	Specifies whether the system writes after images of queue records to the journal file
Operating Environment Parameters	**Identify the environment in which the system executes**
CVNUMBER	Identifies the system to the CA IDMS SVC (z/OS, z/VSE systems only)
DESCRIPTION CODES	Specifies operator-message description codes (z/OS systems only)
EVAL	Controls date processing
EVAL BASE YEAR	Specifies the base year to be used by EVAL when doing built-in functions DATEDIFF and DATEOFF
EVAL CENTURY VALIDATION	Indicates whether century values are to be validated by EVAL when processing built-in functions that accept 4-digit years, such as GOODDATEX

Parameters	Descriptions
EVAL HIGH CENTURY	Specifies the highest century value that EVAL is to consider valid when processing built-in functions that accept 4-digit years, such as GOODDATEX
EVAL LOW CENTURY	Specifies the lowest century value that EVAL is to consider valid when processing built-in functions that accept 4-digit years, such as GOODDATEX
GENERATION IDENTIFICATION	Provides an identifier for the system options table
MESSAGE RETENTION	Specifies the time period that system retains messages generated by the SEND command
MULTIPLE SIGNONS	Specifies whether the same user-ID can be signed on to multiple interactive terminals simultaneously.
OPERATING SYSTEM	Identifies the host operating system
PAGE RELEASE	Invokes virtual storage operating system services to free real page frames (z/VSE systems only)
ROUTE CODES	Specifies operator-message routing codes (z/OS systems only)
SVC	Identifies the CA IDMS SVC used for communication between the system and programs executing outside the system region/partition (z/OS and z/VSE systems only)
SYSCTL	Defines the system control file used by programs executing outside the system region/partition
SYSTEM ID	Specifies the nodename of the system
Print Control Parameters	**Control printing options**
OVERRIDING REPORT LINE LENGTH	Specifies the line length to be used for all reports generated within a DC/UCF system
PRINT KEY	Identifies the default control key used to print the contents of a terminal screen
PRINTER CHECKPOINT	Specifies the frequency with which the system writes checkpoints for each report as it is printed
PRINTER CONTROL	Specifies the printer form feed options
Program Management Parameters	**Control program loading and execution**
LOADLIST	Identifies the default load list used by the system
MULTIPLE ENCLAVE	Specify enclave sharing for the system

Parameters	Descriptions
NEW COPY	Determines how the system handles attempts to load deleted programs
PROGRAM POOL	Specifies the size of the standard program pool for programs that use 24-bit addressing
REENTRANT POOL	Specifies the size of the program pool for reentrant programs that use 24-bit addressing
UNDEFINED PROGRAM COUNT	Enables automatic definition of programs at runtime
XA PROGRAM POOL	Specifies the size of the standard program pool for programs that use 31-bit addressing
XA REENTRANT POOL	Specifies the size of the program pool for reentrant programs that use 31-bit addressing
Database Locking Parameters	**Allocate initial lock storage and determine when locks are maintained**
RETRIEVAL LOCK/NOLOCK	Specifies whether the system maintains locks for records in areas accessed in shared retrieval usage mode
SYSLOCKS	Specifies an estimate for the maximum number of locks that will be held concurrently within the system
UPDATE LOCK/NOLOCK	Specifies whether the system maintains locks for records in areas being accessed in protected update usage mode
Resource Management Parameters	**Control the allocation of system resources**
AREA ACQUISITION THRESHOLD	Specifies whether the system accumulates area locks when attempting to ready multiple database areas for a single database transaction
DPE COUNT	Specifies the number of elements available to prevent tasks from deadlocking when acquiring resources
ECB LIST	Specifies the size of the event control block list used to synchronize events between the DC/UCF system and the host operating system
CALL/DBIO/LOCK/STORAGE LIMIT	Establishes limits for resources used by individual tasks
LIMITS FOR ONLINE	Specifies whether the system enforces limits on task resource usage

Parameters	Descriptions
QUEUE RETENTION	Specifies the time period that the system retains queues that are created dynamically
RCE COUNT	Specifies the number of resource control elements available to all tasks
REPORT RETENTION	Specifies the amount of time the system retains reports in the queue area
RLE COUNT	Specifies the number of resource link elements available to all tasks
System Run Unit Management Parameters	**Control the execution of run units that access the database and data dictionary**
MAXIMUM ERUS	Specifies the maximum number of external request units the system can service concurrently
RUNUNITS FOR LOADER/ MSGDICT/QUEUE/ SECURITY/SIGNON/SYSTEM/DEST	Predefines system run units
Storage Management Parameters	**Control the allocation of system storage**
CUSHION	Specifies the amount of storage in the primary storage pool the system reserves for use by tasks that are already executing
CWA SIZE	Specifies the size of the common work area available to all tasks
RELOCATABLE THRESHOLD	Specifies the point at which the system writes relocatable storage to the scratch area
SCRATCH IN STORAGE	Enables storage allocation from the operating system for scratch processing and optionally its dynamic extension.
STORAGE POOL	Specifies the size of the primary storage pool
XA STORAGE POOL	Specifies the size of the 31-bit storage pool
Storage Protection Parameters	**Control the use of storage protection**
PROTECT/NOPROTECT	Enables programs to use storage protection
STORAGE KEY	Identifies the alternate storage protect key
System Monitoring Parameters	**Provide a record of system status and activity**
ABRU SNAP/NOSNAP	Specifies whether the system writes snap dumps to the system log for abended external request units

Parameters	Descriptions
DEBUG MESSAGE BUFFERS	Specifies the number of buffers used by the CA IDMS online debugger
DUMP/NODUMP	Determines the conditions under which the system writes a memory dump
LOG	Specifies the file assignment for the DC/UCF system log
STATISTICS	Determines the types of statistics collected and the frequency with which statistics are written to the system log
SYSTRACE	Enables the system trace facility
USERTRACE	Enables the user trace facility
Task Management Parameters	**Control the execution of tasks**
MAXIMUM TASKS	Specifies the maximum number of online tasks the system can service concurrently
ON COMMIT	Specifies options that control commit behavior
ON ROLLBACK CONTINUE	Specifies options that control rollback behavior
STACKSIZE	Specifies the size of the storage stack in each task control element
TRANSACTION SHARING	Specifies the default transaction sharing option for all tasks within the system

Overriding SYSTEM Statement Parameters

You can override certain SYSTEM statement parameters in one or more of the following ways:

- **During system generation** with LTERM, and TASK statement parameters. The TASK statement is described in TASK Statement (see page 291). The LTERM statement is described in LTERM Statement (see page 327).
- **At system startup** in response to prompts issued at the operator's console. The prompts are governed by #DCPARM macro specifications. The #DCPARM macro is described in the *CA IDMS System Operations Guide*.
- **At runtime** with DCMT and DCUF commands. DCMT and DCUF commands are described in the *CA IDMS System Tasks and Operator Commands Guide*.

The following table lists the SYSTEM statement parameters that can be overridden along with the applicable overrides.

Parameter	System Generation Override	Startup Override	Runtime Override
EVAL BASE YEAR		EVAL_BASE_YEAR=	
EVAL CENTURY VALIDATION		EVAL_CENTURY_VALIDATION=	
EVAL HIGH CENTURY		EVAL_HIGH_CENTURY=	
EVAL LOW CENTURY		EVAL_LOW_CENTURY=	
CUSHION		CUSH=	DCMT VARY STORAGE POOL 0 CUSHION
CVNUMBER		CVNUM=	
DPE COUNT		DPECOUNT=	
DEADLOCK DETECTION INTERVAL			DCMT VARY DEADLOCK
DUMP/NODUMP		DUMP/NODUMP	
ECB LIST		ECBLIST=	
EXTERNAL WAIT	TASK statement EXTERNAL WAIT	EXTWAIT=	DCMT VARY TASK EXTERNAL WAIT DCMT VARY DYNAMIC TASK EXTERNAL WAIT
INACTIVE INTERVAL	TASK statement INACTIVE INTERVAL	INACTINT=	DCMT VARY TIME STALL
INTERNAL WAIT		INTWAIT=	
JOURNAL/ NOJOURNAL RETRIEVAL		JOURRET/ NOJOURRET	
JOURNAL FRAGMENT INTERVAL			DCMT VARY JOURNAL

Parameter	System Generation Override	Startup Override	Runtime Override
JOURNAL TRANSACTION LEVEL			DCMT VARY JOURNAL
LIMIT FOR ONLINE	TASK statement LIMITs		DCMT VARY TASK LIMITs
LIMITS FOR ONLINE			DCMT VARY LIMITS
LOADLIST			DCUF SET LOADLIST
MAXIMUM ERUS		MAXERUS=	
MAXIMUM TASKS		MAXTASK=	DCMT VARY ACTIVE TASK MAX TASK
MULTIPLE ENCLAVE	PROGRAM statement MULTIPLE ENCLAVE		DCMT VARY PROGRAM MULTIPLE ENCLAVE ON/OFF DCMT VARY DYNAMIC PROGRAM MULTIPLE ENCLAVE ON/OFF
PRINT KEY	TASK statement PRINT KEY		
PRINTER CHECKPOINT	LTERM statement PRINTER CHECKPOINT		
PRINTER CONTROL	LTERM statement PRINTER CONTROL		
PROGRAM POOL		PROGPOOL=	
PROTECT/ NOPROTECT		PROTECT/ NOPROTECT	
QUIESCE WAIT	TASK statement QUIESCE WAIT		DCMT VARY TASK QUIESCE WAIT DCMT VARY DYNAMIC TASK QUIESCE WAIT DCMT VARY TIME QUIESCE WAIT
RECOVERY WAIT			DCMT VARY TIME RECOVERY WAIT

Parameter	System Generation Override	Startup Override	Runtime Override
RCE COUNT		RCECOUNT=	
RESOURCE TIMEOUT INTERVAL	TASK statement RESOURCE TIMEOUT INTERVAL	RESOURCEINT=	DCMT VARY TIME RESOURCE INTERVAL DCMT VARY TASK RESOURCE INTERVAL
RESOURCE TIMEOUT PROGRAM	TASK statement RESOURCE TIMEOUT PROGRAM	RESOURCEPGM= /RESOURCEPGMV=	DCMT VARY TIME RESOURCE PROGRAM DCMT VARY TASK RESOURCE PROGRAM
RLE COUNT		RLECOUNT=	
RUNAWAY INTERVAL		RUNAWAY=	DCMT VARY TIME RUNAWAY
STACKSIZE		STACKSIZ=	
STATISTICS INTERVAL			DCMT VARY STATISTICS INTERVAL
STATISTICS TASK TRANSACTION/NOT RANSACTION			DCMT VARY STATISTICS TRANSACTION
STORAGE POOL		STGPOOL	
SYSLOCKS		SYSLOCKS=	
SYSTRACE		SYSTRACE/ NOSYSTRACE/ SYSTRACENUM=	DCMT VARY SYSTRACE
TICKER INTERVAL		TICKINT=	DCMT VARY TIME TIMER
USERTRACE		USERTRACE/ NOUSERTRACE/ USERTRACESIZ=	

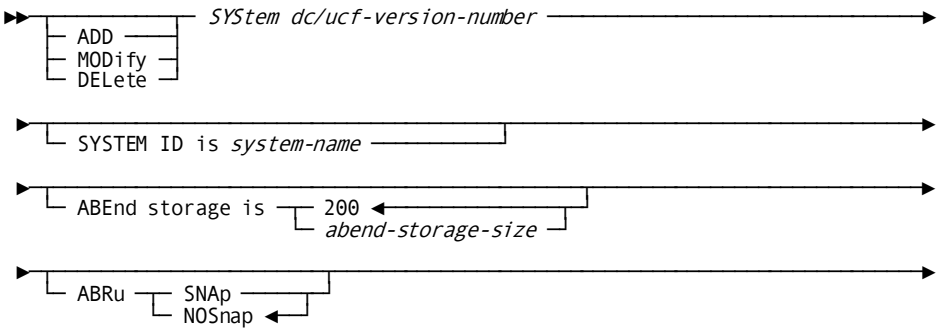
SYSTEM Statement Syntax Rules

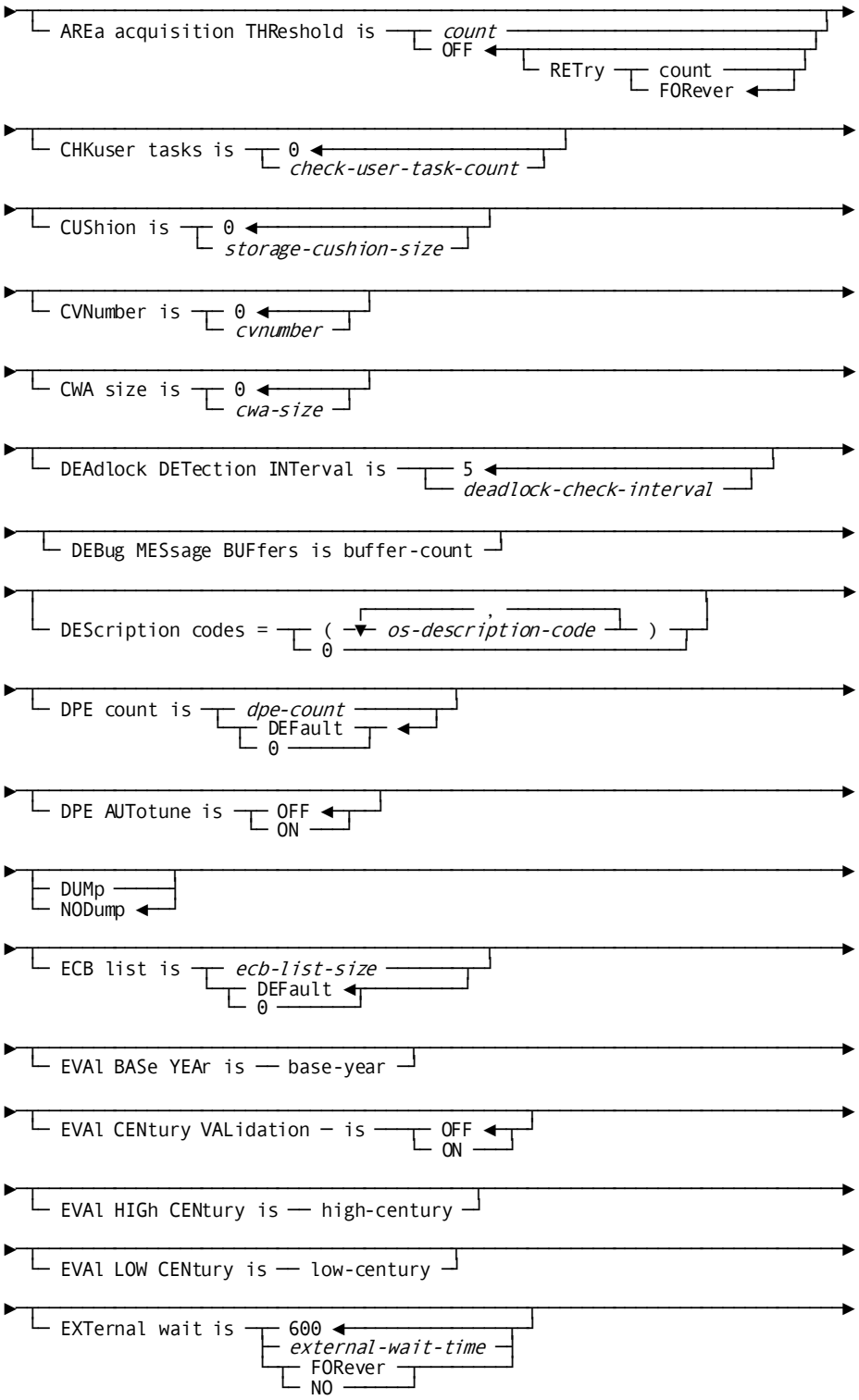
ADD/MODIFY/DELETE and DISPLAY/PUNCH syntax for the system entity type are presented in this section. Syntax rules follow the presentation of both types of syntax. Options that apply to only one verb are noted in the rules. Syntax rules presented in are not repeated unless special considerations apply.

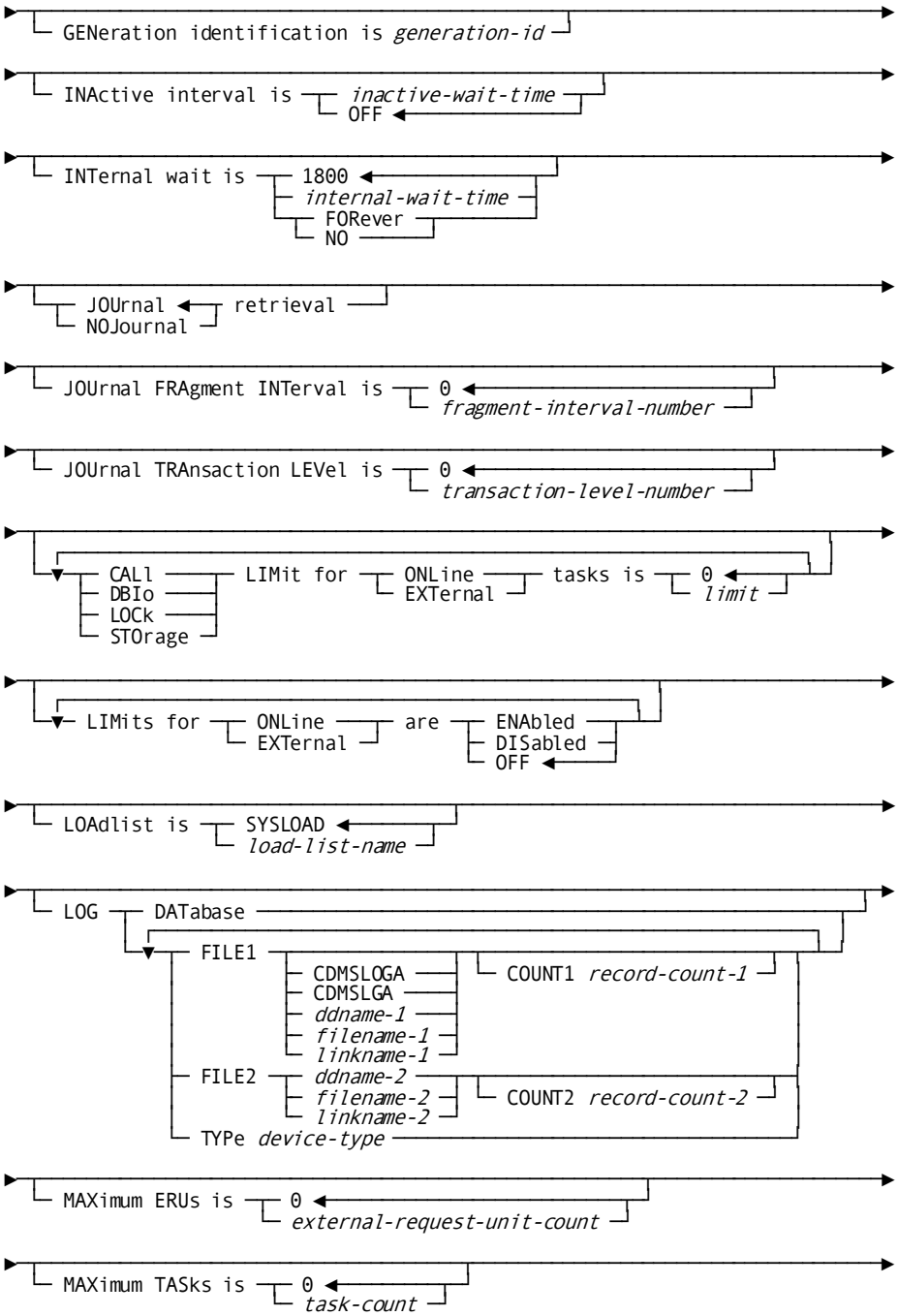
Authorization

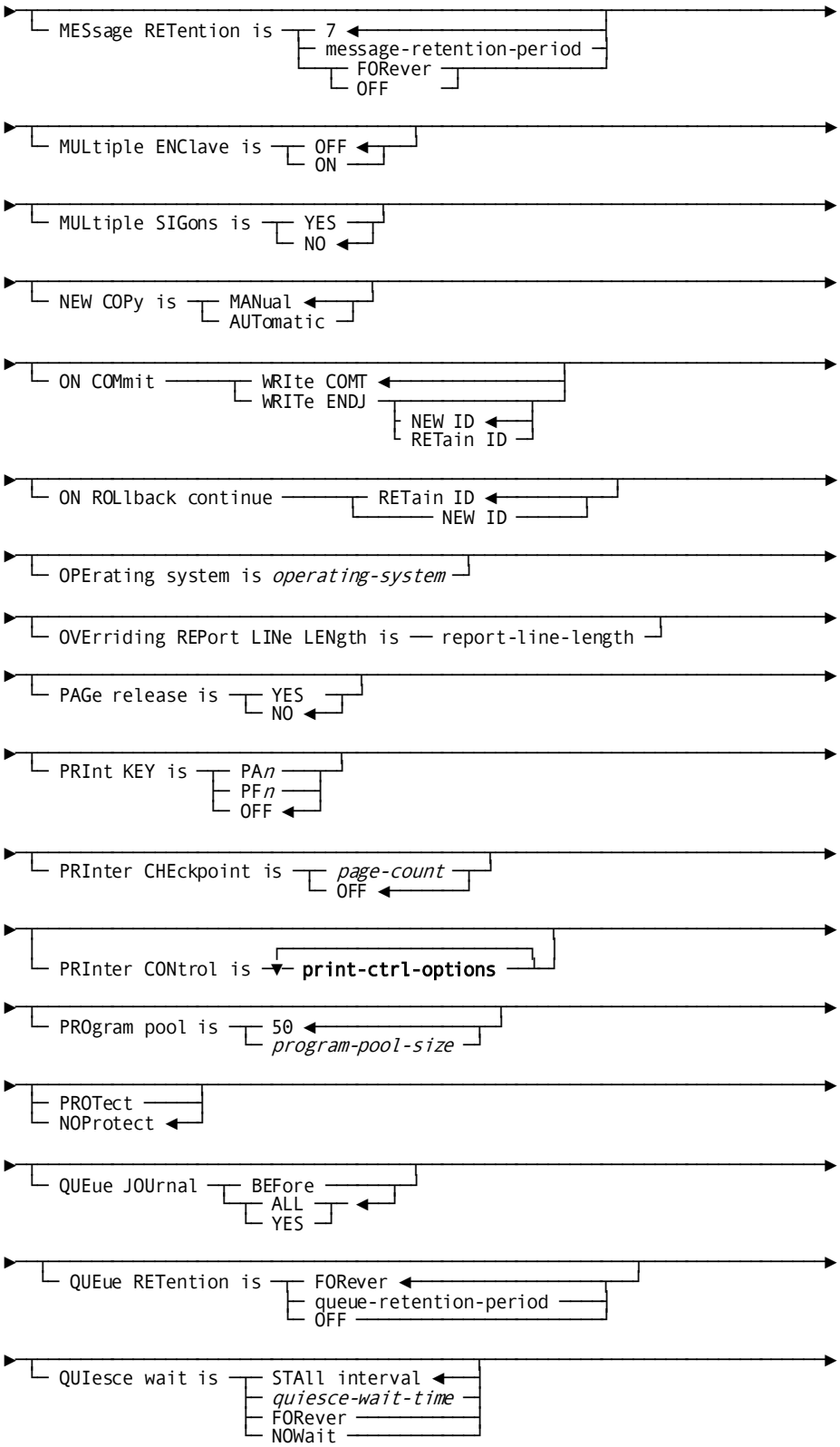
To perform this operation	You need this authority or privilege
Add a system definition **Note:** If you change an ADD operation to a MODIFY, the authority required is the same as for a MODIFY operation.	DCADMIN authority or CREATE on the resource type SYSTEM **and** the system name of the system you are creating
Modify a system definition	DCADMIN authority or ALTER on the system name of the system definition you are modifying. If you are modifying the name of the system (SYSTEM ID parameter of the SYSTEM statement), you must *also* have CREATE authority on the *new* system name
Delete a system definition	DCADMIN authority or DROP on the system name of the system definition you are deleting
Display or punch a system definition	DCADMIN authority or DISPLAY on the system name of the system you want to display

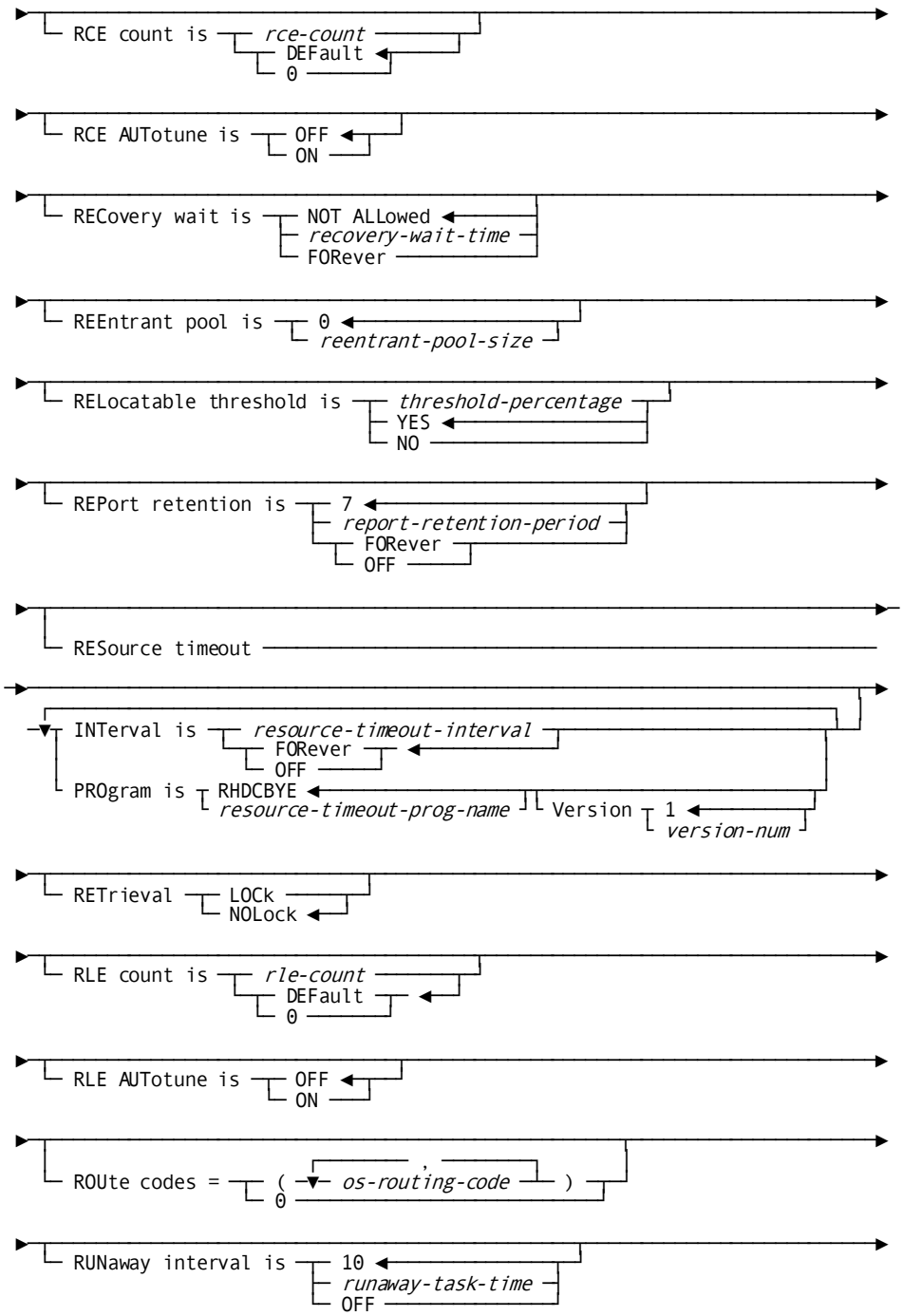
SYSTEM Statement Syntax

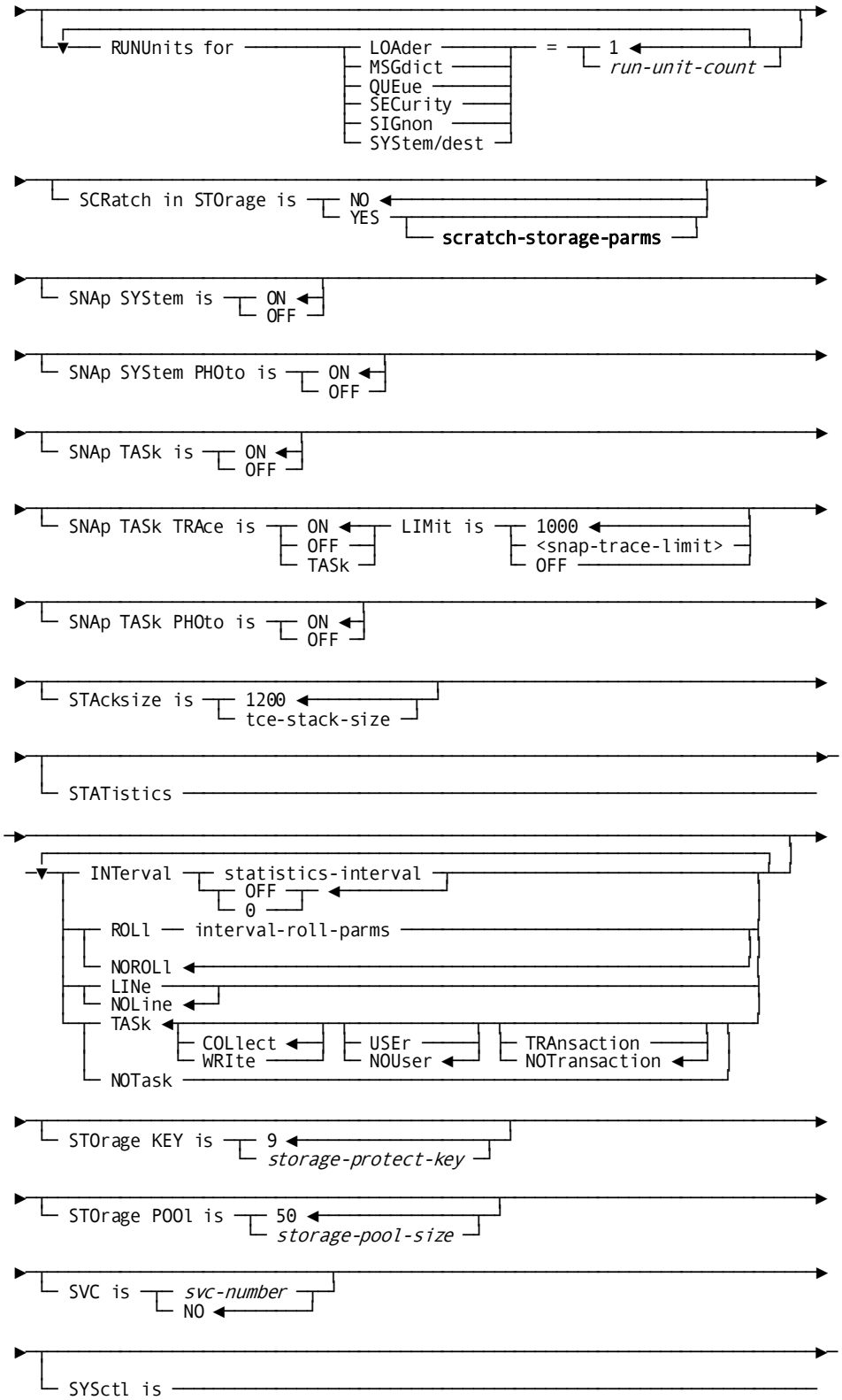


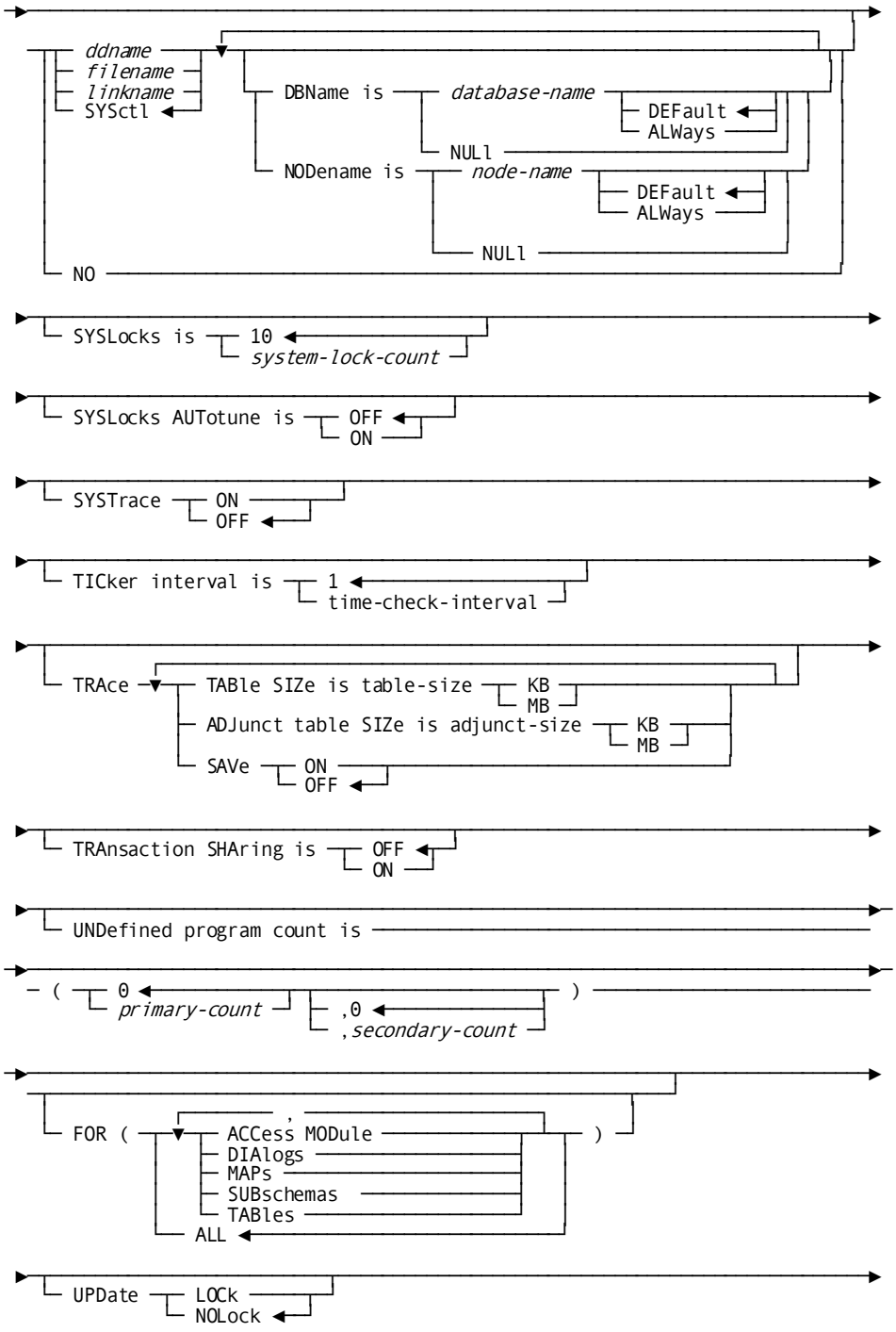

AREa acquisition THReshold is
count
OFF
RETry
count
FORever
CHKuser tasks is
0
check-user-task-count
CUShion is
0
storage-cushion-size
CVNumber is
0
cvnumber
CWA size is
0
cwa-size
DEAdlock DETection INTerval is
5
deadlock-check-interval
DEBug MESsage BUFfers is buffer-count
DEScription codes =
(
os-description-code
)
0
DPE count is
dpe-count
DEFault
0
DPE AUTotune is
OFF
ON
DUMp
NODump
ECB list is
ecb-list-size
DEFault
0
EVAl BASe YEAr is base-year
EVAl CENtury VALidation is
OFF
ON
EVAl HIGh CENtury is high-century
EVAl LOW CENtury is low-century
EXTernal wait is
600
external-wait-time
FORever
NO

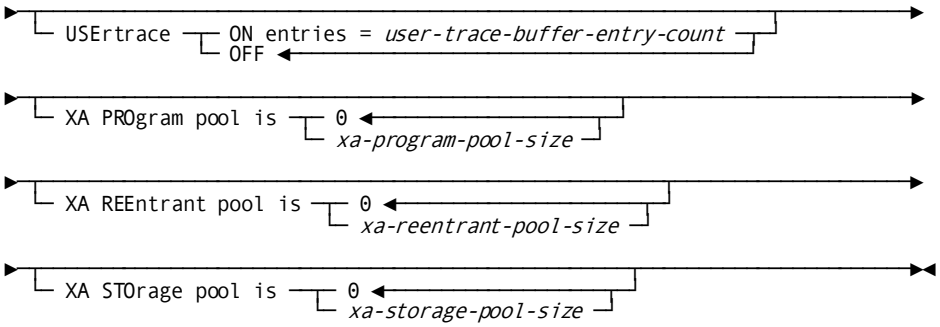

GENeration identification is generation-id
INActive interval is inactive-wait-time OFF
INTernal wait is 1800 internal-wait-time FORever NO
JOUrnal retrieval NOJournal
JOUrnal FRAgment INTerval is 0 fragment-interval-number
JOUrnal TRAnsaction LEVel is 0 transaction-level-number
CALl DBIo LOCk STOrage LIMit for ONLine EXTernal tasks is 0 limit
LIMits for ONLine EXTernal are ENAbled DISabled OFF
LOAdlist is SYSLOAD load-list-name
LOG DATabase FILE1 CDMSLOGA CDMSLGA ddname-1 filename-1 linkname-1 COUNT1 record-count-1 FILE2 ddname-2 filename-2 linkname-2 COUNT2 record-count-2 TYPe device-type
MAXimum ERUs is 0 external-request-unit-count
MAXimum TASks is 0 task-count


MESsage RETention is
7
message-retention-period
FORever
OFF
MULtiple ENClave is
OFF
ON
MULtiple SIGons is
YES
NO
NEW COPy is
MANual
AUTomatic
ON COMmit
WRIte COMT
WRITe ENDJ
NEW ID
RETain ID
ON ROLlback continue
RETain ID
NEW ID
OPErating system is operating-system
OVErriding REPort LINe LENgth is report-line-length
PAGe release is
YES
NO
PRInt KEY is
PAn
PFn
OFF
PRInter CHEckpoint is
page-count
OFF
PRInter CONtrol is
print-ctrl-options
PROgram pool is
50
program-pool-size
PROTect
NOProtect
QUEue JOUrnal
BEFore
ALL
YES
QUEue RETention is
FORever
queue-retention-period
OFF
QUIesce wait is
STAll interval
quiesce-wait-time
FORever
NOWait

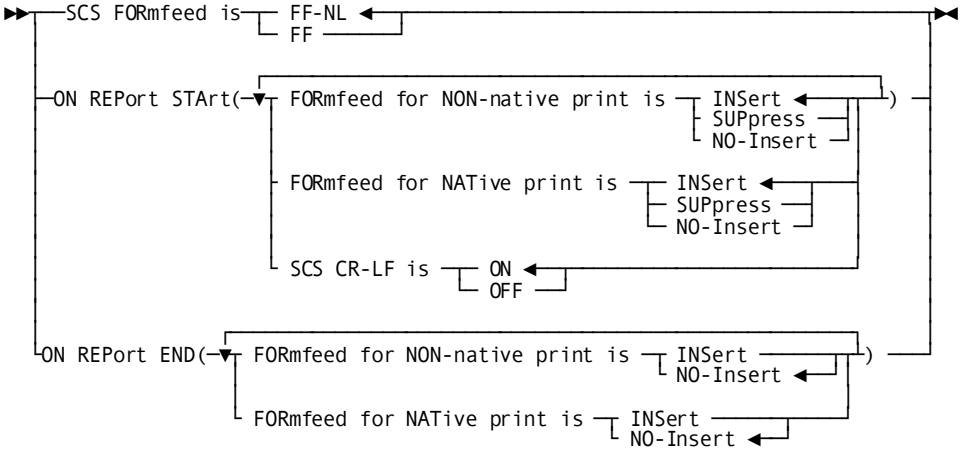

RCE count is
rce-count
DEFault
0
RCE AUTotune is
OFF
ON
RECovery wait is
NOT ALLowed
recovery-wait-time
FOREver
REEntrant pool is
0
reentrant-pool-size
RELocatable threshold is
threshold-percentage
YES
NO
REPort retention is
7
report-retention-period
FOREver
OFF
RESource timeout
INTerval is
resource-timeout-interval
FOREver
OFF
PROgram is
RHDCBYE
resource-timeout-prog-name
Version
1
version-num
RETrieval
LOCk
NOLock
RLE count is
rle-count
DEFault
0
RLE AUTotune is
OFF
ON
ROUte codes =
(
os-routing-code
)
0
RUNaway interval is
10
runaway-task-time
OFF


RUNUnits for
LOAder
MSGdict
QUEue
SECurity
SIGnon
SYStem/dest
=
1
run-unit-count
SCRatch in STOrage is
NO
YES
scratch-storage-parms
SNAp SYStem is
ON
OFF
SNAp SYStem PHOto is
ON
OFF
SNAp TASk is
ON
OFF
SNAp TASk TRAce is
ON
OFF
TASk
LIMit is
1000
<snap-trace-limit>
OFF
SNAp TASk PHOto is
ON
OFF
STAcksize is
1200
tce-stack-size
STATistics
INTerval
statistics-interval
OFF
0
ROLl
interval-roll-parms
NOROLl
LINe
NOLine
TASk
COLlect
WRIte
USEr
NOUser
TRAnsaction
NOTransaction
NOTask
STOrage KEY is
9
storage-protect-key
STOrage POOl is
50
storage-pool-size
SVC is
svc-number
NO
SYSctl is

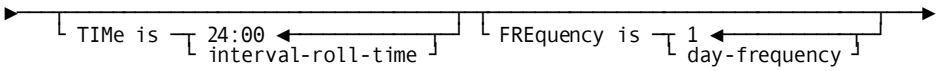

ddname
filename
linkname
SYSctl
DBName is
database-name
DEFault
ALWays
NULl
NODename is
node-name
DEFault
ALWays
NULl
NO
SYSLocks is
10
system-lock-count
SYSLocks AUTotune is
OFF
ON
SYSTrace
ON
OFF
TICker interval is
1
time-check-interval
TRAce
TABle SIZe is table-size
KB
MB
ADJunct table SIZe is adjunct-size
KB
MB
SAVe
ON
OFF
TRAnsaction SHAring is
OFF
ON
UNDefined program count is
(
0
primary-count
,0
,secondary-count
)
FOR (
ACCess MODule
DIAlogs
MAPs
SUBschemas
TABles
ALL
)
UPDate
LOCk
NOLock



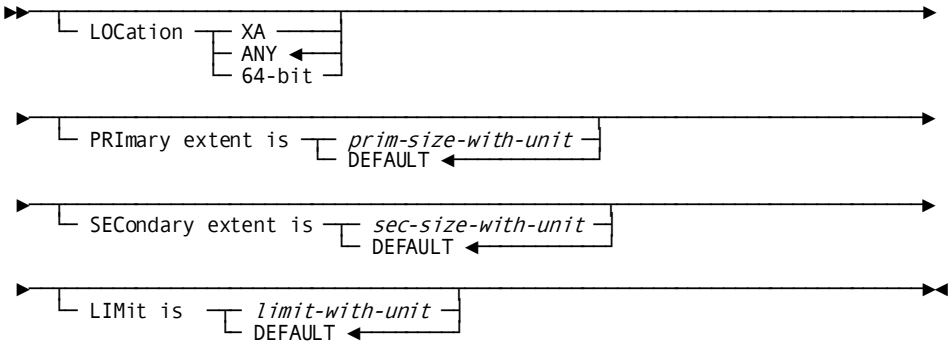
Expansion of print-ctrl-options



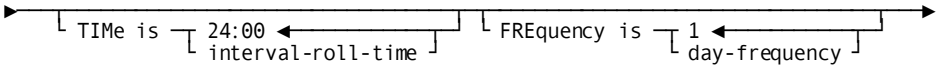
Expansion of interval-roll-parms



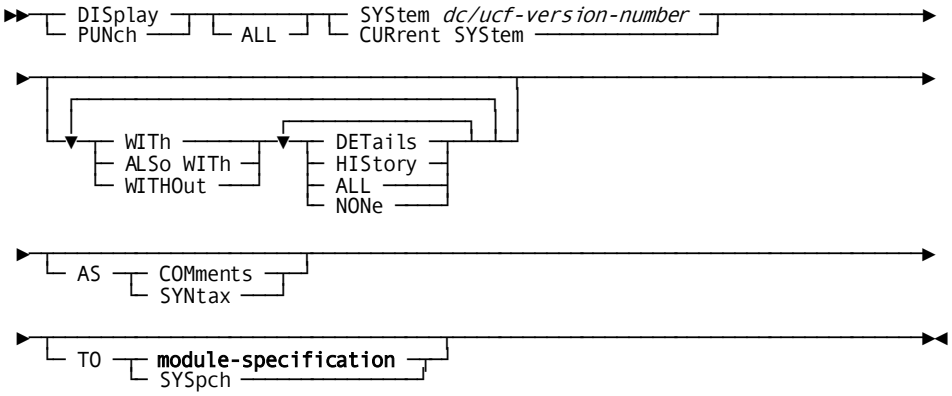
Expansion of scratch-storage-parms



Expansion of interval-roll-parms



DISPLAY/PUNCH SYSTEM Statement Syntax



SYSTEM Statement Parameters

SYStem *dc/ucf-version-number*

Identifies the DC/UCF system being added, modified, deleted, displayed, or punched. *Dc/ucf-version-number* must be an integer in the range 1 through 9,999. All systems defined in the data dictionary with the system generation compiler are automatically assigned the name DCSYSTEM.

Note: The DBA may elect to reserve consecutive SYSTEM (and CV) numbers for use in cloning CV's. For more information about cloning CV's, see the *CA IDMS System Operations Guide*.

SYSTem ID is *system-name*

Specifies the name (nodename) by which the DC/UCF system is known to other nodes in the DC/UCF communications network.

System-name must be a one- through eight- character name that is unique throughout the DC/UCF communications network and must be the first parameter you specify after the ADD SYSTEM statement.

The default is SYST*nnnn* where *nnnn* is the value specified as *dc-ucf-version* in the ADD SYSTEM statement.

Note: *System-name* is the name of the DC/UCF system you name in the CA IDMS Security DDL CREATE RESOURCE SYSTEM statement. For more information about CA IDMS central security, see the *CA IDMS Security Administration Guide*.

ABEnd storage is *abend-storage-size*

Specifies the amount of storage, in fullwords, available to the system for processing abends in the event of a task control element (TCE) stack overflow (for example, as a result of a recursive abend).

The STACKSIZE value will be used instead of this value when it is larger.

Abend-storage-size must be an integer in the range 0 through 32,767. The default is 200.

Note: Abend storage is a single-threaded resource.

ABRu SNAp/NOSnap

Specifies whether the system writes a snap dump to the log when an external request unit terminates abnormally.

AREa acquisition THReshold is *count*

Specifies the point at which, during ready processing, the system begins to accumulate area locks for a database transaction. This value only applies if the system is readying multiple areas at one time.

Count must be an integer in the range 1 through 32,767.

OFF

Directs the system not to accumulate area locks until it can acquire all areas needed by a database transaction.

OFF is the default.

RETry *count*

Defines a limit on the number of times the system continues trying to gain access to all areas without accumulating area locks.

Count must be an integer in the range 1 through 32,767.

RETry FORever

Directs the system to continue to try to gain access to all needed areas until it successfully acquires all areas or until operating system resource and time limits are exceeded. You should specify the default of FOREVER unless experience shows that a transaction is not gaining access to areas as needed.

FOREVER is the default.

OFF RETRY FOREVER is the default when you omit the AREA ACQUISITION THRESHOLD parameter from the SYSTEM statement.

CHKuser tasks IS *check-user-task-count*

For z/OS and z/VSE operating systems only, specifies the number of subtasks to be attached by the system at runtime to detect abnormally terminated batch external request units.

Check-user-task-count must be an integer in the range 0 through 255.

Specify a value equal to the number of CA IDMS batch jobs that execute concurrently in the DC/UCF system.

0, the default, directs the system not to use the check-user mechanism to detect abends.

CUShion is *storage-cushion-size*

Specifies the amount of storage, in 1K bytes, to be reserved in the primary storage pool for use by tasks that are already executing.

Storage-cushion-size must be an integer in the range 0 through 16,383. The default is 0.

Note: For more information about relocatable storage, see Storage Pools (see page 63).

CVNumber is *cvnumber*

Identifies the DC/UCF system to the CA IDMS SVC. Additionally, if a SYSCTL file is defined, the value specified by the CVNUMBER parameter is written to the SYSCTL file at system startup.

Cvnumber must be an integer in the range 0 through 255. The default is 0.

Note: For more information about the SYSCTL file, see the *CA IDMS System Operations Guide*.

Up to 256 DC/UCF systems can execute concurrently and independently in a single machine. Systems executing concurrently must be defined with unique CVNUMBER values, even if the systems use different SVCs.

z/VM systems: A DC/UCF system running in a CMS virtual machine must be defined with CVNUMBER IS 0.

CWA size is *cwa-size*

Specifies the size, in bytes, of the common work area (CWA). The CWA is a block of shared user storage that is available to all user tasks. A program accesses the CWA by issuing a GET STORAGE request with a storage id of CWA. Use of the CWA facilitates communication among tasks.

Cwa-size must be a positive integer in the range 0 through 2,147,483,647; the default is 0.

DEAdlock DETection INTerval is *deadlock-check-interval*

Specifies the amount of time, in wall clock seconds, that elapses before the system searches for deadlocked tasks.

Deadlock-check-interval must be an integer in the range 0 through 1,200 and must be:

- Less than the value specified in the INACTIVE INTERVAL parameter of the SYSTEM statement
- Greater than or equal to the value specified in the TICKER INTERVAL parameter of the SYSTEM statement

The default is 5.

DEBug MESsage BUFfers is

Specifies the number of debug message buffers to be used by the DEBUG task.

number-of-buffers

Specifies the number of debug message buffers to be used by the DEBUG task. If this parameter is omitted then the default number of debug message buffers is 5. Increasing the debug message buffers above the default of 5 will increase the amount of storage needed to process the DEBUG task messages. The value specified can be in a range of 5 through 30.

DEBug MESsage BUFfers is buffer-count

Specifies the number of message buffers used by the CA IDMS online debugger.

Increasing the number of message buffers enables the debugger to display more symbols and list more information. However, the larger the value you specify, the more storage is needed to execute the debugger.

Limits: 5 - 30

Default: 5 (buffers)

DEScription codes =

For z/OS systems only, specifies operator-message description codes to be passed to the DESC parameter for write-to-operator (WTO) macros issued by the system.

(*Os-description-code*)

Specifies one or more operator-message description codes, as described in the applicable operating system supervisor services and macro instructions.

Os-description-code must be an integer in the range 1 through 16. Multiple description codes must be separated by blanks or commas.

0

Clears any previously established operator-message description codes.

DPE AUTotune is

Indicates if CA IDMS should automatically tune the DPE count value using execution statistics.

OFF

Turns off automatic tuning of DPE count.

ON

Turns on automatic tuning of DPE count.

Default: OFF

DPE count is

Specifies the number of deadlock prevention elements (DPEs) to allocate at system startup.

dpe-count

Directs the system to allocate the specified number of DPEs at startup.

Dpe-count must be an integer in the range 1 through 32,767.

DEFault/0

Directs the system generation compiler to calculate the number of DPEs to allocate. DEFAULT and 0 are synonyms and can be used interchangeably.

DEFAULT is the default when you omit the DPE COUNT parameter from the SYSTEM statement.

DUMp

Directs the system to write a memory dump for all system abend codes (that is, 39*nn*). In most cases, a dump is not necessary because the abend code itself provides sufficient information to determine the cause of the abend.

NODump

Directs the system to write a memory dump only for system abend codes that do not provide sufficient information to determine the cause of the abend.

NODUMP is the default when you specify neither DUMP nor NODUMP in the SYSTEM statement.

Note: The DUMP/NODUMP specification does not affect task or external request abend requests issued from DML programs.

ECB list is

Specifies the amount of storage to allocate for the external event control block (ECB) list.

ecb-list-size

Specifies the size, in words, of the amount of storage to allocate for the ECB list. *Ecb-list-size* must be an integer in the range 0 through 32,767.

DEFault/0

Directs the system generation compiler to calculate the size of the ECB list. The compiler calculates the size to equal two times the number of TCEs.

DEFAULT and 0 are synonyms and can be used interchangeably.

DEFAULT is the default when you omit the DPE COUNT parameter from the SYSTEM statement.

EVAl BASe YEAr is

Specifies the base year to be used by EVAL when doing built-in functions DATEDIFF and DATEOFF.

base-year

Specifies the EVAL base year when doing built-in functions DATEDIFF and DATEOFF to determine the century associated with the requested date. If this parameter is omitted then the default base year is 68 meaning that years 69 and greater are in the 20th century, and years 68 and lower are in the 21th century. The value specified can be in a range of 1 through 99.

EVAl CENtury VALidation is

Indicates whether century values are to be validated by EVAL when processing built-in functions that accept 4-digit years, such as GOODDATEX.

ON

Indicates that EVAL is to validate century values.

OFF

OFF indicates that EVAL is not to validation century values.

The default for new systems is OFF

EVAl HIGh CENtury is

Specifies the highest century value that EVAL is to consider valid when processing built-in functions that accept 4-digit years, such as GOODDATEX.

high-century

Specifies the high century to be used by EVAL when doing built-in functions GOODDATEX century validation.

If this parameter is omitted then the default high century is 20.

The value specified can be in a range of 1 through 99. This parameter has no effect if the setting for EVAL CENTURY VALIDATION is OFF.

EVAl LOW CENtury is

Specifies the lowest century value that EVAL is to consider valid when processing built-in functions that accept 4-digit years, such as GOODDATEX

low-century

Specifies the low century to be used by EVAL when doing built-in functions GOODDATEX century validation.

If this parameter is omitted then the default low century is 19.

The value specified can be in a range of 1 through 99. This parameter has no effect if the setting for EVAL CENTURY VALIDATION is OFF.

EXTernal wait is

Specifies the amount of time the system is to wait for the next request to be issued within an external request unit before abnormally terminating the task.

Note: For more information about external user sessions, see External User Sessions (see page 39).

external-wait-time

Specifies the external wait time in wall-clock seconds. *External-wait-time* must be an integer in the range 0 through 32,767. The default is 600.

FORever/NO

Directs the system not to terminate external request units based on an external wait time. FORever and NO are synonyms and can be used interchangeably.

GENeration identification is *generation-id*

Specifies a unique identifier for the system. The identifier is included in the system options table, which is built in the DC/UCF region/partition during system startup. In a memory dump, the identifier appears at the beginning of the system options table.

Generation-id must be a one- through eight-character alphanumeric value.

INActive interval is

Specifies the amount of time the system permits an online task or an external user session to wait for a resource before abnormally terminating the task or session.

inactive-wait-time

Specifies the inactive interval in wall-clock seconds.

Inactive-wait-time must be an integer in the range 1 through 32,767.

OFF

Directs the system not to terminate tasks or external user sessions based on an inactive interval.

OFF is the default when you omit the INACTIVE INTERVAL parameter from the SYSTEM statement.

INTernal wait is

Specifies the amount of time the system permits an external request unit to wait for a resource before abnormally terminating the request unit.

Important: The INTERNAL WAIT parameter is not functional. Its function is performed by the INACTIVE INTERVAL parameter of the TASK statement (see page 293) for task RHDCNP3S. You can specify wait times for individual batch or CICS run-units by defining TASK statements where the task name is the first batch program that establishes communication with the CV for the run-unit or the CICS task code.

internal-wait-time

Specifies the internal wait time in wall-clock seconds. *Internal-wait-time* must be an integer in the range 1 through 32,767. The default is 1,800.

FORever/NO

Directs the system not to terminate request units based on an internal wait time. FOREVER and NO are synonyms and can be used interchangeably.

JOUrnal retrieval

Directs the system to write BGIN and ENDJ checkpoints to the journal file for run units that perform no updates (that is, for retrieval run units). JOURNAL RETRIEVAL is the default.

Note: For the purposes of this parameter, a run unit that readies an area in an update usage mode but that does not update the database is considered a retrieval run unit.

NOJournal retrieval

Directs the system not to write BGIN and ENDJ checkpoints for retrieval run units.

JOUrnal FRAgment INTerval is *fragment-interval-number*

Specifies the maximum number of journal blocks to write to the journal file before the system writes a dummy segment (DSEG) record to the journal file.

Fragment-interval must be an integer in the range 100 through 32,767.

0, the default, turns off the journal fragment interval.

JOUrnal TRAnsaction LEVel is *transaction-level-number*

Specifies the number of active transactions that must be running in a DC/UCF system to defer the writing of a journal block.

Transaction-level-number must be an integer in the range 1 through 100.

If the number of active transactions is less than the value specified, the system performs journal I/O each time a transaction checkpoint is written to the journal buffer page.

0, the default, directs the system to write a journal buffer to the journal block each time a transaction checkpoint is taken or when the journal buffer is full.

LIMit for tasks is *limit*

Defines limits for task resource usage. *Limit* specifies the limit for each resource.

0, the default, directs the system not to limit task usage of the named resource.

You can code two LIMIT parameters for each resource: one for online tasks and one for ERUS tasks. Specify only one resource in each LIMIT parameter.

CALl

Limits the number of system service calls (for example, #GETSTG, #LOAD, or OBTAIN CALC) a task can issue. When you specify CALL, *limit* must be an integer in the range 0 through 2,147,483,647.

Note: For performance purposes, external limits are only checked after every 100 calls. Therefore, if the SYSTEM statement specifies CALL LIMIT FOR EXTERNAL TASK IS 150, a batch program could issue 200 DML calls before the system determines that the limit is exceeded.

DBIo

Limits the number of database I/O operations (that is, reads and writes) that are performed for a task. When you specify DBIO, *limit* must be an integer in the range 0 through 2,147,483,647.

LOCk

Limits the number of record locks that a transaction can concurrently hold. When LOCK is specified, *limit-n* must be an integer in the range 0 through 2,147,483,647.

Note: For more information about record locks, see Database Locks (see page 49)

STOrage

Limits the amount of storage that a task holds at one time. The limit is expressed in 1K bytes.

When you specify STORAGE, *limit* must be an integer in the range 0 through 16,383.

ONLine

Indicates the specified limit applies to all tasks defined to the system either during system generation or at runtime.

EXTernal

Indicates the specified limit applies to all tasks associated with external request units (that is, ERUS tasks).

LIMits for ... are

Controls the enforcement of limits on task resource usage. You can code one LIMIT parameter for each system.

Note: Limits on task resource usage can be enforced only if task statistics are being collected.

ONLine

Indicates the enforcement specification applies to all tasks defined to the system either during system generation or at runtime.

EXTernal

Indicates the enforcement specification applies to all tasks associated with external request units (that is, ERUS tasks).

ENAbled

Directs the system to build a resource limit block (RLB) for each active task and to enforce limits on task resource usage.

DISabled

Directs the system to build an RLB for each active task but not to enforce limits on task resource usage. Because the system builds RLBs, users can enable the enforcement of limits at runtime by means of the DCMT VARY LIMITS command.

OFF

Directs the system not to build RLBs. Because no RLBs are built, limits on task resource usage are not enforced.

OFF is the default when you omit the LIMITS FOR ONLINE parameter from the SYSTEM statement.

LOAdlist is

Identifies the default load list to be used by the system when searching for programs.

SYSLOAD

Directs the system to use the predefined SYSLOAD load list.

SYSLOAD is the default when you omit the LOADLIST parameter from the SYSTEM statement.

load-list-name

Directs the system to use a user-defined load list. *Load-list-name* must be the name of a load list defined by means of the system generation LOADLIST statement.

LOG

Defines the system log file.

DATabase

Directs the system log to the log area (DDLDCLOG) of the data dictionary.

FILE1

Directs the system log to one or two sequential files and identifies the first (or only) file.

ddname-1

Specifies the z/OS or z/VM ddname of the first log file. The default is CDMSLOGA.

filename-1

Specifies the z/VSE filename of the first log file. The default is CDMSLGA.

COUNT1 ***record-count-1***

Specifies the maximum number of records to write to the first log file. When the specified number of records is reached, the system closes the file and opens the second log file, if one is defined. If a second log file is not defined, the system reopens the first log file.

Record-count-1 can be any positive integer.

The COUNT1 parameter is required when the log is being directed to sequential disk files.

FILE2

Identifies the second of two sequential log files.

ddname-2

Specifies the z/OS or z/VM ddname of the second log file.

filename-2

Specifies the z/VSE filename of the second log file.

COUNT2 ***record-count-2***

Specifies the maximum number of records to write to the alternate log file. When the specified number of records is reached, the system closes the alternate log file and opens the first log file.

Record-count-2 can be any positive integer.

The COUNT2 parameter is required when the log is directed to sequential disk files.

TYPe *device-type*

For z/VSE systems only, specifies the device type of the sequential file to which the log is directed.

Note: For more information about how the system logs errors, see the *CA IDMS System Operations Guide*.

Note: For more information about system currency, see Currency (see page 74).

MAXimum ERUs is *external-request-unit-count*

Specifies the number of EREs to allocate at system startup. *External-request-unit-count* must be an integer in the range 0 through 255. The default is 0.

Specify a value equal to the total number of external request units you allow to execute concurrently in the DC/UCF system plus 10% - 20% of the total number of 3270-type terminals defined to the DC/UCF system.

MAXimum TASks is *task-count*

Specifies the maximum number of application and transient system tasks that can be active at a given time. The system generation compiler uses this value when calculating the number of TCEs to allocate at system startup.

Task-count must be an integer in the range 0 through 255. The default is 0.

Note: For more information about Task-Count, see Task Resource Usage (see page 51), and also the chapter "System Performance" in the *System Operations Guide*.

MESsage RETention is

Specifies the amount of time the system is to retain a message that was created by the SEND command in the queue area. Messages that exceed the specified retention period are deleted automatically at system startup.

message-retention-period

Specifies the message retention period in days.

Limit: 0 - 255 (0 is synonymous with 1; 255 is synonymous with FOREVER)

Default 7 (days)

FORever|OFF

Directs the system not to delete reports based on a retention period. FOREVER and OFF are synonyms and can be used interchangeably.

MULtiple ENClave is

Specifies whether the system allows the same LE process/enclave to be used for multiple COBOL programs in the same task.

ON

Specifies that the same process/enclave can be used for multiple programs.

OFF

Specifies that the same process/enclave cannot be used for multiple programs. This is the default.

MULtiple SIGnon is

Specifies if the same user-ID can be signed on to multiple interactive terminals simultaneously.

YES

Specifies the same user-ID can be signed on to multiple interactive terminals simultaneously.

Notes:

- If you specify MULTIPLE SIGNON YES, you may need to increase the number of LTERMS defined to your DC/UCF system.
- Multiple user signons are automatically allowed for external request units (ERUS). UCF and LU 6.2 external user sessions use interactive terminal types, so that multiple user signons are automatically allowed for them. For more information about ERUS and other external user sessions, see External User Sessions (see page 39).

NO

Specifies the same user-ID cannot be signed on to multiple interactive terminals simultaneously.

NO is the default.

NEW COPy is

Specifies the action the system is to take when a load request for a program in the load area (DDLDCLOD) of the data dictionary names a program that is deleted from its program pool.

MANual

Directs the system not to attempt to load the program until the user issues a DCMT VARY PROGRAM NEW COPY command. The system disables the program and terminates the task or run unit that issued the load request.

MANUAL is the default when you omit the NEW COPY parameter from the SYSTEM statement.

AUTomatic

Directs the system to mark the program for new copy automatically and to reattempt to load the program.

ON COMmit

Specifies options that control commit behavior. These options apply only to commit operations in which the database session remains active.

WRIte COMT

Specifies that a COMT journal record should be written.

WRIte ENDJ

Specifies that an ENDJ journal record should be written.

NEW ID

Specifies that a new local transaction ID should be assigned to the next transaction associated with the database session.

RETain ID

Specifies that the existing local transaction ID should be assigned to the next transaction associated with the database session.

ON ROLlback continue

Specifies options that control rollback behavior. These options apply only to rollback operations in which the database session remains active.

RETain ID

Specifies that following a rollback, the current local transaction ID should be assigned to the next transaction associated with the database session.

NEW ID

Specifies that following a rollback, a new local transaction ID should be assigned to the next transaction associated with the database session.

OPErating system is *operating-system*

Identifies the host operating system under which the DC/UCF system is to run. *Operating-system* must be one of the following values:

Value	Operating System
CMS	z/VM
VSE	z/VSE
MVS	z/OS

If not specified, the operating system defaults to:

- **MVS** for z/OS and z/VM systems
- **VSE** for z/VSE systems

PAGe release is

For z/OS and z/VSE systems only, specifies whether the system is to invoke operating system services (that is, PGRLSE for z/OS systems, RELPAG for z/VSE systems) to release real page frames associated with virtual pages that are no longer required and whose contents do not need to be saved.

YES

Directs the system to use the page release feature. Real page frames associated with virtual pages that are no longer needed are available to other operating system tasks.

z/VSE systems: When you specify YES, the operating system SUPVR macro must specify PAGEIN=*n*.

NO

Directs the system not to use the page release feature. z/OS users should specify NO.

NO is the default when you omit the PAGE RELEASE parameter from the SYSTEM statement.

PRInt KEY is

Specifies the control key to use to print the contents of a terminal screen.

PA*n*

Identifies a program attention key. *N* must be the integer 1, 2, or 3.

PF*n*

Identifies a program function key. *N* must be an integer in the range 1 through 24.

OFF

Indicates that no system-wide print-screen key is defined.

OFF is the default when you omit the PRINT KEY parameter from the SYSTEM statement.

PRInter CHEckpoint is

Specifies the frequency with which the system is to write checkpoints for each report as the report is printed.

page-count

Directs the system to write printer checkpoints for all active reports. The system writes checkpoints for a given report every *page-count* pages. If printing is interrupted (for example, by a task or system abend), the system resumes printing the report at the last checkpoint.

Page-count must be an integer in the range 0 through 32,767. A value of 0 is synonymous with OFF.

OFF

Directs the system not to write printer checkpoints. The system resumes printing interrupted reports at the beginning of the file.

OFF is the default when you omit the PRINTER CHECKPOINT parameter from the SYSTEM statement.

PRInter CONtrol is

Specifies the printer form feed options.

SCS FORmfeed is

Specifies the form feed sequence sent to SCS devices.

FF-NL

Specifies the form feed sequence is "FF" (form feed) followed by "NL" (new line). FF-NL is the default.

FF

Specifies the form feed sequence contains "FF" only.

ON REPort STArt

Specifies what happens when a report starts printing.

FORmfeed for NATive print is

Specifies the form feed processing for native mode print reports.

FORmfeed for NON-Native print is

Specifies the form feed processing for non-native mode print reports.

Parameters for the two FORmfeed options are:

INSert

A form feed is inserted, if needed.

SUPpress

The report never starts with a form feed, i.e., if the report starts with a form feed, it is removed.

NO-Insert

No change to the report contents is made.

SCS CR-LF is

Suppresses the Carriage Return/Line Feed sequence at the beginning of a report transmitted to an SCS printer.

ON REPort END

Specifies what happens when a report finishes printing.

FORmfeed for NATive print is

Specifies the form feed processing for native mode print reports.

FORmfeed for NON-Native print is

Specifies the form feed processing for non-native mode print reports.

Parameters for the two FORmfeed options are:

INSert

A form feed is inserted.

NO-Insert

No form feed is inserted.

OVErriding REPort LINe LENgth is report-line-length

Specifies the line length to be used for all reports generated within a DC/UCF system.

Limits: 0 - 255

If this parameter is 0 (zero) or not specified, the line length used is based on the printer terminal's device type. Because specifying a non-zero value impacts all DC/UCF reports, exercise caution if you set this parameter.

PROgram pool is *program-pool-size*

Specifies the size, in 1K bytes, of the 24-bit program pool.

Program-pool-size must be an integer in the range 4 through 16,383. The default is 50.

Note: For more information about the 24-bit program pool, see Program Pools (see page 61).

PROTect

Enables the use of storage protection. Programs for which the system generation PROGRAM statement specifies PROTECT will run with the alternate protect key defined by the STORAGE KEY parameter.

NOProtect

Disables the use of storage protection. Programs will run with the primary protect key regardless of the PROGRAM statement PROTECT/NOPROTECT specification.

NOPROTECT is the default when you specify neither PROTECT nor NOPROTECT in the SYSTEM statement.

QUEue JOUrnal

Specifies whether the system is to write after images of queue records to the journal file.

Important! If you code the QUEUE JOURNAL parameter immediately following the RUNUNITS parameter, the system generation compiler interprets the keyword QUEUE as a continuation of the RUNUNITS parameter.

BEFore

Directs the system to write only before images of queue records to the journal file. A rollforward operation cannot rebuild queues when you specify QUEUE JOURNAL BEFORE in the system definition.

ALL/YES

Directs the system to write both before and after images of queue records to the journal file.

ALL and YES are synonyms and are used interchangeably.

ALL is the default when you omit the QUEUE JOURNAL parameter from the SYSTEM statement.

QUEue RETention is

Specifies the default time period that the system retains queues that are created dynamically. This value is used only if no retention period is specified when a queue is created. Queues whose retention period has expired are deleted automatically when the system is next started.

queue-retention-period

Specifies the number of days that queues are to be retained.

Limits: 0 - 255 (255 is synonymous with FOREVER; 0 is synonymous with 1)

FORever/OFF

Directs the system not to delete queues based on a retention period. FOREVER and OFF are synonyms that you can use interchangeably.

QUIesce wait is

Specifies if the system permits a task to wait for a quiesce operation to terminate; and if waiting is permitted the amount of time the task waits before it is abnormally terminated.

STAll interval

Specifies the quiesce wait time for a task is the same as the task's stall interval. This is the default.

quiesce-wait-time

Specifies the quiesce wait interval in wall-clock seconds. *quiesce-wait-time* must be an integer in the range 1 through 32,767.

FORever

Directs the system not to terminate tasks based on quiesce wait time.

NOWait

Specifies tasks do not wait for quiesce operations to terminate and instead, receive an error indicating an area is unavailable. For navigational DML requests, this results in an error-status value of 'xx66'.

RCE count is

Specifies the number of resource control elements (RCEs) to allocate at system startup.

rce-count

Directs the system to allocate the specified number of RCEs at startup.

Rce-count must be an integer in the range 0 through 32,767.

DEFault/0

Directs the system generation compiler to calculate the number of RCEs to allocate. DEFAULT and 0 are synonyms and are used interchangeably.

DEFAULT is the default when you omit the RCE COUNT parameter from the SYSTEM statement.

Note: For more information about RCEs, see Resource Management (see page 51).

RCE AUTotune is

Indicates if CA IDMS should automatically tune the RCE count value using execution statistics.

OFF

Turns off automatic tuning of RCE count.

ON

Turns on automatic tuning of RCE count.

Default: OFF

RECovery wait is

Specifies the amount of time the system permits a task to wait for a resource to be recovered by a failed data sharing group member before the task is abnormally terminated.

NOT ALLowed

Directs the system to immediately cancel the task. NOT ALLOWED is the default.

recovery-wait-time

Specifies the recovery wait time in seconds. *Recovery-wait-time* must be an integer in the range 1 through 32,767. A value of zero is treated as if NOT ALLOWED was specified.

FORever

Directs the system to permit a task to wait indefinitely.

REEntrant pool is *reentrant-pool-size*

Specifies the size, in 1K bytes, of the 24-bit reentrant pool. *Reentrant-pool-size* must be an integer in the range 0 through 16,383 and must be large enough to hold the largest reentrant program that will execute under the DC/UCF system. The default is 0.

RELocatable threshold is

Specifies the point at which the system is to write relocatable storage in storage pool 0 to the scratch area (DDLDCSCR) of the data dictionary.

threshold-percentage

Directs the system to write relocatable storage to the scratch area across a pseudo-converse when the amount of used space in the storage pool exceeds the specified threshold.

Threshold-percentage must be an integer in the range 0 through 100. A value of 0 is synonymous with YES. A value of 100 is synonymous with NO.

YES

Directs the system always to write relocatable storage to the scratch area across a pseudo-converse. YES is the default.

NO

Directs the system never to write relocatable storage to the scratch area across a pseudo-converse.

Note: For more information about storage pool 0, see Storage Pools (see page 63).

REPort retention is

Specifies the amount of time the system is to retain a report in the queue area. Reports that exceed the specified retention period are deleted automatically at system startup.

report-retention-period

Specifies the report retention period in days.

Report-retention-period must be an integer in the range 0 through 255. The default is 7. A value of 255 is synonymous with FOREVER.

FORever/OFF

Directs the system not to delete reports based on a retention period.

FOREVER and OFF are synonyms and can be used interchangeably.

RESource timeout

Controls the resource-timeout mechanism.

INTerval is

Specifies the amount of time the system is to wait for input from the terminal operator before invoking the resource timeout program.

resource-timeout-interval

Specifies the resource timeout interval in wall-clock seconds.

Resource-timeout-interval must be an integer in the range 0 through 32,767.

FORever/OFF

Disables the resource-timeout mechanism.

FOREVER and OFF are synonyms and can be used interchangeably.

FOREVER is the default when you omit the RESOURCE TIMEOUT INTERVAL parameter from the SYSTEM statement.

PROgram is resource-timeout-prog-name

Specifies the program the system invokes to handle the resources owned by an inactive terminal when the resource timeout interval expires.

Resource-timeout-prog-name must be the name of a program included in the system definition. The default is RHDCBYE. RHDCBYE deletes all resources owned by the terminal and returns control to the system.

Version version-num

Qualifies the named program with a version number. *Version-num* must be an integer in the range 1 through 9,999. The default is 1.

Note: For more information about the resource-timeout mechanism, see Abend Detection and Timed Functions (see page 43).

RETrieval

Specifies whether the system is to maintain locks automatically for records in areas accessed in shared retrieval usage mode.

LOCk

Directs the system to maintain locks for records in areas accessed in shared retrieval usage mode. Records accessed by retrieval run units are prevented from being updated. However, the maintenance of the additional locks adds overhead.

NOLock

Directs the system not to maintain locks for records in areas accessed in shared retrieval usage mode.

NOLOCK is the default when you omit the RETRIEVAL parameter from the SYSTEM statement.

RLE count is

Specifies the number of resource link elements (RLEs) to allocate at system startup.

rle-count

Directs the system to allocate the specified number of RLEs at startup.

Rle-count must be an integer in the range 0 through 32,767.

DEFault/0

Directs the system generation compiler to calculate the number of RLEs to allocate. DEFAULT and 0 are synonyms and are used interchangeably.

DEFAULT is the default when you omit the RLE COUNT parameter from the SYSTEM statement.

Note: For more information about RLEs, see Resource Management (see page 51).

RLE AUTotune is

Indicates if CA IDMS should automatically tune the RLE count value using execution statistics.

OFF

Turns off automatic tuning of RLE count.

ON

Turns on automatic tuning of RLE count.

Default: OFF

ROUte codes =

For z/OS systems only, specifies operator-message routing codes to pass to the ROUTCDE parameter for write-to-operator (WTO) macros issued by the system.

(Os-routing-code)

Specifies one or more operator-message routing codes, as described in the applicable operating system supervisor services and macro instructions.

Os-routing-code must be an integer in the range 1 through 16. You must separate multiple routing codes by blanks or commas.

0

Clears any previously established operator-message routing codes.

RUNaway interval is

Specifies the maximum amount of time the system is to permit a task to execute without returning control to the system.

runaway-task-time

Specifies the runaway interval in wall-clock seconds.

Runaway-task-time must be an integer in the range 1 through 32,767. The default is 10.

OFF

Directs the system not to check for runaway tasks.

RUNUnits for ... = *run-unit-count*

Specifies the number of predefined run units the system is to initiate at startup to service requests for:

- Load area processing in the system default dictionary
- Message area processing
- Queue area processing
- Security checking for system-level resources such as tasks, queues, and load modules
- Signon processing in the user catalog
- Destination processing in the system default dictionary

Run-unit-count must be an integer in the range 0 through 32,767. The default is 1.

LOAder

Predefines the specified number of run units for load area processing in the default dictionary.

MSGdict

Predefines the specified number of run units for message area processing.

QUEue

Predefines the specified number of run units for queue area processing.

SECurity

Predefines the specified number of run units for security processing on system-level resources.

SIGnon

Predefines the specified number of run units for signon processing in the user catalog.

SYStem/dest

Predefines the specified number of run units for destination processing.

SCRatch in STOrage is

Specifies whether or not scratch information resides in memory.

NO

Specifies that the scratch information is not memory-resident.

YES

Specifies that the scratch information is memory-resident.

LOCation

Controls where memory for the scratch information is allocated with the following options:

ANY|XA|64-bit

Determines the storage location. The storage needed for scratch processing is allocated directly from the operating system and not from the CA IDMS storage pools.

ANY

Acquires 64-bit storage, if possible. If the request to allocate 64-bit storage fails, XA storage is acquired.

XA

Acquires 31-bit storage.

64-bit

Acquires 64-bit storage. If the request to allocate 64-bit storage fails, no attempt to acquire XA storage is done.

Notes:

- SCRATCH IN XA STORAGE IS YES is synonymous to SCRATCH IN STORAGE IS YES LOCATION XA.
- Usage of 64-bit storage is controlled by the MEMLIMIT parameter of the JOB or EXEC JCL statement.

Note: For more information about storage protection, see Storage Protection (see page 68).

PRImary extent is

Specifies the primary scratch allocation size.

prim-size-with-unit

Specifies the size of the initial storage area acquired for scratch use. Enter a number in the range 1-32767 followed by a unit of KB (Kilobyte: 2**10), MB (Megabyte: 2**20), GB (Gigabyte: 2**30), TB (Terabyte: 2**40), or PB (Petabyte: 2**50).

DEFAULT

Specifies the system default value. If the DMCL contains a scratch area definition, the default value is the number of pages in the area multiplied by the page size. If no scratch area is defined in the DMCL, the system default value is 1 MB.

SECondary extent is

Specifies the secondary scratch allocation size.

sec-size-with-unit

Specifies the amount of additional storage acquired when all existing scratch storage is in use. Enter a number in the range 1-32767 followed by a unit of KB (Kilobyte: 2**10), MB (Megabyte: 2**20), GB (Gigabyte: 2**30), TB (Terabyte: 2**40), or PB (Petabyte: 2**50).

DEFAULT

Specifies the system default value. The size of the secondary allocation is equal to the size of the primary allocation.

LIMit is

Specifies the maximum scratch allocation size.

limit-with-unit

Specifies the maximum amount of scratch storage. The system continues to allocate more storage for scratch processing until the sum of all allocations reaches the value specified by *limit-with-unit*. Enter a number in the range 1-32767 followed by a unit of KB (Kilobyte: 2**10), MB (Megabyte: 2**20), GB (Gigabyte: 2**30), TB (Terabyte: 2**40), or PB (Petabyte: 2**50).

DEFAULT

Specifies the system default value. If the DMCL contains a scratch area definition, the default value is the number of pages in the area multiplied by the page size. If no scratch area is defined in the DMCL, the system default value is the size of the primary allocation plus 99 times the size of the secondary allocation.

SNAp SYStem is

Specifies whether to write a system snap dump to the DC/UCF log file. A system snap dump writes a formatted display of the resources allocated to all active tasks.

ON

Enables the writing of a system snap dump. This is the default for the ADD SYSTEM statement.

OFF

Disables the writing of a system snap dump.

Note: For more information about Snap and System dump reading, see the *CA IDMS Navigational DML Programming Guide*.

SNAp SYStem PHOto is

Specifies whether to write a system photo snap to the DC/UCF log file. A system photo snap provides a summary of resources for all active tasks.

ON

Enables the writing of a system photo snap. This is the default for the ADD SYSTEM statement.

OFF

Disables the writing of a system photo snap.

SNAp TASk is

Specifies whether to write a task snap dump to the DC/UCF log file. A task snap dump writes a formatted display of the resources allocated to the task being snapped.

ON

Enables the writing of a task snap dump. This is the default for the ADD SYSTEM statement.

OFF

Disables the writing of a task snap dump.

TRAce is ON|OFF|TASk

Controls the inclusion of trace information in task snaps.

ON

Includes formatted trace information for all tasks in a task snap.

OFF

Includes no trace information in a task snap.

TASk

Includes only trace information for the task for which the snap is being issued.

Default: ON

LIMit is snap-trace-limit|OFF

Limits the number of trace entries reported in a task snap.

snap-trace-limit

Specifies the maximum number of trace entries that are reported in a task snap.

Limit: 0–32767

Default: 1000

Note: A value of 0 is the same as specifying OFF.

OFF

Indicates that there is no limit to the number of trace entries included in a task snap.

SNAp TASk PHOto is

Specifies whether to write a task photo snap to the DC/UCF log file. A task photo snap provides a summary of the resources for the task being snapped.

ON

Enables the writing of a task photo snap. This is the default for the ADD SYSTEM statement.

OFF

Disables the writing of a task photo snap.

STAcksize is *tce-stack-size*

Specifies the size, in words, of the work storage stack in each task control element (TCE).

Tce-stack-size must be an integer in the range 0 through 32,767. The default is 1200.

Note: Usage of the stack increases when the system is extended with applications that run in system mode. Examples of such applications are numbered exits, database procedures, TCP/IP generic listeners (defined with MODE IS SYSTEM), and SQL-invoked routines (defined with SYSTEM MODE).

STATistics

Controls the collection and writing of statistics.

INTerval

Specifies the frequency with which system statistics and histograms are written to the log file.

Regardless of the STATISTICS INTERVAL specification, system statistics and histograms are written to the log at normal system shutdown and upon explicit request by means of a DCMT WRITE STATISTICS command.

Note: If the system is to write statistics based on a time interval, the internal statistics task, RHDCSTTS, and the program it invokes, RHDCSTTS, must both be accessible to the DC/UCF system. If these programs are secured through CA IDMS central security, you should assign them to a category and grant public access to that category. If these programs are secured through an external security package, you should grant public access to them. For more information about the CA IDMS central security facility, see the *CA IDMS Security Administration Guide*.

statistics-interval

Specifies the statistics interval in wall-clock seconds.

Statistics-interval must be an integer in the range 0 through 32,767. A value of 0 is synonymous with OFF.

OFF

Directs the system not to write statistics based on a time interval.

OFF is the default when you omit the STATISTICS INTERVAL parameter from the SYSTEM statement.

ROLl

Directs the system to write system statistics and histograms to the log file and roll them out at specified time and day interval.

If you change the local time while Statistics Interval Roll is active, the interval will continue to be every 24 hours from the local time originally used as input. This means that after a time change, such as to daylight savings time, the statistics will run an hour later or earlier in local time. If you want to reset the statistics so that they run at the original local time, you must either restart your system, where the interval will be reset based on the values in the SYSGEN, or use the DCMT VARY STATISTICS ROLL TIME HH:MM command to reset the interval to the local time.

TIMe is interval-roll-time

Specifies the time of day in twenty-four hour format (HH:MM) at which statistics are to be written and reset. The time is interpreted as local time.

Default: 24:00

FREquency is day-frequency

Specifies the day frequency at which system statistics and histograms are to be written and reset.

Range: 1–999

Default: 1

NOROLl

Directs the system not to perform statistics interval roll.

LINe

Directs the system to collect by-line histograms.

NOLine

Directs the system not to collect by-line histograms.

NOLINE is the default when you specify neither LINE nor NOLINE in the STATISTICS parameter of the SYSTEM statement.

Note: Regardless of the LINE/NOLINE specification, system statistics for lines are always collected.

TASk

Directs the system to collect by-task histograms or task statistics.

TASK is the default when you specify neither TASK nor NOTASK in the STATISTICS parameter of the SYSTEM statement.

COLlect

Directs the system to collect by-task histograms.

COLLECT is the default when you specify neither COLLECT nor WRITE in the STATISTICS TASK parameter of the SYSTEM statement.

WRIte

Directs the system to collect and write task statistics for each task.

Note: Task statistics must be collected to implement limits on task resource usage.

z/VSE systems: Task statistics are collected only if the IDMS$SVC macro is assembled with DC=YES.

USEr

Directs the system to maintain separate task CPU-time statistics for system-mode time and user-mode time.

NOUser

Directs the system to maintain one statistic representing total task execution time.

NOUSER is the default when you specify neither USER nor NOUSER in the STATISTICS TASK parameter of the SYSTEM statement.

TRAnsaction

Enables the collection of transaction statistics.

Note: The collection of transaction statistics must be enabled if CA ADS dialog statistics are collected.

NOTransaction

Disables the collection of transaction statistics.

NOTRANSACTION is the default when you specify neither TRANSACTION nor NOTRANSACTION in the STATISTICS TASK parameter of the SYSTEM statement.

NOTask

Directs the system not to collect by-task histograms or task statistics.

Note: Regardless of the TASK/NOTASK specification, system statistics for tasks are always collected.

STOrage KEY is *storage-protect-key*

Specifies the value of the alternate protect key to use for programs running with storage protection enabled:

- **For z/OS, z/VSE, and z/VM systems**, *storage-protect-key* must be an integer in the range 1 through 15

The default value for *storage-protect-key* is 9.

When key 9, the default, is used as the alternate protect key, the CA IDMS system and the operating system are protected from user written code. However, non-reentrant programs and user storage are not protected from each other. Alternate protect key 9 is explicitly intended for the high performance requirements of the production CV. When key 9 is used as the alternate protect key, all user storage and non-reentrant programs are swapped into key 9 at startup, and only the PSW key is changed during program execution, thereby, providing negligible CPU overhead compared to running without storage protection.

The storage pools must be defined in such a manner that all forms of user-oriented storage are segregated from the system storage. In other words, define both an XA and a non-XA storage pool for user storage types. Storage types: user, user-kept, shared, and shared-kept, can be together, but they must be defined to secondary storage pools and must be isolated from any secondary pools that contain database or terminal type storage. Program development should not be done with key 9 as the alternate protect key.

STOrage POOl is *storage-pool-size*

Specifies the size, in 1K bytes, of storage pool 0 (the primary storage pool).

Storage-pool-size must be an integer in the range 1 through 16,383. The default is 50.

SVC is

Specifies whether a CA IDMS SVC is used for communication between the DC/UCF system and programs executing in other regions/partitions.

svc-number

Identifies the CA IDMS SVC.

Svc-number must be an integer in the range 1 through 255.

If a SYSCTL file is defined, the value specified by the SVC parameter is written to the SYSCTL file at system startup.

NO

Specifies the system does not use an SVC for communication.

NO is the default when you omit the SVC parameter from the SYSTEM statement.

z/VM systems: The IDMSVSVC module, and not the CA IDMS SVC, is used for communication under z/VM. The SYSTEM statement, therefore, must specify SVC IS NO.

SYSctl is

Defines the system control (SYSCTL) file batch programs requesting database services from the DC/UCF system will use.

ddname

Specifies the z/OS or z/VM ddname of the SYSCTL file.

filename

Specifies the z/VSE filename of the SYSCTL file.

Note: To change the filename for z/VSE, the filename must also be included in an idmsopti module.

SYSctl

Specifies SYSCTL as the default value for the z/OS ddname, or the z/VSE filename of the SYSCTL file.

DBName is

Identifies the database or data dictionary to which the system will route requests from programs using the SYSCTL file.

database-name

Specifies a database name included in the SYSCTL file.

Database-name must be the name of a database accessible by the system being defined or by the system identified by the NODENAME parameter.

DEFault

Indicates that a program using the SYSCTL file will access the named database only if neither the IDMSOPTI module nor the program name a database.

DEFAULT is the default when you specify neither DEFAULT nor ALWAYS in the SYSCTL DBNAME parameter of the SYSTEM statement.

ALWays

Indicates that programs using the SYSCTL file will always access the named database.

NULl

Specifies the SYSCTL file will not contain a database name.

NODename is

Identifies the nodename (*system-name* of SYSTEM ID parameter) to which the system will route requests from programs using the SYSCTL file.

node-name

Specifies a node name to be included in the SYSCTL file.

Node-name must be the name of a DC/UCF system defined in the CA IDMS communications network.

DEFault

Indicates that database requests from programs using the SYSCTL file are directed to the named node only if neither the IDMSOPTI module nor the program name a node.

DEFAULT is the default when you specify neither DEFAULT nor ALWAYS in the SYSCTL NODENAME parameter of the SYSTEM statement.

ALWays

Indicates that database requests from programs using the SYSCTL file are always directed to the named node.

NULl

Specifies the SYSCTL file will not contain a node name.

NO

Specifies that programs requesting services from the DC/UCF system will not use a SYSCTL file.

NO is the default when you omit the SYSCTL parameter from the SYSTEM statement.

SYSLocks is *system-lock-count*

Estimates the maximum number of database locks that will be held at one time within the system.

System-lock-count must be an integer in the range 1 through 2,147,483,647.

The default is 40,000.

SYSLocks AUTotune is

Indicates if CA IDMS should automatically tune the SYSLOCKS parameter value using execution statistics.

OFF

Turns off automatic tuning of SYSLOCKS.

ON

Turns on automatic tuning of SYSLOCKS.

Default: OFF

SYSTrace

Enables or disables the system trace facility.

ON

Enables the system trace facility.

OFF

Disables the system trace facility. Typically, OFF is specified in production environments to eliminate storage and processing overhead.

OFF is the default when you omit the SYSTRACE parameter from the SYSTEM statement.

TRAce

Specifies system trace options.

TABle SIZe table-size KB|MB

Specifies the size of the system trace table in kilobytes (KB) or megabytes (MB).

Limit: 0–9999

Default: 4 MB

Note: Two copies of the system trace table are allocated on all z/OS systems.

ADJunct table SIZe adjunct-size KB|MB

Specifies the size of the adjunct trace table in kilobytes (KB) or megabytes (MB).

Limit: 0–9999

Default: 0

SAVe ON|OFF

Controls whether trace information is saved for future reporting.

ON

Enables saving of trace information.

■Adjunct trace table entries are saved if an adjunct trace table has been allocated. If no adjunct trace table has been allocated system trace table entries are saved.

■Trace entries are written to the trace area if one is defined in the run time DMCL, or they are written to the log area if one is defined. If neither area is defined no trace information is saved.

OFF

Disables saving of trace information.

Default: OFF

TICker interval is *time-check-interval*

Specifies the frequency, in wall-clock seconds, with which the system is to check timed functions (such as the runaway interval).

Time-check-interval must be an integer in the range 1 through 32,767. The default is 1.

z/VSE systems with BTAM terminals should accept the default value of 1. The recommended value for all other systems is 5.

UNDefined program count is

Specifies the number of null program definition elements (PDEs) to make available to the system.

primary count

Specifies the number of null PDEs to include in the program definition table at system startup.

Primary-count must be an integer in the range 0 through 32,767. The default is 0.

secondary-count

Specifies the number of null PDEs to include in secondary allocations of null PDEs.

When all existing null PDEs, if any, are occupied, the system allocates additional null PDEs from Storage pool 0. Secondary-count must be an integer in the range 0 through 32,767. The default is 0. If the secondary count equals 0, the system will terminate tasks requesting null PDEs when all the null PDEs allocated at startup are occupied. The comma separating the primary and secondary count values is optional.

FOR

Identifies the types of programs that are eligible for automatic definition. Enclose the program type specification in parentheses. Multiple types must be separated by blanks or commas. Program types not included in the FOR parameter are ineligible for automatic definition.

For example, FOR (DIALOGS MAPS TABLES) disallows automatic definition of subschemas.

Note: At runtime, the DC/UCF system enforces restrictions on automatic definition only for programs that reside in the load area of a data dictionary and subschemas that reside in a load library. Dialogs, maps, and tables that reside in a load library are always eligible for automatic definition.

ACCess MODule

Allows automatic definition of access modules. An access module is an executable form of the SQL statements that programs issue when using the CA IDMS SQL.

DIAlogs

Allows automatic definition of dialogs created by the CA ADS dialog compiler (ADSC or ADSOBCOM).

MAPs

Allows automatic definition of maps created by the CA IDMS Mapping Facility.

SUBschemas

Allows automatic definition of subschemas created by the subschema compiler.

TABles

Allows automatic definition of edit and code tables created by the IDD DD compiler.

ALL

Allows automatic definition of CA ADS dialogs, maps, edit, and code tables, and subschemas.

ALL is the default when you omit the FOR parameter from the UNDEFINED PROGRAM COUNT parameter in the SYSTEM statement.

TRAnsaction SHAring is

Specifies the default transaction sharing option for all tasks within the system.

OFF

Specifies transaction sharing is disabled for all tasks in the system.

ON

Specifies transaction sharing is enabled for all tasks in the system.

UPDate

Specifies whether the system is to maintain locks automatically for records in areas accessed in protected update usage mode.

LOCk

Directs the system to maintain locks for records in areas accessed in protected update usage mode. Records updated are not accessed by retrieval run units. However, the maintenance of the additional locks adds overhead.

Typically, LOCK is specified in conjunction with the RETRIEVAL LOCK parameter.

NOLock

Directs the system not to maintain locks for records in areas accessed in protected update usage mode.

NOLOCK is the default when you omit the UPDATE parameter from the SYSTEM statement.

USErtrace

Determines the size of the buffer the user trace facility uses at runtime.

ON entries = user-trace-buffer-entry-count

Specifies the number of words allocated to the user trace buffer when the user trace facility is enabled for a terminal. Each user trace entry requires approximately 25 words of storage.

User-trace-buffer-entry-count must be an integer in the range 1 through 9,999.

OFF

Specifies the system will allocate a minimum user trace buffer of 253 words (or approximately 10 entries) when the user trace facility is enabled for a terminal.

OFF is the default when you omit the USERTRACE parameter from the SYSTEM statement.

XA PROgram pool is *xa-program-pool-size*

For systems supporting 31-bit addressing only, specifies the size, in 1K bytes, of the 31-bit program pool. *Xa-program-pool-size* must be an integer in the range 0 through 2,097,151. The default is 0.

Note: An XA PROGRAM pool may be added, or it's size changed, at system generation time. At runtime, the DCMT VARY SYSGEN REFRESH command with the PROGRAM POOL option makes the change effective.

XA REEntrant pool is *xa-reentrant-pool-size*

For systems supporting 31-bit addressing only, specifies the size, in 1K bytes, of the 31-bit reentrant pool. *Xa-reentrant-pool-size* must be an integer in the range 0 through 2,097,151. The default is 0.

Note: An XA REENTRANT pool may be added, or it's size changed, at system generation time. At runtime, the DCMT VARY SYSGEN REFRESH command with the PROGRAM POOL option makes the change effective.

XA STOrage pool is *xa-storage-pool-size*

For systems supporting 31-bit addressing only, specifies the size, in 1K bytes, of storage pool number 255 (31-bit storage pool). Storage pool 255 is used to allocate XA storage for database processing.

Xa-storage-pool-size must be an integer in the range 0 through 2,097,151. The default is 0.

Use the XA STORAGE POOL statement to define storage pools 128 through 254. These storage pools are used to allocate XA storage for user applications.

Note: An XA STORAGE pool may be added, or it's size changed, at system generation time. At runtime, the DCMT VARY SYSGEN REFRESH command with the STORAGE POOL option makes the change effective.

ALL

In DISPLAY/PUNCH statements only, directs the system generation compiler to display or punch the entire system definition (that is, the system entity and all entities associated with the specified system).

CURrent SYStem

In DISPLAY/PUNCH statements only, directs the system generation compiler to display or punch the definition of the current system.

SYSTEM Statement Usage

The SYSTEM ID Parameter

The name you specify as the *system-name* on the SYSTEM ID parameter of the SYSTEM statement is the identifier of the DC/UCF system you are defining. *System-name* is the nodename of the DC/UCF system and should be specified as the object of a nodename variable as appropriate. Additionally, *system-name* is the name you should specify when creating the resource SYSTEM as part of CA IDMS central security set-up.

Using AUTOTUNING

To use auto-tuning, change tracking must be active for the DC/UCF system, since statistical information needed for tuning is captured in the SYSTRK files.

New DCMT commands display and reset values used in tuning.

While the use of auto-tuning can be beneficial in many situations, it is not recommended under the following conditions:

- If a system is normally active for only short durations (less than 24 hours).
- If a parameter must be set to accommodate a rarely-executed workload.

Choosing an Area Acquisition Threshold

Before the area acquisition threshold count is reached, the system will free locks on areas previously locked by the database transaction if the transaction must wait to place a lock on another area. Once the threshold is reached, the system will not release existing area locks before waiting for a new area lock.

You should specify the default of OFF RETRY FOREVER unless experience shows that a database transaction is not gaining access to areas as needed.

Choosing a Deadlock Detection Interval

Always set the DEADLOCK DETECTION INTERVAL parameter to 1.

System-Internal Parameters

DPE COUNT is a system-internal parameter. You should accept the default value unless experience indicates that this value is insufficient to meet processing needs.

ECB LIST is a system-internal parameter; you should accept the default value unless experience indicates that this value is insufficient to meet processing needs.

RCE COUNT is a system-internal parameter; you should accept the default value unless experience indicates that this value is insufficient to meet processing needs.

RLE COUNT is a system-internal parameter; you should accept the default value unless experience indicates that this value is insufficient to meet processing needs.

The ECB List

The ECB list is used to synchronize events between the DC/UCF system and the host operating system. The list contains pointers to ECBs for each task waiting for an operating system event (for example, a disk read). Upon completing an event for which a task is waiting, the operating system posts the appropriate ECB. The DC/UCF system can then dispatch the waiting task.

Journaling Retrieval Run Units

Specifying NOJOURNAL reduces the size of the journal file; however, potentially valuable audit-trail and statistical information is not recorded.

Regardless of the JOURNAL/NOJOURNAL specification, the system always writes the following records to the journal file:

- BFOR and AFTR entries
- TIME, AREA, and ABRT checkpoints
- Records written by a user program

Specifying a Journal Fragment Interval

If your journal files are large, a journal fragment interval can significantly enhance warmstart processing. The warmstart logic begins its recovery processing at the most recently accessed journal fragment. Additionally, used with the journal driver task, a journal fragment interval can result in journal records being written to the journal more quickly thus reducing journal file bottlenecks.

To activate the journal fragment interval, you must specify a journal fragment interval of at least 100.

Specifying a Journal Transaction Level

You can reduce journal I/O activity by activating the journal transaction level and specifying the point at which CA IDMS will defer the writing of journal buffers to the journal file. Instead, CA IDMS will wait until the journal buffer is full or until the number of active transactions drops below the journal transaction level, before writing the journal buffer to the journal file.

Specify at least a journal transaction level of 4.

Specifying a Print-Screen Key

The print-key specification overrides the control-key assignments in the keys table used for online products in the CA IDMS environment. For example, if the keys table for online IDD assigns PF12 the function of printing the entire work file and the SYSTEM statement names PF12 as the print-screen key, PF12 will print only the current screen during an online IDD session. For more information about keys tables, see KEYS Statement (see page 225).

Note: The transfer control facility (TCF) uses PF3 and PF9 for the TERMINATE and SUSPEND functions. If you define the system-wide print-screen key as PF3 or PF9, be sure to specify an override for tasks that execute under TCF. You use the system generation TASK statement to override the print-screen key for individual tasks. For more information about the TASK statement, see TASK Statement (see page 291).

Adjusting the TCE Stack Size

The recommended value for the STACKSIZE parameter is 1200. Use this value unless experience indicates it is insufficient to meet processing needs. Runtime task abend code D009 and system abend code 3973 indicate that the storage stack size requires adjustment.

No CA IDMS SVC under z/OS or z/VSE

If the SYSTEM statement specifies SVC IS NO under z/OS or z/VSE:

- Batch programs cannot communicate with the system.
- Programs executing under a TP monitor can communicate with the system only if the TP monitor is running in the same region/partition as the DC/UCF system (that is, in attach mode). In this case, the SYSCTL parameter of the SYSTEM statement must identify a system control file.
- Storage protection is not functional.
- The runaway-interval mechanism is not available.
- The system cannot include XA program and storage pools.
- The IDMSUSVC module must be link edited with the DC/UCF startup routine.

The System Trace Facility

The system trace facility is used to trace system events during the development and debugging of user programs and can be managed at run time with the DCMT DISPLAY SYSTRACE and DCMT VARY SYSTRACE commands. When the system trace facility is enabled, each database or teleprocessing request is traced through the system service modules used in processing the request.

System trace information is recorded in a trace table buffer allocated at system startup. Each entry in the trace table contains the task id, the request type, and the contents of registers 11 through 16 and 1 through 8 for a service request. When the trace table becomes full, the system begins recording new entries at the beginning of the table, overwriting previously written entries. When a program issues a SNAP request, the system writes the trace table to the log.

Automatic Program Definition

Null PDEs are used for the automatic definition of programs not defined by PROGRAM statements during system generation. When you execute a program that is eligible for automatic definition, the system uses a null PDE for the program definition.

Programs that are not eligible for automatic definition must be explicitly defined either during system generation by means of the PROGRAM statement or at runtime by means of the DCMT VARY DYNAMIC PROGRAM command.

More Information:

- For more information about the PROGRAM statement, see PROGRAM Statement (see page 260).
- For more information about the DCMT commands, see the *CA IDMS System Operations Guide*.

The User Trace Facility

The user trace facility is used for debugging purposes.

When the user trace facility is enabled for a terminal, information on requests issued from the terminal is recorded in the user trace buffer. When the buffer becomes full, new entries are written to the beginning of the buffer; previously recorded entries are overwritten.

The user trace facility is enabled at runtime by means of either the DCUF USERTRACE command or the DCMT VARY LTERM command.

Specifying commit and rollback options:

You can specify options that control the following commit and rollback behavior.

- The type of journal record written on a commit
- Whether a new local transaction ID is assigned on a rollback continue or commit

You can control whether a COMT or ENDJ journal record is written on a commit operation in which the database session remains active. Writing an ENDJ can reduce recovery time because less data has to be examined to locate the start of a recovery unit. This benefit applies to online recovery, warmstart, and ROLLBACK and ROLLFORWARD recovery operations. ENDJ is most beneficial in cases where long-running transactions perform relatively infrequent updates between commit operations. In cases where update transactions are committed frequently, writing ENDJ journal records can negatively impact the amount of information journaled because another BEGN journal record will have to be written before the first update following a commit operation.

Note: ENDJ journal records are always written when system rununits are committed, regardless of the ON COMMIT option specified.

You can control whether a new local transaction ID is assigned following a commit or rollback operation in which the database session remains active. Assigning a new transaction ID reduces the chance of duplicate IDs should this value wrap within a single cycle of a central version. It also has the effect of recording journal statistics separately by commit recovery unit rather than across all recovery units within a database transaction. You can assign a new ID on a commit operation only if you also specify that an ENDJ checkpoint record be written.

Note: A new transaction ID is always assigned when system run units are committed or rolled out.

Task Snap Dump and System Snap Dump Options

A task snap can provide useful information when developing and debugging user programs. These options can be overridden dynamically by the DCMT command at the Task and Program level.

Example: SYSTEM Statements

Adding a System

The following SYSTEM statement shown adds DC/UCF system 80 to the data dictionary. Parameters not explicitly coded default as indicated in the syntax.

```
ADD SYSTEM 80
    CUSHION IS 6
    DEADLOCK DETECTION INTERVAL IS 300
    DUMP
    GENERATION IDENTIFICATION IS SYS80
    INACTIVE INTERVAL IS 300
    NOJOURNAL RETRIEVAL
    LOG DATABASE
    MAXIMUM ERUS IS 10
    MAXIMUM TASKS IS 13
    OPERATING SYSTEM IS MVS
    PRINT KEY IS PF12
    PRINTER CHECKPOINT IS 50
    PROGRAM POOL IS 100
    REENTRANT POOL IS 300
    RESOURCE TIMEOUT INTERVAL IS 1800
    RUNAWAY INTERVAL IS 60
    RUNUNITS
      FOR MSGDICT = 2
      FOR SIGNON = 2
      FOR SECURITY = 1
      FOR SYSTEM/DEST = 2
    SNAP SYSTEM OFF
    SNAP SYSTEM PHOTO OFF
    STACKSIZE IS 1200
    STATISTICS INTERVAL 3600
    STORAGE POOL IS 345
    SVC IS 173
    SYSCTL IS SYSCTL
    SYSLOCKS IS 1200
    SYSTRACE ON ENTRIES = 250
    TICKER INTERVAL IS 5
    USERTRACE ON ENTRIES = 500.
```

Modifying a System

The following SYSTEM statement modifies the definition of DC/UCF system 80. Parameters not explicitly coded remain unchanged.

```
MODIFY SYSTEM 80
    NODUMP.
```

Displaying a System

The SYSTEM statement shown next, if issued after the MODIFY SYSTEM 80 statement shown above, displays the definition of DC/UCF system 80. The display options default as specified in the SET OPTIONS statement.

```
DISPLAY CURRENT SYSTEM.
```

The SET OPTIONS statement is described in SET OPTIONS Statement (see page 99).

Deleting a System

The following SYSTEM statement deletes the definition of DC/UCF system 80 from the data dictionary.

```
DELETE SYSTEM 80.
```

Non-Stop Processing

This chapter describes the enhancements that enable CA IDMS to support continuous operations.

Expanded Statistics Fields

Several fields used to collect CA IDMS run-time statistics have been enlarged to accommodate the larger values that can be expected with faster processors and non-stop operations.

The field size has been increased from single to double words for statistics related to storage management and CPU utilization. These changes affect the following DSECTs:

- #SCADS—Subtask control area
- #SCTDS—Storage control table
- #SMTDS—Storage management table

The following system tasks and operator commands now display larger values:

- OPER WATCH STORAGE SUBPOOL
- OPER WATCH STORAGE POOL USAGE <nn>
- DCMT DISPLAY ACTIVE STORAGE <pool number>
- DCMT DISPLAY MPMODE
- DCMT DISPLAY STATISTICS SYSTEM
- DCMT DISPLAY SUBTASKS
- DCMT DISPLAY SUBTASK <nn>

Where space is limited on the output screen, large values are displayed in scientific notation.

Chapter 7: System Generation Statements

The system generation statements presented in this chapter are used to define the component entities of a DC/UCF system, with the exception of the teleprocessing network entities. Statements used to define the teleprocessing network are described in Teleprocessing Network Statements (see page 317).

Statements in this chapter are presented in alphabetical order. The description of each statement is accompanied by syntax, syntax rules, and examples.

ADD/MODIFY/DELETE and DISPLAY/PUNCH syntax for each entity type are presented together. Syntax rules follow the presentation of both types of syntax. Options that apply to only one verb are noted in the rules. Syntax rules presented are not repeated unless special considerations apply.

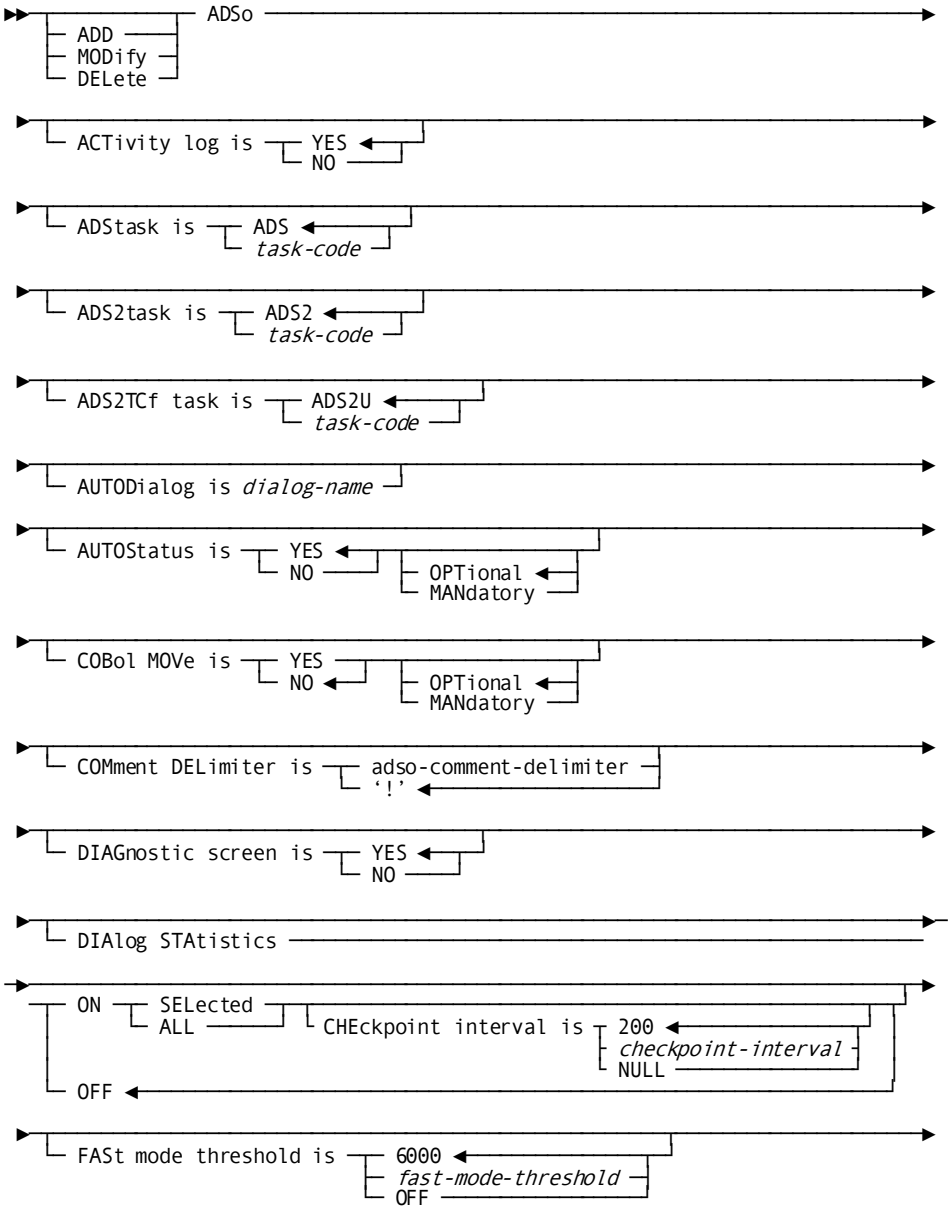
This section contains the following topics:

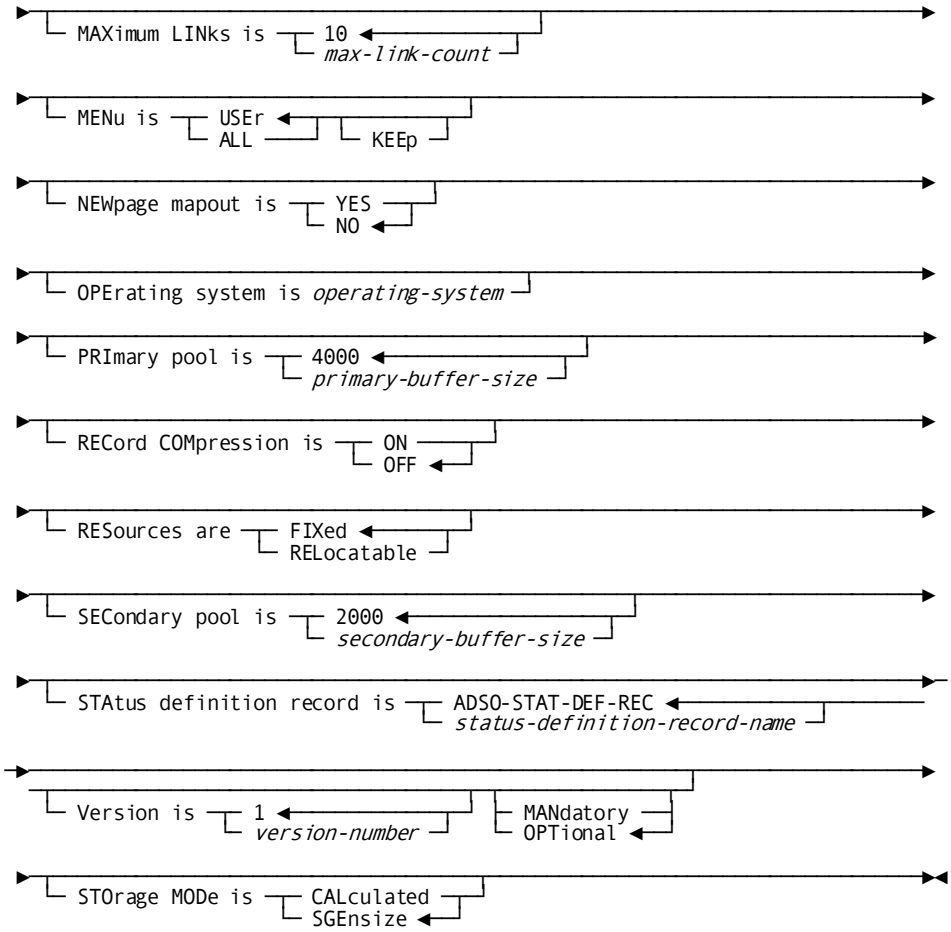
ADSO Statement—Define CA ADS Generation

The ADSO statement is used to define the CA ADS generation and runtime environments. This statement supplies information used by the DC/UCF system to build the CA ADS control block (OCB). The ADSO statement is required if CA ADS is to be used with a DC/UCF system.

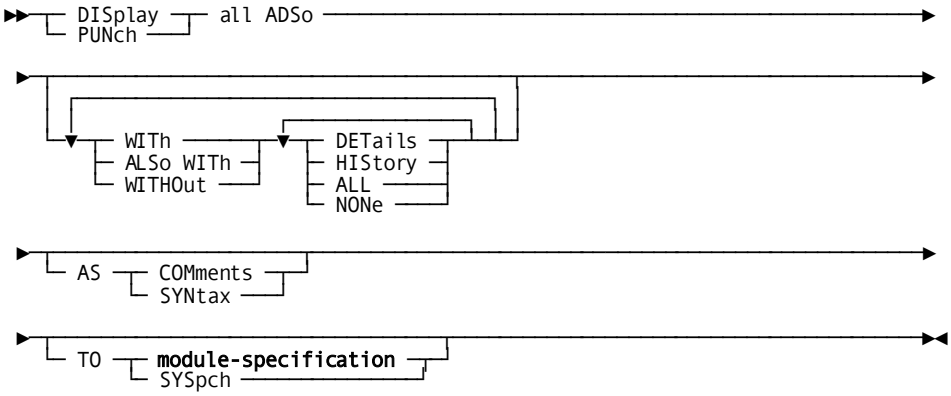
CA ADS/Batch users: If ADSO statement parameters are modified, a new ADSOOPTI load module must be generated by running ADSOBSYS. For instructions on running the ADSOBSYS utility, see the *CA ADS Reference Guide*.

ADSO Statement Syntax





DISPLAY/PUNCH ADSO Statement



ADSO Statement Parameters

ACTivity log is

Requests the CA ADS dialog compiler to perform activity logging for database commands in a dialog. Database activity records document potential dialog database activity and are stored in the dictionary when the dialog is generated.

YES

Enables activity logging.

YES is the default when you omit the ACTIVITY LOG parameter from the ADSO statement.

NO

Specifies no activity logging is performed.

ADStask is *task-code-a*

Specifies the task code used to invoke the CA ADS runtime system. *Task-code* must be a task code that invokes the program ADSORUN1, as defined in the data dictionary with a TASK statement. The default is ADS.

ADS2task is *task-code*

Specifies the secondary task code used to invoke the CA ADS runtime system when *not* running under the CA IDMS Transfer Control Facility (TCF). (The ADS2TCF parameter, described below, defines the secondary task code under TCF.) This task code is used internally by CA ADS and will never be entered by the terminal operator.

Task-code must be a task code that invokes the program ADSOMAIN, as defined in the data dictionary with a TASK statement. The default is ADS2.

ADS2TCf task is *task-code*

Specifies the secondary task code used to invoke the CA ADS runtime system while running under TCF. This task code is used internally by CA ADS and will never be entered by the terminal operator.

Task-code must be a task code that invokes the program ADSOMAIN, as defined in the data dictionary with a TASK statement. The default is ADS2U.

AUTODialog is *dialog-name*

Specifies a dialog to be initiated automatically when the terminal operator invokes the CA ADS runtime system but does not enter a dialog name or ADSA application task code.

Dialog-name must be the name of a mainline dialog accessible to the terminal operator at runtime.

AUTOStatus is

Specifies the default AUTOSTATUS setting for dialog generation sessions.

YES

Enables AUTOSTATUS for all dialogs at the beginning of a dialog generation session.

YES is the default when you omit the AUTOSTATUS parameter from the ADSO statement.

NO

Disables AUTOSTATUS at the beginning of a dialog generation session.

OPTional

Allows the application developer to override the default AUTOSTATUS setting during dialog generation.

OPTIONAL is the default when you specify neither OPTIONAL nor MANDATORY in the AUTOSTATUS parameter of the ADSO statement.

MANdatory

Prevents the application developer from changing the default AUTOSTATUS setting during dialog generation.

COBol MOVe is

Defines the treatment of numeric values placed into alphanumeric fields by arithmetic and assignment commands. The COBOL MOVE parameter assigns the default option displayed on the CA ADS dialog compiler Dialog Options screen.

YES

Indicates that CA ADS automatically moves the result of an arithmetic or assignment command into the target field according to standard COBOL rules.

NO

Indicates that CA ADS automatically moves the result of an arithmetic or assignment command into the target field according to standard CA ADS rules.

NO is the default when you omit the COBOL MOVE parameter from the ADSO statement.

OPTional

Indicates the application developer can change the COBOL MOVE setting on a dialog-by-dialog basis.

MANdatory

Indicates the application developer cannot change the COBOL MOVE setting on a dialog-by-dialog basis.

Note: For more information about the COBOL MOVE parameter, see the *CA ADS Reference Guide*.

COMment DELimiter is 'adso-comment-delimiter'

Specifies the character to be used as the comment delimiter. adso-comment-delimiter must be a single character enclosed in single quotes.

Default: An exclamation mark ('!')

DIAGnostic screen is

Controls the display of the Dialog Abort Information screen when the CA ADS runtime system detects an abend condition in an executing dialog.

YES

Indicates that CA ADS will display the Dialog Abort Information screen and will write error messages to the system log.

YES is the default when you omit the DIAGNOSTIC SCREEN parameter from the ADSO statement.

NO

Indicates that CA ADS will not display the Dialog Abort Information screen. When the runtime system terminates an abending dialog, CA ADS writes error messages to the system log and displays the following to the terminal operator:

```
ERROR OCCURRED DURING PROCESSING. CA ADS
DIALOG ABORTED.
```

DIAlog STAtistics

Specifies whether dialog statistics will be collected for CA ADS dialogs.

Note: Users can override DIALOG STATISTICS parameter options at runtime by means of the DCMT VARY ADSO STATISTICS command. DCMT commands are described in *CA IDMS System Tasks and Operator Commands Guide*.

Note: CA ADS/Batch dialog statistics collection is enabled by means of the ADSOBSYS utility.

ON

Indicates that dialog statistics and application overhead activity statistics are collected.

CA ADS dialog statistics are collected only if transaction statistics collection is enabled.

SELected

Enables statistics collection for dialogs on a dialog-by-dialog basis in conjunction with the DIALOG STATISTICS parameter of the PROGRAM statement (described in PROGRAM Statement.)

ALL

Enables statistics collection for all dialogs.

CHEckpoint interval is

Specifies the frequency with which dialog statistics are written to the system log file. The checkpoint interval is based on the number of times statistics are accumulated for any dialog.

checkpoint-interval

Specifies that dialog statistics are written to the log file after being accumulated the indicated number of times.

Checkpoint-interval must be an integer in the range 0 through 32,767. The default is 200. A value of 0 is synonymous with NULL.

NULL

Specifies that no checkpoint interval applies and that statistics records are written to the log file after an application terminates.

OFF

Indicates that no dialog statistics will be collected.

OFF is the default when you omit the DIALOG STATISTICS parameter from the ADSO statement.

Note: For more information about dialog statistics, see the *System Operations Guide.*

FASt mode threshold is

Specifies the point at which the CA ADS runtime system is to write record buffer blocks (RBBs) and statistics control blocks to the scratch area (DDLDCSCR) of the data dictionary across a pseudo-converse. If the total size, in bytes, of the RBBs and statistics control blocks in all storage pools exceeds the fast mode threshold (specified in bytes), and if the ADSO statement specifies RESOURCES ARE FIXED, the system writes the RBBs and statistics control blocks to scratch.

Note: If the ADSO statement specifies RESOURCES ARE RELOCATABLE, the system writes RBBs and statistics control blocks to scratch across a pseudo-converse regardless of the FAST MODE THRESHOLD specification.

fast-mode-threshold

Specifies the fast mode threshold in bytes.

Fast-mode-threshold must be an integer in the range 0 through 2,147,483,647. The default is 6,000.

0 directs the system always to write RBBs and statistics control blocks to scratch across a pseudo-converse.

OFF

Directs the system never to write RBBs and statistics control blocks to scratch across a pseudo-converse if the ADSO statement specifies RESOURCES ARE FIXED.

MAXimum LINks is *max-link-count*

Specifies the maximum number of dialog levels that can be established by each CA ADS application thread.

Max-link-count must be an integer in the range 0 through 9,999. The default is 10.

The value specified for *max-link-count* should be equal to at least 3. A value of 5 is sufficient for most systems.

Important! Some CA products are CA ADS applications. Specifying too low a value for the MAXIMUM LINKS parameter will affect the performance of these products.

MENu is

Controls the display of mainline dialogs on the CA ADS runtime system Dialog Selection screen.

USEr

Specifies that CA ADS will display a mainline dialog on the menu screen only if the user holds the authority to execute the dialog.

For more information about security, see the *CA IDMS Security Administration Guide*.

USER is the default when you omit the MENU parameter from the ADSO statement.

ALL

Specifies that CA ADS will display all mainline dialogs on the menu screen.

KEEP

Directs CA ADS to save the menu screen across pseudo-converses. If you do not specify KEEP, CA ADS rebuilds the menu screen each time it is displayed.

NEWpage mapout is

Specifies how CA ADS is to perform a mapout when a dialog's map is already displayed as the result of a previous mapout.

YES

Indicates that CA ADS will always perform a new page mapout, mapping out literal fields as well as data, message, and page fields.

NO

Indicates that CA ADS will transmit only the map's data fields, message field, and page field (pageable maps only). A new page mapout that includes literal fields will occur, however, if problems have occurred or if the terminal operator has pressed the CLEAR key prior to the last mapin.

NO is the default when you omit the NEWPAGE MAPOUT parameter from the ADSO statement.

Note: If the BACKSCAN option is enabled for any of the map's data fields, data from the previous mapout may remain in the fields.

PRImary pool is *primary-buffer-size*

Specifies the size, in bytes, of the primary buffer. The primary buffer is acquired at runtime for any CA ADS dialog that uses a database, map, subschema, logical, or work record and is used to hold those records. The primary buffer can be allocated from storage pool 0 or from an XA storage pool if one is defined. The LOCATION parameter on the ADS task statement determines where storage is allocated. Storage can be obtained from pool 0 or an XA storage pool when LOCATION=ANY is specified. LOCATION=BELOW gets storage from pool 0. If the primary buffer becomes full, CA ADS allocates storage for a secondary buffer, also determined by the LOCATION parameter (see the SECONDARY POOL parameter).

Primary-buffer-size must be an integer in the range 0 through 2,147,483,647; the default is 4,000.

Note: The size of the primary buffer for CA ADS/Batch dialogs is specified by the ADSOBSYS utility.

RECord COMpression is

Specifies whether record buffer blocks (RBBs) are compressed across a pseudo-converse when they are retained in the storage pool.

ON

Specifies that RBBs are compressed across a pseudo-converse and restored at the end of the pseudo-converse.

OFF

Specifies that RBBs are not compressed across a pseudo-converse.

OFF is the default when you omit the RECORD COMPRESSION parameter from the ADSO statement.

RESources are

Specifies whether storage used by the CA ADS runtime system is eligible for writing to the scratch area (DDLDCSCR) of the data dictionary across a pseudo-converse.

FIXed

Indicates that:

- **Storage used for record buffer blocks (RBBs) and statistics control blocks** is written to scratch across a pseudo-converse only when the fast mode threshold is exceeded. You use the ADSO statement FAST MODE THRESHOLD parameter (described above) to establish a fast mode threshold.
- **Storage used for currency blocks, CA ADS terminal blocks (OTBs), OTB extensions, and variable dialog blocks (VDBs)** is not eligible for writing to scratch.

RELocatable

Indicates that:

- **Storage used for RBBs and statistics control blocks** is always written to scratch across a pseudo-converse, regardless of the relocatable threshold.
- **Storage used for currency blocks, OTBs, OTB extensions, and VDBs** is written to scratch across a pseudo-converse only when the relocatable threshold is exceeded.

You use the RELOCATABLE THRESHOLD parameter of the SYSTEM statement to define a relocatable threshold for the primary storage pool.

You use the RELOCATABLE THRESHOLD parameter of the system generation STORAGE POOL and XA STORAGE POOL statements to define relocatable thresholds for secondary storage pools.

The SYSTEM statement is described in SYSTEM Statement (see page 137).

The STORAGE POOL and XA STORAGE POOL statements are described later in this section.

SECondary pool is *secondary-buffer-size*

Specifies the size, in bytes, of the secondary buffer. When the primary buffer becomes full, the secondary buffer is allocated either from the DC/UCF system storage pool 0 or from the XA storage pool (see the PRIMARY POOL parameter above). If the secondary buffer becomes full, the CA ADS system allocates additional secondary buffers as necessary.

Secondary-buffer-size must be an integer in the range 0 through 2,147,483,647. The default is 2,000.

Note: The size of the secondary buffer for CA ADS/Batch dialogs is specified by the ADSOBSYS utility.

STAtus definition record is *status-definition-record-name*

Specifies the default status definition record used by both CA ADS and CA ADS/Batch dialogs to reference error-status values returned by executing dialogs.

Status-definition-record-name must be the name of a status definition record previously defined in the data dictionary. The default is ADSO-STAT-DEF-REC.

Version is *version-number*

Qualifies the named status definition record with a version number.

Version-number must be an integer in the range 1 through 9,999. The default is 1.

OPTional

Allows the application developer to override the default status definition record specification during dialog generation. The application developer can supply the name of an alternate status definition record for each generated dialog.

OPTIONAL is the default when you specify neither OPTIONAL nor MANDATORY in the STATUS DEFINITION RECORD parameter of the ADSO statement.

MANdatory

Prevents the application developer from overriding the default status definition record specification during dialog generation.

STOrage MODe is

Determines the amount of storage to be allocated for record buffer blocks (RBBs).

SGEnsize

Directs the CA ADS runtime system to use the buffer sizes specified by the PRIMARY POOL and SECONDARY POOL parameters (described above) when acquiring storage space for RBBs.

SGENSIZE is the default when you omit the STORAGE MODE parameter from the ADSO statement.

CALculated

Directs the CA ADS runtime system to calculate the size of the RBBs for an application or dialog and to use the calculated size when acquiring storage space for the RBBs.

Note: For more information about calculated storage, see Storage Pools (see page 63).

ADSO Statement Usage

CA ADS Buffer Sizes

The following considerations apply to specifying the primary and secondary buffer sizes in the ADSO statement:

- Each buffer contains one record-buffer-block (RBB) header. The RBB header requires 32 bytes of storage.
- For each record, CA ADS maintains a header:
  - Database record headers require 52 bytes of storage
  - Logical record headers require 68 bytes of storage
- Each buffer must be large enough to accommodate the largest subschema, map, work, database, or logical record used by a dialog, plus the RBB header, plus the record header.
- All records and headers are aligned on doubleword boundaries.
- The primary and secondary buffer sizes are also used by the CA ADS and CA ADS/Batch dialog compilers, by the CA ADS application compiler, and by the ASF interface into CA ADS to allocate work areas for internal control blocks.

Example: ADSO Statements

Defining the CA ADS Environments

The following statement defines the generation and runtime environments for CA ADS:

```
ADD ADSO
    ADSTASK IS ADSO
    ADS2TASK IS ADSO2
    AUTOSTATUS IS YES OPTIONAL
    DIAGNOSTIC SCREEN IS YES
    DIALOG STATISTICS ON ALL
    FAST MODE THRESHOLD IS 10000
    MAXIMUM LINKS 4
    MENU IS USER KEEP
    NEWPAGE MAPOUT IS NO
    PRIMARY POOL IS 6000
    SECONDARY POOL IS 10000
    STATUS DEFINITION RECORD IS ADSO-STAT-DEF-REC OPTIONAL.
```

Modifying the CA ADS Runtime System

The following statement modifies the CA ADS runtime system definition by changing the maximum links value to 5:

```
MODIFY ADSO
    MAXIMUM LINKS 5.
```

Deleting the CA ADS Definition

The following statement deletes the CA ADS definition from the data dictionary:

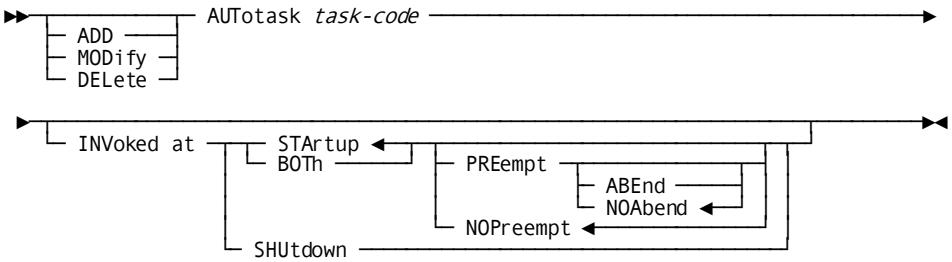
```
DELETE ADSO.
```

AUTOTASK Statement—Define Tasks

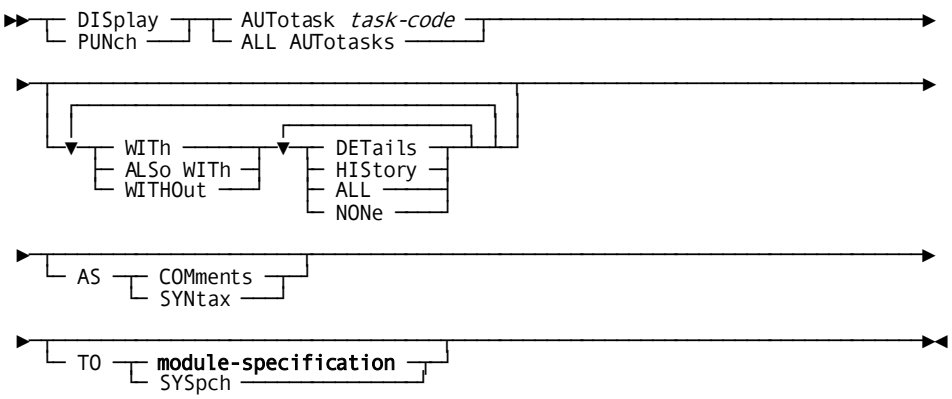
The AUTOTASK statement is used to define a task called an **autotask**. Autotasks are automatically initiated by the system at startup and/or shutdown. Autotasks are noninteractive tasks; that is, they are not associated with a logical terminal. Autotasks are often used for statistics collection, message handling, or special terminal handling.

AUTOTASK Statement Syntax

ADD/MODIFY/DELETE AUTOTASK Statement



DISPLAY/PUNCH AUTOTASK Statement



AUTOTASK Statement Parameters

AUTotask *task-code*

Specifies the system will execute the task identified by *task-code* automatically.

Task-code must be a task code previously defined in the data dictionary with a TASK statement. The TASK statement should specify the NOINPUT option, which causes the task to execute as soon as it receives control.

INVoked at

Specifies when the system will execute the autotask.

STArtup

Specifies the system is to execute the task at startup, after initialization is complete, before any user tasks are executed.

STARTUP is the default when you omit the INVOKED AT parameter from the AUTOTASK statement.

BOTh

Specifies the system is to execute the task both at startup and at shutdown.

PREempt

Indicates the startup autotask will execute to completion before any user tasks are executed.

ABEnd

Directs the system to terminate abnormally if the startup autotask terminates abnormally.

NOAbend

Directs the system to continue processing if the startup autotask terminates abnormally.

NOABEND is the default when you specify neither ABEND nor NOABEND with the PREEMPT parameter of the AUTOTASK statement.

NOPreempt

Indicates the startup autotask can execute concurrently with user tasks.

NOPREEMPT is the default when you specify neither PREEMPT nor NOPREEMPT with the STARTUP or BOTH parameter of the AUTOTASK statement.

SHUtdown

Specifies the system is to execute the task during shutdown, after all other user tasks are terminated.

AUTOTASK Statement Usage

Defining Autotasks

You define each autotask with a separate AUTOTASK statement, specifying a task code and the time at which the autotask is invoked. When the AUTOTASK statement is successfully submitted to the system generation compiler, the compiler cross-references the autotask with its corresponding task in the data dictionary. At runtime, the DC/UCF system executes multiple autotasks in the order in which they are defined.

Note: The AUTOTASK statement should not be confused with the LTERM statement AUTOTASK parameter, which defines a task to be initiated automatically when a logical terminal is enabled. For more information about the LTERM statement, see LTERM Statement (see page 327).

Startup Autotasks

The system attaches *startup* autotasks after initialization is complete. A startup autotask can preempt execution of other user tasks or can execute concurrently with user tasks. For more information about special considerations for startup autotasks, see the AUTOTASK syntax description.

Shutdown Autotasks

The system attaches *shutdown* autotasks during a planned shutdown (that is, in response to a SHUTDOWN command) after all other user tasks are terminated.

The ABEND/NOABEND Parameter

Before defining a startup autotask as PREEMPT ABEND, you should thoroughly test the task to ensure that it runs normally. Otherwise, if the startup autotask abends, the system will abend. The suggested specification is PREEMPT NOABEND.

Example: AUTOTASK Statements

Adding an Autotask

The following statement defines task code ABC as an autotask that will execute in response to a SHUTDOWN command:

```
ADD AUTOTASK ABC
    INVOKED AT SHUTDOWN.
```

Modifying an Autotask

The following statement modifies autotask ABC to execute before user signon as well as at shutdown. The specification PREEMPT indicates that, during startup, autotask ABC will execute to completion before any other user task is executed:

```
MODIFY AUTOTASK ABC
       INVOKED AT BOTH PREEMPT.
```

Deleting an Autotask

The following statement deletes autotask ABC:

```
DELETE AUTOTASK ABC.
```

DEFAULT PROGRAM Statement—Assign Default Values

The DEFAULT PROGRAM statement is used to establish global defaults for system generation PROGRAM statement parameters, overriding the defaults shown in the PROGRAM statement syntax.

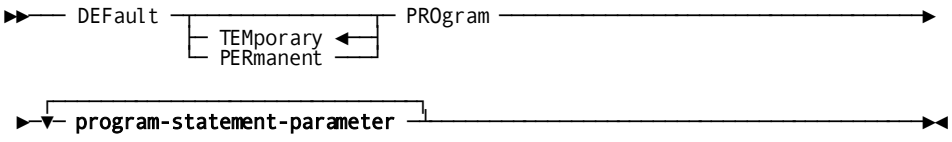
You can assign all PROGRAM statement parameters as defaults with the DEFAULT PROGRAM statement. If the program is a map or subschema, however, defaults for the following parameters are set automatically and cannot be changed:

- LANGUAGE IS ASSEMBLER
- CONCURRENT

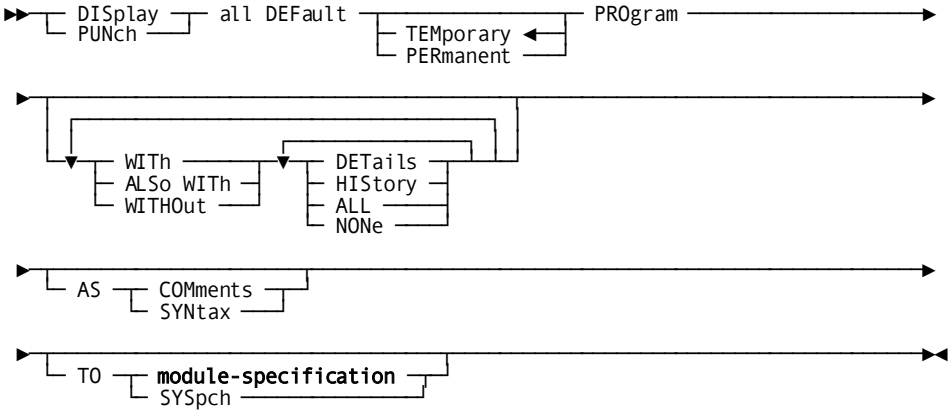
- NOSAVEAREA
- REENTRANT
- REUSABLE

DEFAULT PROGRAM Statement Syntax

DEFAULT PROGRAM Statement



DISPLAY/PUNCH DEFAULT PROGRAM Statement



DEFAULT PROGRAM Statement Parameters

TEMporary

Indicates the specified defaults are temporary.

TEMPORARY is the default when you specify neither TEMPORARY nor PERMANENT in the DEFAULT PROGRAM statement.

PERmanent

Indicates the specified defaults are permanent.

program-statement-parameter

Specifies a default value to apply to the applicable PROGRAM statement parameter.

Program-statement-parameter is any PROGRAM statement parameter, including VERSION, described under PROGRAM Statement (see page 260). Specify as many PROGRAM parameters as necessary to override PROGRAM statement defaults.

DEFAULT PROGRAM Statement Usage

Permanent and Temporary Defaults

You can designate DEFAULT PROGRAM statement defaults as permanent or temporary:

- **Permanent** -- The defaults apply to all executions of the system generation compiler until overridden by another DEFAULT statement. Permanent defaults are stored in the data dictionary as a prototype program source record with the name 0DEFAULT, where 0 is hexadecimal 00.
- **Temporary** -- The defaults apply only to the current execution of the system generation compiler and are not stored in the data dictionary.

Defaults established with the DEFAULT PROGRAM statement apply to all PROGRAM statements following the DEFAULT PROGRAM statement. The system generation compiler maintains a list of all defaults in effect. The compiler updates the list each time the defaults are changed with a DEFAULT PROGRAM statement. The DISPLAY/PUNCH PERMANENT/TEMPORARY DEFAULT PROGRAM statement can be used to view the current list.

Example: DEFAULT PROGRAM Statement

Specifying Temporary Defaults

The following DEFAULT PROGRAM statement assigns temporary default values to four PROGRAM statement parameters that apply to CA ADS dialogs:

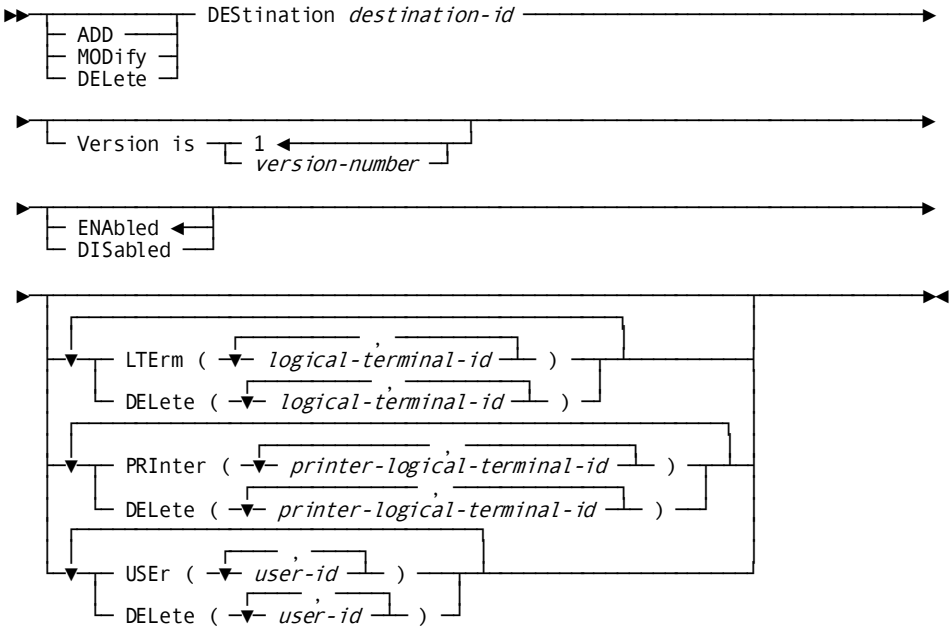
```
DEFAULT TEMPORARY PROGRAM
    LANGUAGE IS ADSO
    DIALOG
    NOMAINLINE
```

DESTINATION Statement—Group Users or Terminals

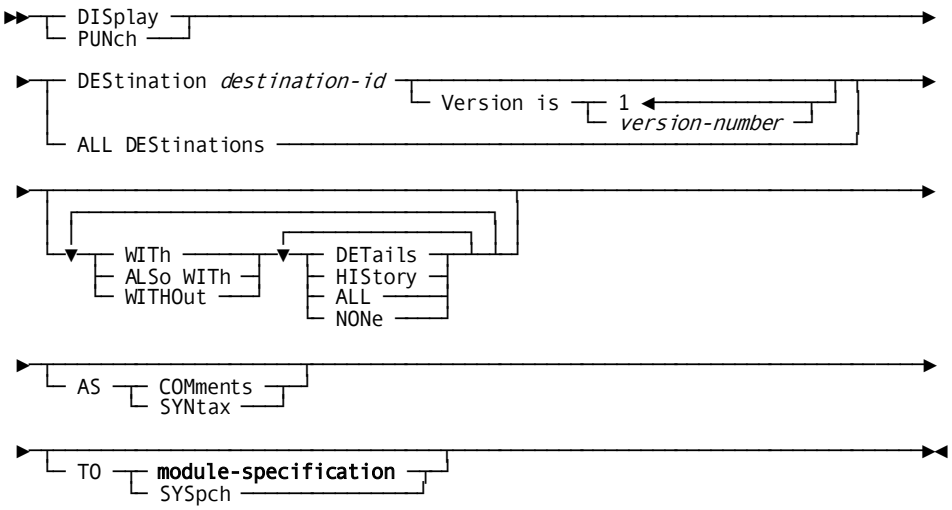
The DESTINATION statement is used to group users or logical terminals into a single logical destination for the purpose of message or report routing. The destination definition comprises a destination identifier and the list of users or logical terminals that constitute the destination. Each destination consists of one or more occurrences of a single type of entity (logical terminal, user, or printer).

DESTINATION Statement Syntax

ADD/MODIFY/DELETE DESTINATION Statement



DISPLAY/PUNCH DESTINATION Statement



DESTINATION Statement Parameters

DEStination *destination-id*

Specifies the destination identifier.

Destination-id must be a one- through eight-character alphanumeric value.

Version is *version-number*

Qualifies the destination with a version number.

Version-number must be an integer in the range 1 through 9,999. The default is 1.

Although multiple versions of a destination can exist in the data dictionary, a DC/UCF system uses only one version of a destination at runtime. If multiple ADD DESTINATION statements specify the same destination identifier, the system uses the first statement that appears in the system definition.

ENAbled

Specifies the destination is enabled when the DC/UCF system starts up.

ENABLED is the default when you specify neither ENABLED nor DISABLED in the DESTINATION statement.

DISabled

Specifies the destination is not enabled when the DC/UCF system starts up.

Note: Users can override the ENABLED/DISABLED parameter at runtime for the duration of system execution with the DCMT VARY DESTINATION command.

LTErm (*logical-terminal-id*)

Specifies one or more logical terminals that constitute the destination.

Logical-terminal-id must be the identifier of a logical terminal previously defined in the data dictionary with an LTERM statement.

The logical terminal identifiers must be enclosed in parentheses. Multiple identifiers must be separated by one or more commas or blanks.

DELete (*logical-terminal-id*)

Directs the DC/UCF system to delete the specified logical terminal identifiers from the destination definition.

Logical-terminal-id must be the identifier of a logical terminal previously included in the destination.

The logical terminal identifiers must be enclosed in parentheses. Multiple identifiers must be separated by one or more commas or blanks.

This parameter is valid only for MODIFY operations.

PRInter (*printer-logical-terminal-id*)

Defines the destination as a printer destination and specifies one or more logical terminals that constitute the destination.

Printer-logical-terminal-id must be the identifier of a logical terminal previously defined in the data dictionary as a printer (with an LTERM statement).

DELete (*printer-logical-terminal-id*)

Directs the DC/UCF system to delete the specified printer identifiers from the destination definition.

Printer-logical-terminal-id must be the identifier of a printer previously included in the destination.

The printer identifiers must be enclosed in parentheses. Multiple identifiers must be separated by one or more commas or blanks.

This parameter is valid only for MODIFY operations.

USEr (*user-id*)

Specifies one or more users that constitute the destination. If the user identifier contains blanks or special characters, the identifier must be enclosed in site-standard quotation marks.

The user identifiers must be enclosed in parentheses. Multiple identifiers must be separated by one or more commas or blanks.

DELete (*user-id*)

Directs the DC/UCF system to delete the specified user identifiers from the destination definition.

User-id must be the identifier of a user previously included in the destination. If the user identifier contains blanks or special characters, the identifier must be enclosed in site-standard quotation marks.

The user identifiers must be enclosed in parentheses. Multiple identifiers must be separated by one or more commas or blanks.

This parameter is valid only for MODIFY operations.

DESTINATION Statement Usage

At Least One Entity in a Destination

One LTERM, USER, or PRINTER option must be specified for each DESTINATION statement to generate an executable system.

Defining a Destination with Logical and Printer Terminals

When defining a destination composed of logical terminals or printer terminals, you should ensure that an LTERM statement and its associated PTERM statement exist in the system definition for each destination entry. The optional PTERM statement PRINTER DESTINATION parameter assigns a destination for WRITE TO PRINTER requests. You should ensure that, if a DESTINATION entity occurrence is deleted; all PTERM PRINTER DESTINATION parameters are updated to reference existing destinations.

Destinations not Required for Message Routing Facilities

You do not have to define destinations to use DC/UCF message routing facilities. Messages can be routed to individual users or logical terminals.

Example: DESTINATION Statements

Defining a Destination with Logical Terminals

The following statement creates destination ABC, which consists of four logical terminals:

```
ADD DESTINATION ABC
    LTERM (LTM001 LTM012 LTM041 LTM153).
```

Defining a Destination with Users

The following statement creates destination XYZ, which consists of four users:

```
ADD DESTINATION XYZ
    USER (WHH JPK HMS HAL).
```

Defining a Printer Destination

The following statement creates the printer destination PRT, which consists of the logical terminal PRTLT1:

```
ADD DESTINATION PRT
    PRINTER (PRTLT1).
```

Modifying a Destination

The following statement modifies destination XYZ by adding users ALK and RIL and deleting users HMS and HAL:

```
MODIFY DESTINATION XYZ
    USER (ALK, RIL)
    DELETE (HMS, HAL).
```

Deleting a Destination

To delete destination ABC from earlier example:

```
MOD DESTINATION ABC
 DEL (LTM001 LTM012 LTM041 LTM153).
GEN.
DELETE DESTINATION ABC.
GEN.
```

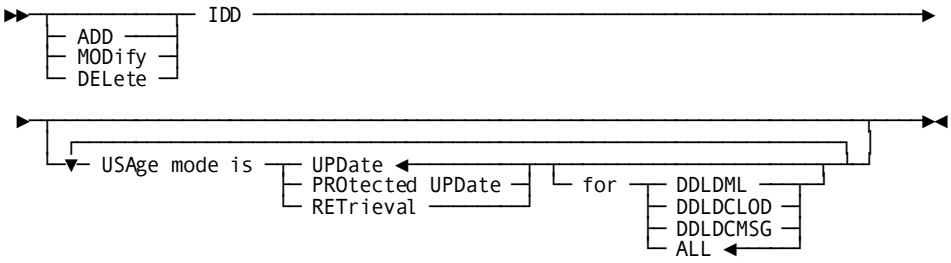
IDD Statement—Define Default Usage Mode

The IDD statement is used to define the default usage mode in which the IDD DDDL compiler will access the data dictionary at runtime. Different default usage modes can be specified for separate areas of the data dictionary. The IDD statement applies to all dictionaries defined to the DC/UCF system regardless of the segment to which it belongs.

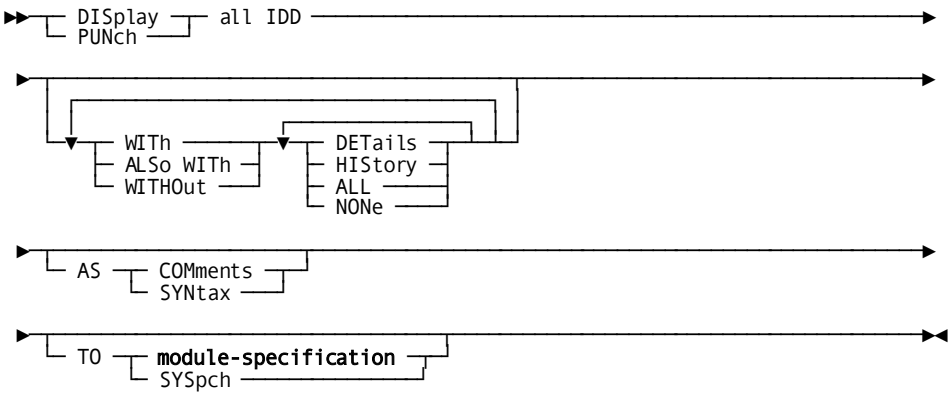
Note: The usage mode can be overridden at runtime when the user signs on to IDD using the DDDL compiler SIGNON statement. For more information, see the *CA IDMS IDD DDDL Reference Guide*.

IDD Statement Syntax

ADD/MODIFY/DELETE IDD Statement



DISPLAY/PUNCH IDD Statement



IDD Statement Parameters

USAge mode is

Specifies the area usage mode in which the DDDL compiler can access the data dictionary.

UPDate

Allows all IDD users to update the data dictionary concurrently. The DDDL compiler has extensive code to prevent deadlock conditions or situations in which users must wait for commands issued by other users to be processed.

UPDATE is the default when you omit the USAGE MODE parameter from the IDD statement.

Note: Shared update is the suggested usage mode for IDD.

PROtected UPDate

Allows only one IDD user to update the data dictionary at a time. Other users can perform only retrieval operations against the data dictionary. During an online IDD session, one user has exclusive control for update only when the DDDL compiler is invoked. Between terminal interactions, the areas can be updated by other users.

RETrieval

Allows all IDD users to perform only retrieval operations against the data dictionary.

for

Specifies the areas to which the selected usage mode applies.

DDLDML

Indicates the specified usage mode applies only to the DDLDML area.

DDLDCLOD

Indicates the specified usage mode applies only to the DDLDCLOD area.

DDLDCMSG

Indicates the specified usage mode applies only to the DDLDCMSG area.

ALL

Indicates the specified usage mode applies to all areas.

ALL is the default when you omit the FOR parameter from the USAGE MODE parameter of the IDD statement.

Example: IDD Statement

Defining the Default Usage Mode for IDD

The following example illustrates the use of the IDD statement. The default usage mode for all areas of the data dictionary is set to protected update for IDD.

```
ADD IDD USAGE IS PROTECTED UPDATE
    FOR ALL.
```

KEYS Statement—Define a Keys Table

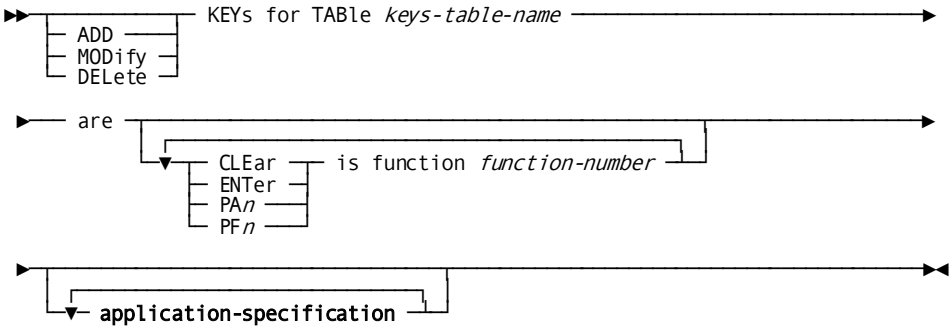
The KEYS statement is used to define a table that associates 3270-type terminal control keys with the following online components of a DC/UCF system:

- CA ADS Runtime System
- Line-mode I/O operations
- Online debugger menu mode
- Online IDD
- CA OLQ menu facility
- Online schema compiler
- Online subschema compiler
- Online system generation compiler

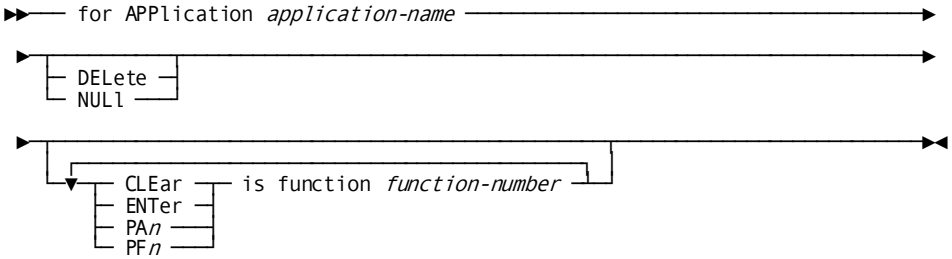
Note: The control-key assignment made by the PRINT KEY parameter of the system generation SYSTEM statement overrides all KEYS statement assignments for the specified key. For more information about the SYSTEM statement, see SYSTEM Statement (see page 137).

KEYS Statement Syntax

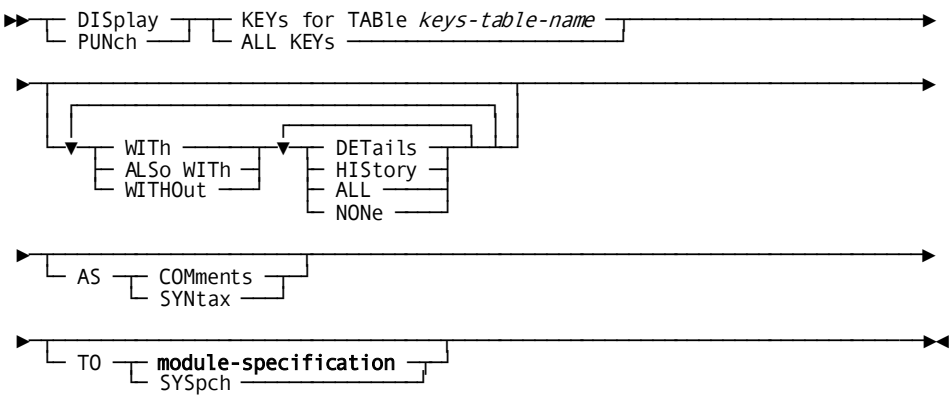
ADD/MODIFY/DELETE KEYS Statement



Expansion of application-specification



DISPLAY/PUNCH KEYS Statement



KEYS Statement Parameters

TABle *keys-table-name*

Specifies the name of the keys table.

Keys-table-name must be a one- through eight-character alphanumeric value.

are

Specifies the control-key assignments in the keys table. You can specify any number of control-key assignments.

CLEar

Assigns the specified function to the CLEAR key.

ENTer

Assigns the specified function to the ENTER key.

PA*n*

Assigns the specified function to the named program attention key.

N must be 1, 2, or 3.

PF*n*

Assigns the specified function to the named program function key.

N must be an integer in the range 1 through 24.

is function *function-number*

Specifies the application function to which the named control key is to be assigned.

Function-number must be an integer in the range 0 through 255 that corresponds to an application function. Leading zeros are not required.

application-specification

Associates one or more applications with the keys table and optionally establishes unique control-key assignments for each application.

Expanded syntax for *application-specification* is shown above immediately following the KEYS statement syntax.

for APPlication *application-name*

Associates the named application with the keys table.

Application-name must be the one- through eight-character name of an application.

The applications listed in the SYSTEM table are referenced by the following values: IDD, OLM, OLQ, ADSO, ADSA, ADSORUN, or LINEMODE. IDD refers to online IDD, the online schema compiler, the online system generation compiler, *and* the online subschema compiler.

DELete

Disassociates the named application from the keys table.

NULl

Clears the control-key assignments for the named application. Control-key assignments for the application revert to those specified in the ARE parameter.

CLEar

Assigns the specified function to the CLEAR key for the named application only.

ENTer

Assigns the specified function to the ENTER key for the named application only.

PA*n*

Assigns the specified function to the named program attention key for the named application only.

N must be 1, 2, or 3.

PF*n*

Assigns the specified function to the named program function key for the named application only.

N must be an integer in the range 1 through 24.

is function *function-number*

Specifies the application function to which the named control key is to be assigned.

Function-number must be an integer in the range 0 through 255 that corresponds to an application function. Leading zeros are not required.

KEYS Statement Usage

Defining Keys Tables

You can include any number of keys tables in a system definition. Each table can contain separate control-key assignments for the components included in the table and/or common control-key assignments to be shared by one or more components. Within each table, multiple keys can be defined to invoke the same function.

Establishing Default Control-Key Assignments

Default control-key assignments are supplied for each of the components listed above in a predefined keys table named SYSTEM. The definition of the SYSTEM keys table is stored in a data dictionary module named DC-PFKEY-DEF during installation. You can use the INCLUDE statement to include the definition of the SYSTEM keys table in the current system definition. For more information about the INCLUDE statement, see INCLUDE Statement (see page 111).

You can use the KEYS statement to modify the SYSTEM keys table or to add a different table named SYSTEM to the system definition; however, a table named SYSTEM should be included in all system definitions. At runtime, the DC/UCF system uses the table named SYSTEM as a default. If you do not include a keys table named SYSTEM in the system definition, the DC/UCF system will not have default control keys.

Displaying Keys Tables

At runtime, users can issue the DCUF SET TABLE command to establish a different keys table as the session default. Additionally, users can issue a DCUF SHOW TABLES command to display the available keys tables and a DCUF SHOW KEYS command to view control-key assignments. DCUF commands are described in the *CA IDMS System Tasks and Operator Commands Guide*.

The SYSTEMS Keys Table

The following table lists the default control-key assignments in the SYSTEM keys table. Note that online IDD, the online schema compiler, the online subschema compiler, and the online system generation compiler share default control-key assignments.

Application Name	Function	Description	Default Key
ADSORUN	001	Unassigned	
	002	Leave application	PA1
CA ADS runtime system	003	Leave CA ADS	
	004	Unassigned	
	005	Unassigned	
	006	RETURN	
	007	RETURN CONTINUE	
	008	RETURN CLEAR	CLEAR
	009	RETURN CLEAR CONTINUE	
	010	RETURN TO TOP	
	011	RETURN TO TOP CONTINUE	
	012	RETURN TO TOP CLEAR	
	013	RETURN TO TOP CLEAR CONTINUE	
DEBUG	001	Return to prompt mode	PF9
	002	Display Usage screen	PF1
Online debugger menu mode	003	Display activity screen for current command	PF3
	004	Display help screen for current command	PF4
	005	Unassigned	PF2
	006	Display Keys screen	PF6
	007	Display prior page	PF7
	008	Display next page	PF8
	009	Display Symbols screen	PF5
	010	Exit debugger	PA2
	011	Unassigned	PF11
	012	Print	PF12
	013	Process current screen	ENTER
	014	Refresh current screen	PA1
	015	Unassigned	PF10
	016	Return up one level	CLEAR

Application Name	Function	Description	Default Key
IDD	001	Display next page	PF1/PF8/ PF13/PF20
Online IDD	002	Display prior page	PF2/PF7/ PF14/PF19
Online schema compiler	003	Display next line	PF3/PF15
	004	Insert a screen of lines in work file	PF4/PF16
Online subschema compiler	005	Update screen contents and work file	PF5/PF17
Online system generation compiler	006	Update the work file and execute the compiler	PF6/PF18
	007	Unassigned	
	008	Unassigned	PF8
	009	Swap	PF9/PF21
	010	Unassigned	PF10
	011	Unassigned	PF11
	012	Print	PF12/PF24
	013	Unassigned	PA1
	014	Cancel changes to current screen/ reline prior screen	PA2
	015	Clear work file	CLEAR
	016	Update screen contents and work file OR update work file and execute the compiler	ENTER
LINEMODE Line-mode I/O operations	001	Page forward	PA1
	002	Page backward	PA2
	003	Page forward or to selected page	ENTER
	004	Exit line mode	CLEAR

Application Name	Function	Description	Default Key
OLM	001	Display Initial (Map) Definition screen	PF1
Batch mapping compiler	002	Display Format screen	PF2
	003	Display Field Selection screen	PF3
	004	Display Field Edit screen	PF4
	005	Display Map Image screen	PF5
	006	Set cursor on Format screen	PF6
	007	Change session execution mode (STEP/FAST)	PF7
	008	Propagate fields on Format screen	PF8
	009	Display Correct/Incorrect Attributes screen	PF9
	010	Display Extended Field Edit screen	PF10
	011	Update screen contents and/or proceed to next screen	ENTER
	012	Display previous screen/terminal session	CLEAR
	013	Clear current processing/ selection list	PA1
	014	Clear current mapping session/ delete	PA2
	015	Display Additional Records screen	PF11
	016	Display Extended Map Definition screen (Releases 10.1 and 10.2 only)	PF13

Application Name	Function	Description	Default Key
OLQ	001	Display Report Processing screen	
CA OLQ menu facility	002	Display Signon Database View screen	PF2/PF14
	003	Display Menu screen	PF6/PF18
	004	Display Record Select screen	
	005	Display Field Select screen	
	006	Display Display Report screen	PF5/PF17
	007	Display Error screen	PF4/PF16
	008	Display Help screen	PF1/PF13
	009	Quit	PF3/PF15
	010	Swap to native mode OLQ	PF9/PF21
	011	Execute path (Retrieval Completed screen)	

Application Name	Function	Description	Default Key
OLQ (cont.)	012	Unassigned	
	013	Display Path Select screen	
	014	Display Report Fields - Break/ Sort screen	
	015	Display Report Fields - Header screen	
	016	Display Report Fields - Edit screen	
	017	Unassigned	
	018	Unassigned	
	019	Display Relational Record Menu screen	
	020	Display Print Processing screen	
	021	Display Qfile Processing screen	
	022	Unassigned	
	023	Unassigned	
	024	Unassigned	
	025	Process screen - step mode	PF12/PF24
	026	Process screen - fast mode	ENTER
	027	Display previous screen	CLEAR
	028	Cancel all screen changes (RESTART)	PA1
	029	Display Record List	
	030	Display Field List	
	031	Display commands (global help)	PF2/PF14
	032	Display first	
	033	Display last	
	034	Cancel current screen changes (RESHOW)	PA2
	035	Route control to transfer control facility (SWITCH)	
	036	Print current report at default destination	
	037	Display next	PF8/PF20
	038	Display prior	PF7/PF19
	039	Display right	PF11/PF23
	040	Display left	PF10/PF22

Example: KEYS Statement

Defining a Keys Table with an Application Override

The following statement creates the keys table COMMTAB, which establishes shared control-key assignments for the IDD and LINEMODE applications and, for IDD, redefines the CLEAR key to invoke function 15:

```
ADD KEYS FOR TABLE COMMTAB
      PF7 = FUNCTION 2
      PF8 = FUNCTION 1
      CLEAR = FUNCTION 4
    FOR APPLICATION LINEMODE
    FOR APPLICATION IDD
      CLEAR = FUNCTION 15.
```

Clearing an Application-Specific Control-Key Assignment

The following statement modifies the keys table COMMTAB, clearing the control-key assignment for IDD:

```
MODIFY KEYS FOR TABLE COMMTAB
    FOR APPLICATION IDD
      NULL.
```

Disassociating an Application from a Keys Table

The following statement modifies the keys table COMMTAB, removing the LINEMODE application from the table:

```
MODIFY KEYS FOR TABLE COMMTAB
    FOR APPLICATION LINEMODE
      DELETE.
```

Deleting a Keys Table

The following statement deletes the keys table COMMTAB from the current system definition:

```
DELETE KEYS FOR TABLE COMMTAB.
```

LOADLIST Statement—Define Load Lists

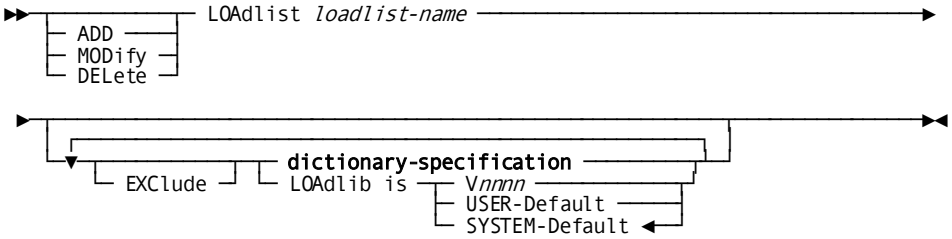
The LOADLIST statement is used to define load lists. A load list identifies the load libraries and data dictionaries the DC/UCF system is to search for programs to be loaded. The system searches the libraries and dictionaries in the order in which they are named in the load list.

Using load lists, you can:

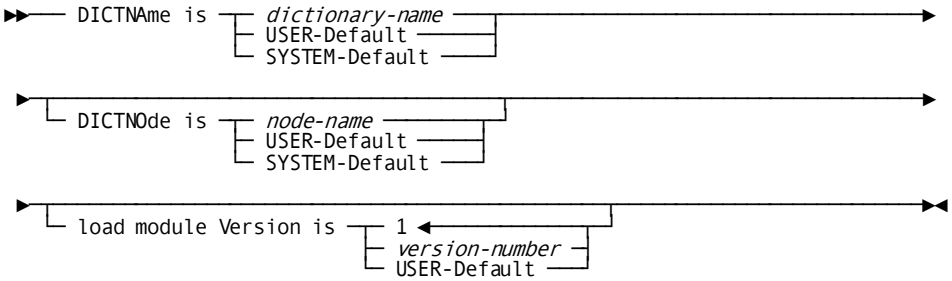
- Control the location from which programs are loaded at runtime
- Tune system performance by defining load lists with a minimum number of entries
- Concatenate multiple test load libraries (z/OS systems only) and alternate dictionaries in a load list for greater flexibility in a test environment

LOADLIST Statement Syntax

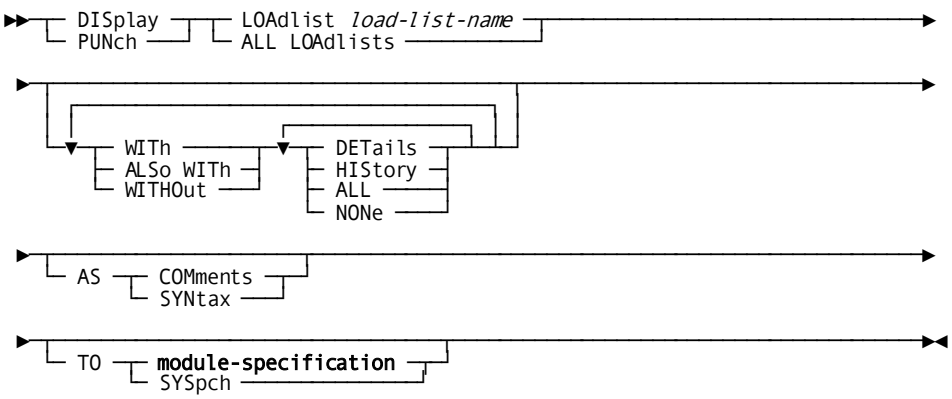
ADD/MODIFY/DELETE LOADLIST Statement



Expansion of dictionary-specification



DISPLAY/PUNCH LOADLIST Statement



LOADLIST Statement Parameters

LOAdlist *load-list-name*

Identifies the load list being added, modified, deleted, displayed, or punched.

Load-list-name must be the one- through eight-character name of the load list.

EXCLUDE

Excludes the following load library or data dictionary from the load list.

dictionary-specification

Specifies a data dictionary to include in the load list.

Expanded syntax for *dictionary-specification* is shown above immediately following the LOADLIST statement syntax.

LOAdlib is

Identifies a load library to include in the load list.

Note: Multiple load libraries are supported under z/OS only.

V*nnnn*

Specifies a test load library.

V*nnnn* must be the ddname (z/OS) of a load library included in the JCL used to start up the DC/UCF system.

USER-Default

Specifies the current session default load library established by the DCUF TEST command.

SYSTEM-Default

Specifies the system default load library (CDMSLIB).

DICTNAme is

Identifies a data dictionary to include in the load list.

dictionary-name

Explicitly specifies a data dictionary.

Dictionary-name must be the name of a data dictionary included in a segment of the DMCL defined either for the current system or for the system identified by the DICTNODE parameter (described below).

USER-Default

Specifies the current session default dictionary established by the DCUF SET DICTNAME command.

SYSTEM-Default

Specifies the system default dictionary.

DICTNOde is

Specifies the name of the DC/UCF system that controls the dictionary specified by the DICTNAME parameter.

node-name

Specifies a node name.

Node-name must be the name of a DC/UCF system defined in the CA IDMS communications network.

USER-Default

Specifies the current session default node established by the DCUF SET DICTNODE command.

SYSTEM-Default

Specifies the current DC/UCF system.

SYSTEM-DEFAULT is the default when you omit the DICTNODE parameter from the DICTNAME parameter of the LOADLIST statement.

load module Version is

Specifies the version number the DC/UCF system will use when searching for load modules in the data dictionary identified by the DICTNAME parameter.

version-number

Explicitly specifies a version number.

Version-number must be an integer in the range 1 through 9,999. The default is 1.

USER-Default

Specifies the current session default version number established by the DCUF TEST command.

If USER-Default is specified, but no DCUF SET TEST is in effect, the entry in the load list is bypassed.

LOADLIST Statement Usage

Defining Loadlists

You can include any number of load lists in a DC/UCF system definition. You use the SYSTEM statement to designate one load list as the system default. The SYSTEM statement is described in SYSTEM Statement (see page 137).

System Default Loadlist (SYSLOAD)

One predefined load list, SYSLOAD, is available to all DC/UCF systems at runtime. SYSLOAD is used as the system default load list if you do not designate a system default during system generation. The SYSLOAD load list has the following definition:

```
ADD LOADLIST SYSLOAD
    DICTNAME IS USER-DEFAULT VERSION IS USER-DEFAULT
    DICTNAME IS SYSTEM-DEFAULT VERSION IS USER-DEFAULT
    LOADLIB IS USER-DEFAULT
    DICTNAME IS USER-DEFAULT VERSION IS 1
    DICTNAME IS SYSTEM-DEFAULT VERSION IS 1
    LOADLIB IS SYSTEM-DEFAULT.
```

Changing the Loadlist in Effect for a DC/UCF Session

At runtime, users can vary the load list in effect for the current session by means of the DCUF SET LOADLIST command. DCUF commands are described in *CA IDMS System Tasks and Operator Commands Guide*.

Changing the User-Default Dictionary and Load Library

The user-default dictionary can be set at runtime

- In a user profile with the dictname parameter
- If not set in the user profile or if the dictname parameter of the user profile can be overridden, you can use the DCUF SET DICTNAME command

The user-default load library and version can be set at runtime using the DCUF TEST command.

Adding Elements to a Loadlist

Load libraries and data dictionaries added to a previously existing load list are placed at the end of the list. To insert a library or dictionary before the last entry in a load list, you must first delete all entries beyond the position in which the new entry is to be inserted. Then you can add the new entry and the deleted entries in the appropriate order.

Program Loading Criteria

In addition to being defined in a loadlist, programs must also meet **one** of the criteria below to be loaded (whether they reside in a load library or a load area designated in the load list) into a program pool.

- The specific version of the program must be explicitly defined in a system generation PROGRAM statement.
- The specific version of the program must be explicitly defined at runtime with a DCMT VARY DYNAMIC PROGRAM command.
- The program must be eligible to be loaded with a null PDE. For more information about null PDEs and undefined programs, see SYSTEM Statement (see page 137).

Example: LOADLIST Statements

Creating a Loadlist

The following statement creates load list SYS09TST:

```
ADD LOADLIST SYS09TST
    DICTNAME IS TSTDICT VERSION IS 5
    DICTNAME IS TSTDICT VERSION IS 1
    DICTNAME IS MISDICT
    LOADLIB IS SYSTEM-DEFAULT
    DICTNAME IS SYSTEM-DEFAULT.
```

Deleting an Element from a Loadlist

The following statement deletes the MISDICT data dictionary from the SYS09TST load list:

```
MODIFY LOADLIST SYS09TST
    EXCLUDE DICTNAME MISDICT.
```

Deleting a Loadlist

The following statement deletes the SYS09TST load list from the system definition:

```
DELETE LOADLIST SYS09TST.
```

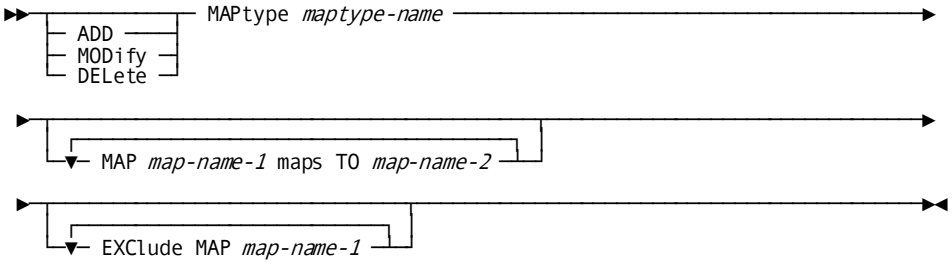
MAPTYPE Statement—Creates Alternative Map Table

The MAPTYPE statement creates an alternative map table and builds entries in the table. Alternative map tables are used by the alternative map support feature during runtime mapping operations. Alternative map support allows you to implement similar maps, for example, in different languages.

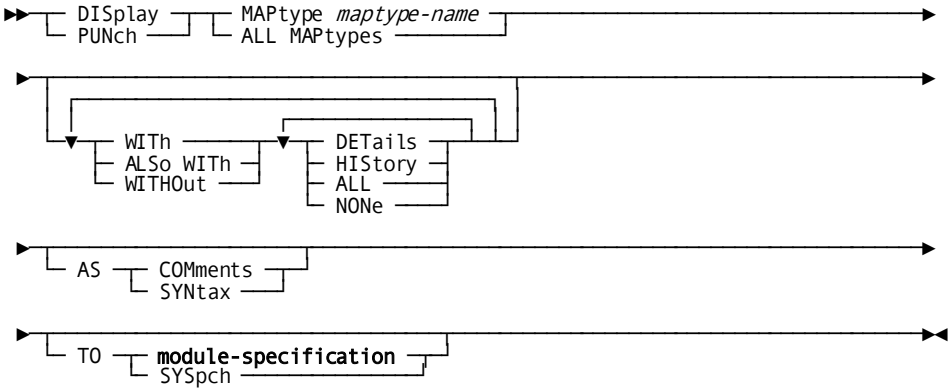
For more information about alternative map support, see the *CA IDMS Mapping Facility Guide*.

MAPTYPE Statement Syntax

ADD/MODIFY/DELETE MAPTYPE Statement



DISPLAY/PUNCH MAPTYPE Statement



MAPTYPE Statement Parameters

MAPtype *maptype-name*

Identifies the name of the alternative map table.

Maptype-name must be a one- through eight-character alphanumeric value.

MAP *map-name-1* maps TO *map-name-2*

Adds an entry to the alternative map table. The map identified by *map-name-1* is replaced by the map identified by *map-name-2*, when appropriate, at application runtime. At least one entry must be specified for ADD MAPTYPE statements.

Map-name-1 is the one- through eight-character name of a map load module invoked by an application program. *Map-name-2* is the one- through eight-character name of the corresponding map that will override *map-name-1* in order to provide compatibility between the application program and the user.

In supplying map names, you can specify a mask for generic translation. The question mark (?) serves as the substitution character. At runtime, each question mark in *map-name-1* will match any character in the corresponding position in *map-name-2*. Conversely, any character in *map-name-1* will match a question mark in the corresponding position in *map-name-2*. If *map-name-1* and *map-name-2* each contain a question mark in the same position, the character in that position in the map name passed by the application program will remain unchanged when the DC/UCF system relates *map-name-1* to *map-name-2*.

If an entry for *map-name-1* already exists in the alternative map table, the system generation compiler replaces the second map in the entry with the new specification for *map-name-2*. If no entry is found, a new entry is added.

Include as many MAP MAPS TO parameters as necessary to replace map load modules invoked by application programs with maps that are compatible with runtime users.

EXClude MAP *map-name-1*

Deletes an entry from the alternative map table.

Map-name-1 must be the name of a map previously defined in the alternative map table with a MAP MAPS TO parameter.

To delete multiple alternative map table entries, use an EXCLUDE MAP parameter for each map.

This parameter is valid in MODIFY statements only.

MAPTYPE Statement Usage

Defining an Alternative Map Table

Each entry in an alternative map table consists of a pair of map names. At application runtime, DC/UCF substitutes map load modules invoked by the program with the associated maps named in the table.

Associating Alternative Map Tables with Users

An alternative map table can be associated with a user with the MAPTYPE parameter of a user profile. When the user signs on to DC/UCF, the system automatically accesses the associated alternative map table.

For more information about user profiles, see the *CA IDMS Security Administration Guide*.

Example: MAPTYPE Statement

Creating an Alternative Map Table

The following statement defines an alternative map table named FRENCH and specifies an entry that substitutes any map name beginning with ENGMAP with a map name beginning with FCHMAP. The last two characters of the first map name remain unchanged.

```
ADD MAPTYPE FRENCH
    ENGMAP?? MAPS TO FCHMAP??.
```

Adding an Entry to an Alternative Map Table

The following statement adds an entry to alternative map table FRENCH:

```
MODIFY MAPTYPE FRENCH
    MAP GRKMAP01 MAPS TO FRCMAP01.
```

Deleting an Entry from an Alternative Map Table

The following statement deletes an entry from alternative map table FRENCH:

```
MODIFY MAPTYPE FRENCH
    EXCLUDE GRKMAP01.
```

Deleting an Alternative Map Table

The following statement deletes alternative map table FRENCH:

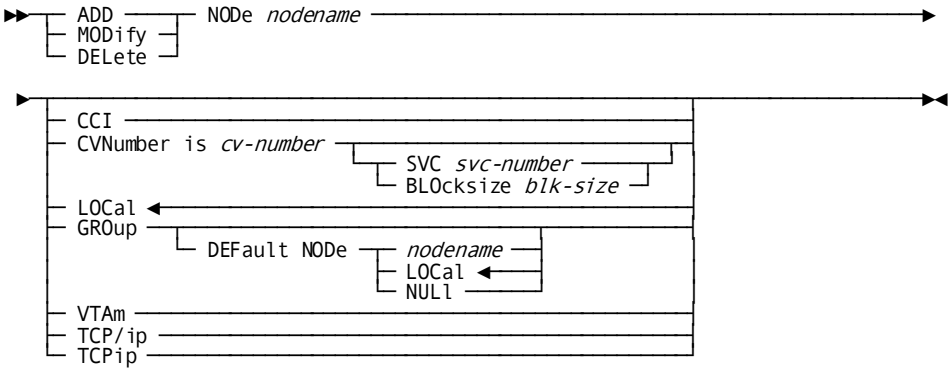
```
DELETE MAPTYPE FRENCH.
```

NODE Statement—Defines a Node

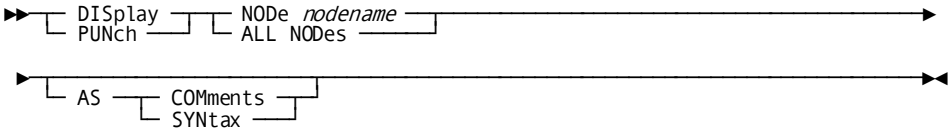
The NODE statement identifies the communication method used to access a specified node name in the DC/UCF communications network.

NODE Statement Syntax

ADD/MODIFY/DELETE NODE Statement



DISPLAY/PUNCH NODE Statement



NODE Statement Parameters

NODe *nodename*

Specifies the node name (SYSTEM ID) of the CA IDMS CV that is accessed from the DC/UCF system being defined.

Nodename is:

- A unique one- to eight-character alphanumeric value beginning with an alphabetic character.
- Matches the name of a system defined in the DC/UCF communications network.

When using a type of GROUP, the group name replaces the SYSTEM ID in the *nodename* parameter.

CCI

For DDS users only, specifies CAICCI, the Common Communications Interface component of the CA Integration Services layer, is used to access the named node.

CCI can be specified for resources residing on different CPUs.

CVNumber is *cv-number*

Specifies the communication method for the named node is a CA IDMS central version and identifies its central version number. The CVNUMBER IS parameter is used with SVC-type connections only.

Cv-number is an integer ranging from 0 to 255. The combination of *cv-number* and *svc-number* (described next) must uniquely identify the named node.

SVC *svc-number*

Specifies the SVC number of the CA IDMS CV receiving packets sent by the CA IDMS system currently being defined.

Svc-number is an integer ranging from 0 to 255.

BLOcksize *blk-size* Specifies the size of the packet used to pass data between nodes.

Blk-size is the blocksize of the data packet sent between CVs.

The default *blk-size* is 8192.

LOCal

Specifies the named node is the DC/UCF system being defined.

LOCAL is the default.

GROup

Specifies the named node is a DBGroup. This is the group name specified on the database name table DBGROUP statement.

DEFault NODe

Specifies the node to use if access to the DBGroup fails (i.e., there are no active CVs available to service a DBGroup request).

Nodename

Specifies a node name to use if access to the DBGroup fails. This node must be defined with an access type of CCI, CVNUMBER, or VTAM.

LOCal

Specifies the node to use is local, which is the current system. The database session is processed by the system being defined.

NULl

Specifies there is no default node. If a database session is routed to the named DBGroup, and there are no CVs available to service the request, the database session fails.

VTAm

Requires DDS. Specifies VTAM is the communication method used to access the named node.

VTAM can be specified as the access method for resources residing on different CPUs.

TCP/ip or TCPip

Specifies that the TCP/IP protocol is used to access the named node. This parameter is for DDS users only.

NODE Statement Usage

Defining a Node Table

At runtime, the node table determines the communication method used to access resources identified in the system generation RESOURCE TABLE statement.

If all database requests in your DC/UCF communications network occur within a single region, you do not have to explicitly code the NODE statement. The system automatically generates a node name entry in the node table of the system being defined with these characteristics:

- The node name is the *system-name* specified on the SYSTEM ID parameter of the SYSTEM statement
- The communication method is LOCAL

Defining Remote Nodes

For each DC/UCF system accessing resources located on a remote node, you must:

- Identify the resources and their location (node) using the RESOURCE TABLE statement
- Identify the communication method used by the system to access the node using the NODE statement

Example: NODE Statement

Defining a Node for a Remote DC/UCF System

```
ADD NODE SYSTEM84
    CVNUMBER IS 20
    SVC 174
    BLOCKSIZE 8192.

ADD NODE SYSTEM EDCQAM01
    CVNUMBER IS 103
    SVC 173
    BLOCKSIZE 8192.
```

Deleting a Node

```
DELETE NODE SYSTEM84.
```

Defining a DBGroup to the Front-End Definition for CV IDMS070

```
MODIFY SYSTEM IDMS070.

ADD NODE EMPGROUP
GROUP DEFAULT NODE IDMS071.

ADD NODE IDMS071
VTAM.

GENERATE.
```

OLM Statement—Define OLM Characteristics

The OLM statement is used to define definition-time and runtime characteristics of the CA IDMS Mapping Facility.

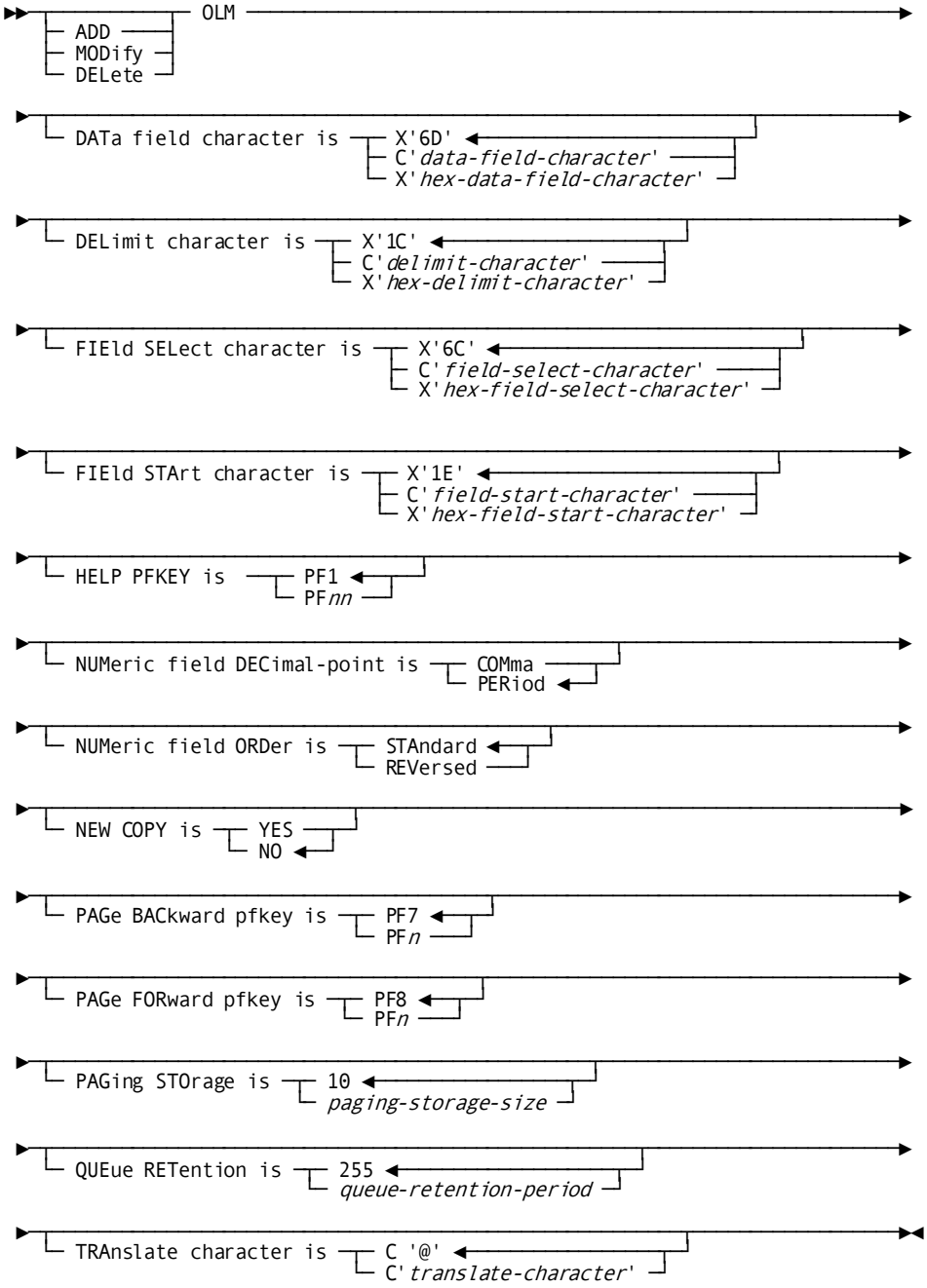
The OLM definition includes the online mapping

- Special characters used on the MAPC layout screen
- Runtime paging session and field editing specifications

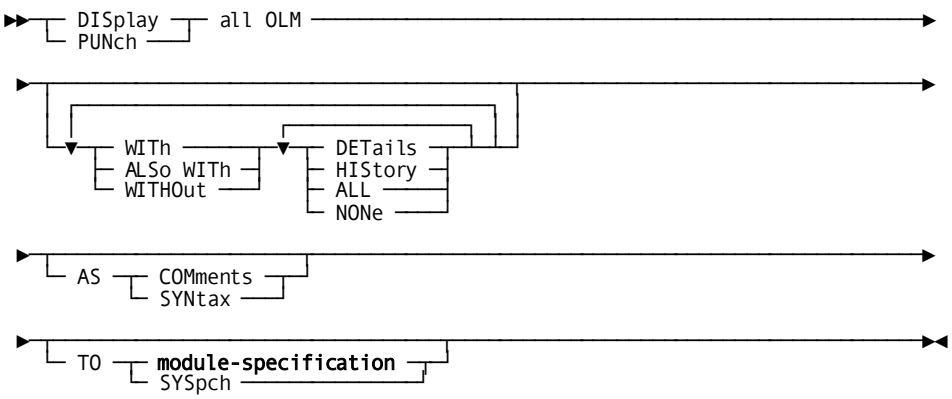
The OLM statement is required if online mapping is to be used with a DC/UCF system.

OLM Statement Syntax

ADD/MODIFY/DELETE OLM Statement



DISPLAY/PUNCH OLM Statement



OLM Statement Parameters

DATa field character is

Identifies the keyboard character used to show the location and length of each variable field on the OLM Format and Map Image screens.

C'*data-field-character*'

Specifies the data field character as a character literal.

X'*hex-data-field-character*'

Specifies the data field character as a hexadecimal literal. The default is X'6D', the underscore (_) character.

DELimit character is

Identifies the keyboard character used to mark the end of a delimited variable field on the OLM Format screen.

C'*delimit-character*'

Specifies the delimit character as a character literal.

X'*hex-delimit-character*'

Specifies the delimit character as a hexadecimal literal. The default is X'1C' (the DUP character).

FIEld SELect character is

Identifies the keyboard character used to select a map field on the OLM Format screen for editing or deletion.

C'*field-select-character*'

Specifies the field select character as a character literal.

X'*hex-field-select-character*'

Specifies the field select character as a hexadecimal literal. The default is X'6C', the percent (%) sign.

FIEld STArt character is

Identifies the keyboard character used to mark the beginning of a map field on the OLM Format screen.

C'*field-start-character*'

Specifies the field start character as a character literal.

X'*hex-field-start-character*'

Specifies the field start character as a hexadecimal literal. The default is X'1E' (the FIELD MARK key).

UCFTSO environment: In TSO, use of the default field start character of X'1E' (FIELD MARK) will cause display problems when using the online mapping compiler (MAPC task code). Choose another value for the field start character in this environment.

HELP PFKEY is PF1/*PFnn*

Specifies the default program function key to be associated with the help function during runtime mapping sessions.

Nn is an integer in the range 1 through 24.

PF1 is the default.

NUMeric field DECimal-point is

Establishes the character to be interpreted as the decimal point for numeric data fields at runtime.

Note: Map developers must enter external pictures with the appropriate decimal character when defining numeric map data fields.

COMma

Specifies the comma is interpreted as the decimal point during field processing, in accordance with international format. Numeric data is displayed, for example, as 1.234,56 rather than 1,234.56 and must be entered in international format.

PERiod

Specifies the period is interpreted as the decimal point during field processing.

PERIOD is the default when you omit the NUMERIC FIELD DECIMAL-POINT parameter from the OLM statement.

NUMeric field ORDer is

Establishes international editing options for numeric map data fields at runtime.

STAndard

Specifies that runtime mapping will not reverse the data contained in a numeric data field.

STANDARD is the default when you omit the NUMERIC FIELD ORDER parameter from the OLM statement.

REVersed

Specifies that runtime mapping will reverse all data contained in a numeric data field at both mapout and mapin. This option might be used, for example, in Hebrew-language applications, where textual information is read from right to left.

Note: If you specify ORDER IS REVERSED, IBM®-supplied 3276 and 3278 device modifications must be installed. With these modifications, the cursor will move from left to right in numeric fields and from right to left in alphanumeric fields.

NEW COPY is

Specifies whether a map is to be marked as new copy automatically when the map load module is generated.

YES

Indicates the map is marked as new copy automatically.

NO

Indicates the map is not marked as new copy automatically. The user must issue a DCMT VARY PROGRAM NEW COPY statement for the map to make the load module eligible for loading.

NO is the default when you omit the NEW COPY parameter from the OLM statement.

PAGe BACkward pfkey is PF*n*

Specifies the default program function key (PF key) associated with the paging backward function during runtime paging sessions.

N must be a valid PF-key number in the range 1 through 24. The default is 7.

PAGe FORward pfkey is PF*n*

Specifies the default program function key (PF key) to be associated with the paging forward function during runtime paging sessions. *N* must be a valid PF-key number in the range 1 through 24. The default is 8.

PAGing STOrage is *paging-storage-size*

Specifies the maximum amount of storage, in 1K bytes, to be made available in the scratch area (DDLDCSCR) of the data dictionary to maintain a paging session at map runtime. At runtime, the system loads paging storage with the header, footer, and detail occurrences to be displayed on the map.

Paging-storage-size must be an integer in the range 0 through 32,767. The default is 10.

QUEue RETention is *queue-retention-period*

Specifies the amount of time, in days, the system is to retain the records from a suspended OLM map-definition session in the queue area. When the queue retention period is exceeded, the queue record is deleted automatically at system startup.

Queue-retention-period must be an integer in the range 0 through 255. The default, 255, directs the system not to delete the queue based on a retention period.

TRAnslate character is *translate-character*

Assigns a translation character to mask bad data into a displayable character.

Translate-character must be a character literal. The default is C'@'.

The translation character must be displayable. If you specify either C' ' (blank) or C'' (null), the translation is bypassed at program execution.

OLM Statement Usage

Efficient Use of the Queue Area

To make most efficient use of the queue area, specify a queue retention period that is as short as possible.

Example: OLM Statement

Defining OLM Characteristics

The following statement defines OLM definition-time characteristics and the mapping facility runtime environment:

```
ADD OLM
    FIELD START CHARACTER IS X'1E'
    FIELD SELECT CHARACTER IS C'%'
    DELIMIT CHARACTER IS X'1C'
    DATA CHARACTER IS C'_'
    NUMERIC FIELD DECIMAL-POINT IS PERIOD
    PAGE FORWARD PFKEY IS PF8
    PAGE BACKWARD PFKEY IS PF7
    PAGING STORAGE IS 12
    QUEUE RETENTION IS 100.
```

Changing the OLM Execution Mode

The following statement changes the

```
MODIFY OLM
    PAGING STORAGE IS 20.
```

Deleting the OLM Definition

The following statement deletes the mapping facility definition from the data dictionary:

```
DELETE OLM.
```

For more information about calculating the amount of storage required by pageable maps, see the *CA IDMS Mapping Facility Guide*.

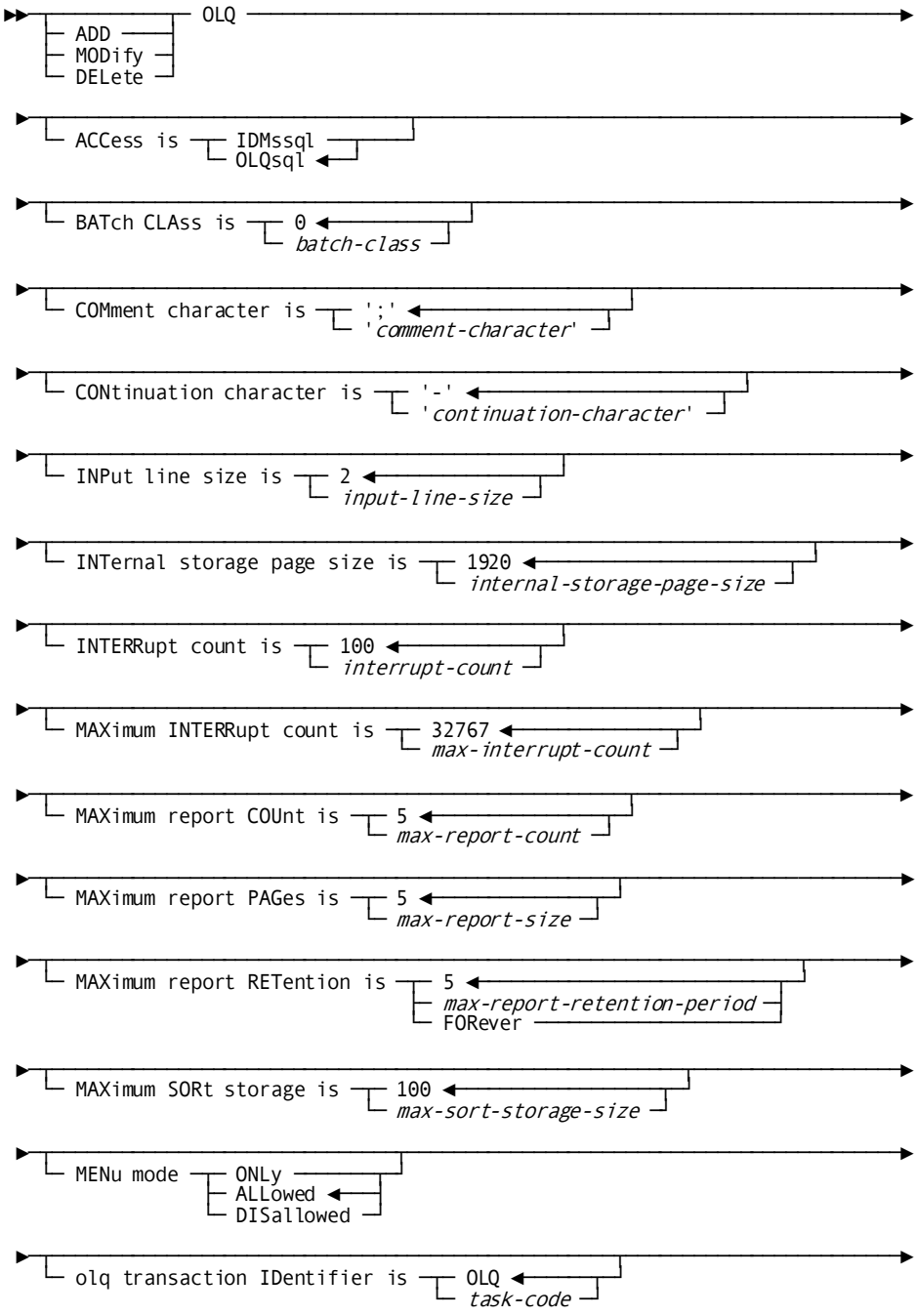
OLQ Statement—Define OLQ Runtime Environment

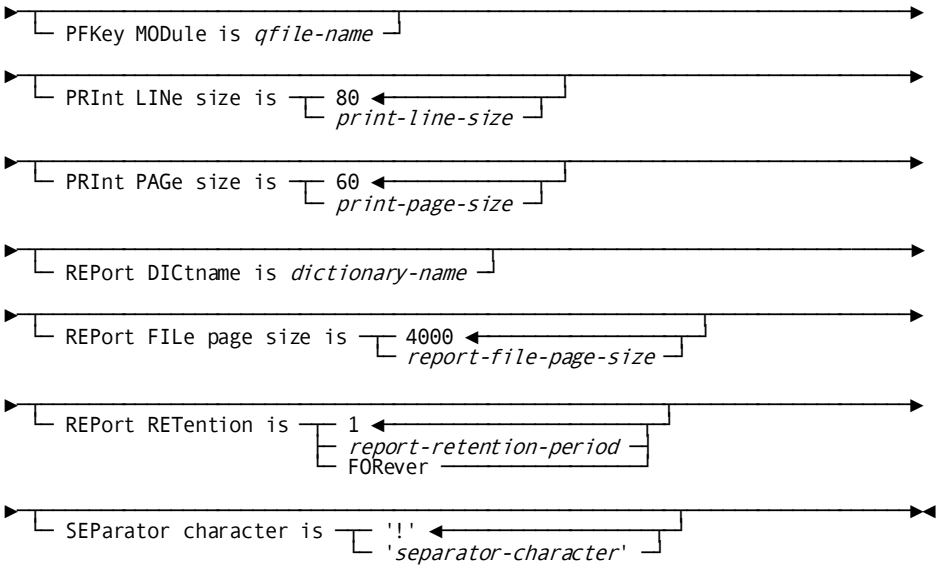
The OLQ statement is used to define the CA OLQ runtime environment. The OLQ statement is required if CA OLQ is used with the system being generated.

For more information about CA OLQ, see the *CA OLQ Reference Guide* and the *CA OLQ User Guide*.

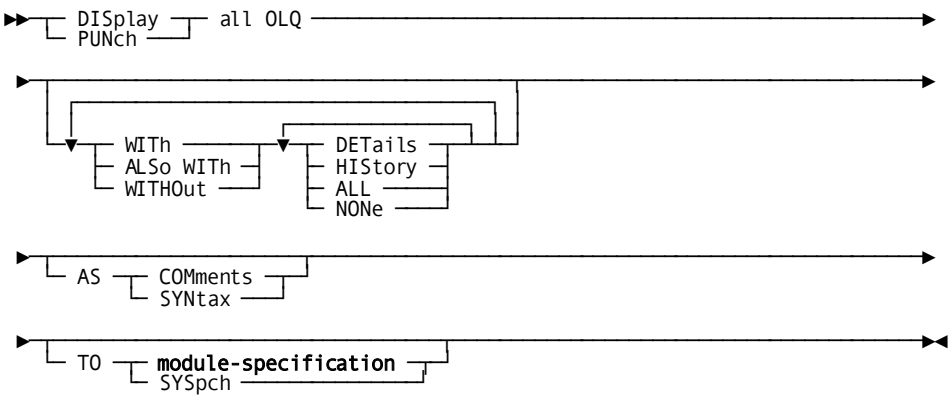
OLQ Statement Syntax

ADD/MODIFY/DELETE OLQ statement





DISPLAY/PUNCH OLQ Statement



OLQ Statement Parameters

ACCess is

Specifies whether CA OLQ or CA IDMS will process SQL statements used to access a CA IDMS database.

IDMssql

Indicates CA IDMS will process the SQL statements.

IDMssql, IDMs sql, and IDMS-SQL are synonyms and used interchangeably.

OLQsql

Indicates CA OLQ will process the SQL statements.

OLQ SQL is the default.

OLQsql, OLQ sql, and OLQ-SQL are synonyms and used interchangeably.

BATch CLAss is *batch-class*

For z/OS systems only, specifies the print class used by CA OLQ when submitting batch jobs.

Batch-class must be an integer from 0–64.

The default value of 0 indicates that online submission of OLQ batch jobs is not allowed. Assign a print class from 1–64 if you want to allow online submission. Verify that the print class is assigned to a printer associated with a SYSOUTL line.

For more information on submitting JCL via the internal reader, see the section "Writing JCL to a JES2 Internal Reader" in the *Navigational DML Programming Guide*

COMment character is '*comment-character*'

Specifies the character that flags a remark. All text following the comment character is ignored during execution.

Comment-character must be a one-character alphanumeric value enclosed in site-standard quotation marks. The default is the semicolon (;).

CONtinuation character is '*continuation-character*'

Specifies the continuation character to use in q-files or batch input when the length of a CA OLQ command is greater than one line. The continuation character is specified at the end of each line that is to be continued.

Continuation-character must be a one-character alphanumeric value enclosed in site-standard quotation marks. The default is the hyphen (-).

INPut line size is *input-line-size*

For 3270 terminals only, specifies the number of lines on the screen that are available for input.

Input-line-size must be an integer in the range 1 through 256. The default is 2. The maximum number of lines defined by *input-line-size* is limited to the total number of lines on the screen minus the number of lines reserved for output.

INTernal storage page size is *internal-storage-page-size*

Specifies the size, in bytes, of the CA OLQ internal storage pages used to store control data across a pseudo-converse. These pages are written to the data dictionary scratch area (DDLDCSCR) and are returned to main memory when the CA OLQ task thread resumes execution.

Internal-storage-page-size must be an integer in the range 1 through 32,767. The default is 1,920.

INTERRupt count is *interrupt-count*

Specifies the number of records CA OLQ will read before issuing the following message at runtime:

```
CONTINUE YES/NO?
   nnn RECORDS READ nnn RECORDS SELECTED
   nnn DATA ERRORS
```

Interrupt-count must be an integer in the range 1 through 9,999. The default is 100.

MAXimum INTERRupt count is *max-interrupt-count*

Indicates the maximum interrupt count that a user can specify at runtime.

Max-interrupt-count must be an integer in the range 0 through 32,767. The default is 32,767. A value of 0 indicates the user-specified interrupt count is unlimited.

Typically, the maximum interrupt count is greater than or equal to the value specified by the INTERRUPT COUNT parameter (described above).

MAXimum report COUnt is *max-report-count*

Specifies the maximum number of reports that are saved in the queue area for each user.

Max-report-count must be an integer in the range 0 through 32,767. The default is 5.

MAXimum report PAGes is *max-report-size*

Specifies the maximum length, in pages, of a CA OLQ report written to the queue area.

Max-report-size must be an integer in the range 0 through 32,767. The default is 5.

When a CA OLQ report exceeds the MAXIMUM REPORT PAGES specification, the system ends the retrieval process and stops writing report pages. The report exists in the queue area and is available for viewing, but is incomplete. If a user attempts to sort the data or to display the last page of the report, the system returns a message indicating that an unexpected end of report was encountered.

MAXimum report RETention is

Defines the maximum length of time a user can specify when saving a CA OLQ report in the queue area. When the user issues a SAVE command and specifies a report retention period, the system automatically uses the maximum report retention period. If the specified retention period is greater than the maximum retention period, it is overridden and replaced by the maximum retention period. Reports that exceed their retention period in the queue area are deleted automatically at system startup.

max-report-retention-period

Specifies the maximum report retention period in days.

Maximum-report-retention-period must be an integer in the range 0 through 255. The default is 5. A value of 255 is synonymous with FOREVER.

FOREVER

Directs the system not to delete reports based on a retention period.

MAXimum SORt storage is *max-sort-storage-size*

Specifies the maximum amount of storage, in K bytes, that CA OLQ can use for sort operations.

Max-sort-storage-size must be an integer in the range 0 through 32,767. The default is 100.

Important! Specifying too low a value will prevent CA OLQ from performing sort operations.

MENu mode

Specifies whether the menu facility is available to users at runtime.

ONLy

Specifies that CA OLQ users must use the menu facility.

ALLowed

Specifies that CA OLQ users can use the menu facility.

ALLOWED is the default when you omit the MENU MODE parameter from the CA OLQ statement.

DISallowed

Specifies that CA OLQ users cannot use the menu facility.

olq transaction identifier is *task-code*

Specifies the task code that invokes the CA OLQ runtime system.

Task-code must be a task code previously defined in the data dictionary with a TASK statement. The default is CA OLQ.

This parameter is required to create an executable system.

PFKey MODule is *qfile-name*

Identifies the q-file that is executed each time a user invokes CA OLQ.

Qfile-name must be the name of a q-file defined in the data dictionary.

PRInt LINe size is *print-line-size*

Specifies the line length, in characters, for CA OLQ reports output on TTY-type terminals.

Print-line-size must be an integer in the range 20 through 255. The default is 80.

PRInt PAGe size is *print-page-size*

Specifies the page length, in lines, for CA OLQ reports output on TTY-type terminals.

Print-page-size must be an integer in the range 5 through 127. The default is 60.

REPort DICtname is *dictionary-name*

Identifies the data dictionary in which catalog information about CA OLQ saved reports is stored.

Dictionary-name must be the name of a data dictionary in the database name table defined for the system.

REPort FILe page size is *report-file-page-size*

Specifies the size, in bytes, of CA OLQ report file pages written to the queue area.

Report-file-page-size must be an integer in the range 256 through 32,767. The default is 4,000 bytes.

The specified page size must be:

- Large enough to accommodate the largest database or logical record placed in the report file
- At least 100 bytes smaller than the page size of the queue area

REPort RETention is

Specifies the length of time the system is to retain a CA OLQ report in the queue area. The system automatically uses the REPORT RETENTION value when a user issues a SAVE command without specifying a report retention period. Reports that exceed their retention period in the queue area are deleted automatically at system startup.

report-retention-period

Specifies the report retention period in days.

Report-retention-period must be an integer in the range 0 through 255. The default is 1. A value of 255 is synonymous with FOREVER.

FORever

Directs the system not to delete reports based on a retention period.

SEParator character is '*separator-character*'

Specifies the command separation character used to concatenate CA OLQ commands.

Separator-character must be a one-character alphanumeric value enclosed in site-standard quotation marks. The default is the exclamation point (!).

OLQ Statement Usage

Overriding the ACCESS IS Parameter

You can override the ACCESS IS parameter using the following:

- The **IDD USER statement** allows you to override which product (CA OLQ or CA IDMS) will process SQL statements on a user-by-user basis.
- The **CA OLQ SET command** allows you to override which product (CA OLQ or CA IDMS) will process SQL statements for a specific CA OLQ session.

Efficient use of the Queue Area

To make most efficient use of the queue area, specify a **report retention** period that is as short as possible.

Example: OLQ Statement

Defining the CA OLQ Environment

The following statement creates the OLQ system OLQ10:

```
ADD OLQ
    OLQ ID IS OLQ10
    INTERNAL STORAGE PAGE SIZE IS 3552
    INTERRUPT COUNT IS 50
    PRINT LINE SIZE IS 80
    PRINT PAGE SIZE IS 60
    REPORT FILE PAGE SIZE IS 2208.
    REPORT RETENTION IS 1.
    MAXIMUM REPORT RETENTION IS 6.
    CONTINUATION CHARACTER IS '+'.
```

Modifying the CA OLQ Environment

The following statement modifies OLQ10 by changing the interrupt count:

```
MODIFY OLQ
   INTERRUPT COUNT IS 100.
```

Deleting the CA OLQ Environment

The following statement deletes OLQ10:

```
DELETE OLQ.
```

PROGRAM Statement—Defines and Associates a Program

The PROGRAM statement is used to define a program and associate it with a system. DC/UCF programs are subschemas, database procedures, and system-supplied programs (for example, IDMSOCF). DC/UCF programs are also maps, edit and code tables, SQL access modules, CA ADS, and user programs written in COBOL, PL/I, and Assembler.

Each program the DC/UCF system uses must exist as a load module and must be known to the runtime system. Programs are identified to the runtime system in any of these ways:

- Manually by defining them in the data dictionary using the system generation PROGRAM statement or the DC OPTION of the DDDL compiler PROGRAM statement
- By providing for their automatic definition in the data dictionary at runtime. You enable automatic program definition with the system generation SYSTEM statement UNDEFINED PROGRAM COUNT parameter
- Defining them dynamically at runtime using the DCMT VARY DYNAMIC PROGRAM command

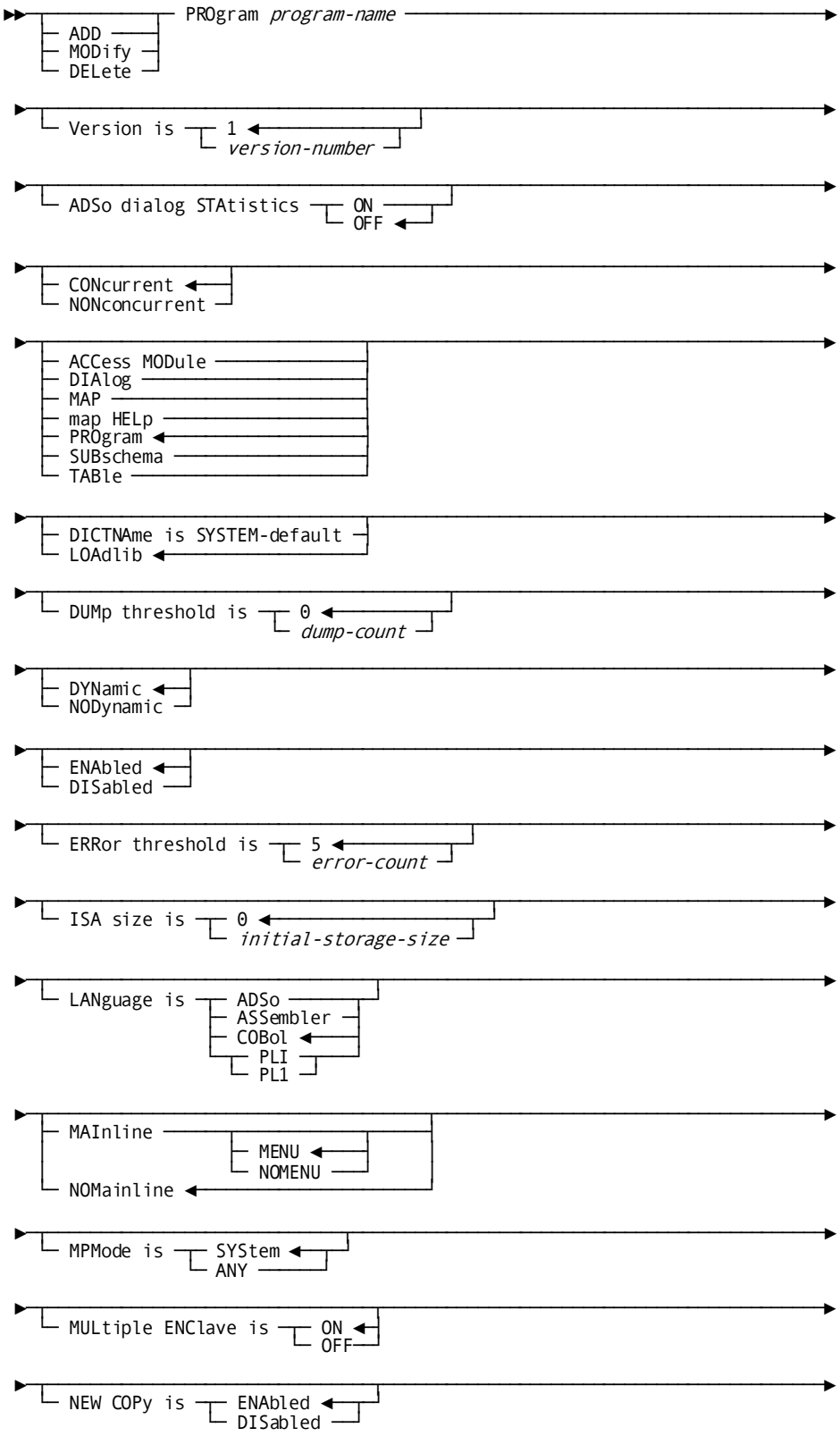
You must code one PROGRAM statement to define each of the following programs to the system:

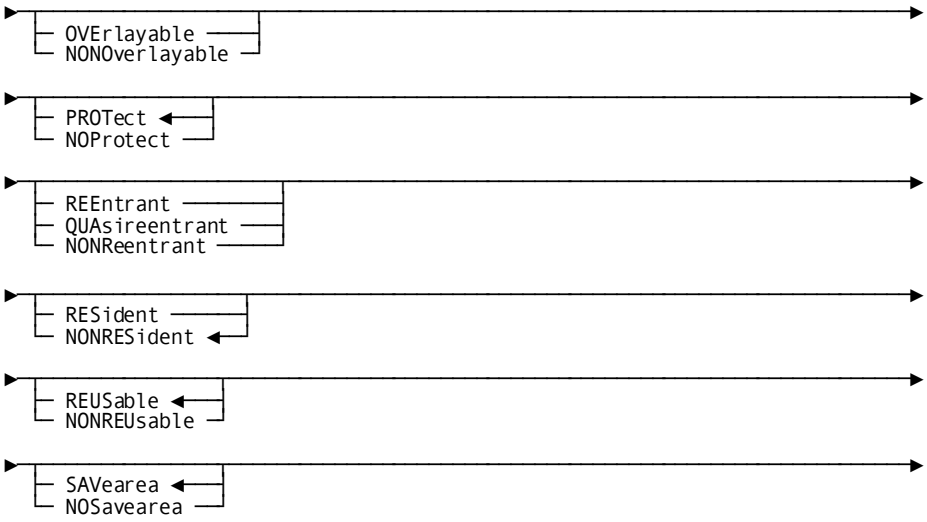
- All **database procedures**, including CA-supplied database procedures (for example, IDMSCOMP for data compression and IDMSDCOM for data decompression) and user-written procedures.
- All **subschemas** that have not been compiled into the data dictionary with the subschema compiler.
- The system program **RHDCBYE**, used at user signoff.
- All **CA-supplied programs** associated with the online components and system tasks included in the system definition. For more information, see System Programs and Tasks (see page 411).

PROGRAM Statement Syntax

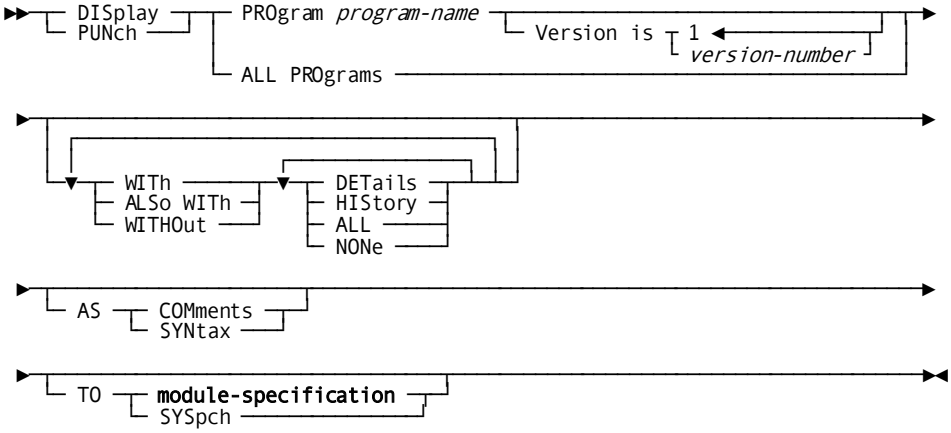
ADD/MODIFY/DELETE PROGRAM Statement

The defaults shown can be overridden with the DEFAULT PROGRAM statement. Additionally, users can override certain PROGRAM statement parameters at runtime with the DCMT VARY PROGRAM command. The allowable overrides are noted in the syntax rules for the applicable parameters. For a complete description of overriding PROGRAM statement defaults, see DEFAULT PROGRAM Statement (see page 216).


PROgram program-name
ADD
MODify
DELete
Version is
1
version-number
ADSo dialog STAtistics
ON
OFF
CONcurrent
NONconcurrent
ACCess MODule
DIAlog
MAP
map HELp
PROgram
SUBschema
TABle
DICTNAme is SYSTEM-default
LOAdlib
DUMp threshold is
0
dump-count
DYNamic
NODynamic
ENAbled
DISabled
ERRor threshold is
5
error-count
ISA size is
0
initial-storage-size
LANguage is
ADSo
ASSembler
COBol
PLI
PL1
MAInline
MENU
NOMENU
NOMainline
MPMode is
SYStem
ANY
MULtiple ENClave is
ON
OFF
NEW COPy is
ENAbled
DISabled



DISPLAY/PUNCH PROGRAM Statement



More information:

Storage Protection (see page 68)

PROGRAM Statement Parameters

PROgram *program-name*

Specifies the name of the program being added, modified, or deleted.

Program-name must be the one- through eight-character name of a program load module. *Program-name* must begin with an alphabetic or national (#, $, @) character.

Version is *version-number*

Qualifies the named program with a version number.

Version-number must be an integer in the range 1 through 9,999. The default is 1.

ADSo dialog STAtistics

For CA ADS dialogs only, specifies whether statistics are collected for this CA ADS dialog.

Note: Users can override this parameter at runtime with the DCMT VARY PROGRAM ADSO STATISTICS command.

ON

Enables statistics collection for the specified dialog. You should specify this parameter in conjunction with the DIALOG STATISTICS parameter of the ADSO statement, discussed earlier in this chapter.

OFF

Indicates that statistics will not be collected.

OFF is the default when you omit the ADSO DIALOG STATISTICS parameter from the PROGRAM statement.

CONcurrent

Specifies the program can be used by multiple run units and/or tasks at the same time. If the program is reentrant or quasireentrant, one copy of the program is used to process all requests. If the program is nonreentrant, as many copies of the program are used as necessary to process requests concurrently.

CONCURRENT is the default when you specify neither CONCURRENT nor NONCURRENT in the PROGRAM statement.

Note: The system automatically assigns the default value CONCURRENT to maps and subschemas.

NONconcurrent

Specifies the program can be used by only one run unit or task at a time.

ACCess MODule

Identifies the program as an access module.

An access module is the executable form of the SQL statements that a program issues when using the CA IDMS SQL Option.

DIAlog

Identifies the program as a CA ADS dialog.

MAP

Identifies the program as a map.

map HELp

Identifies the program as a help module for use with the CA IDMS Mapping Facility.

PROgram

Identifies the program as either an executable program or a user-defined table.

SUBschema

Identifies the program as a subschema.

TABle

Identifies the program as an edit or code table.

DICTNAme is SYSTEM-default

Indicates the program resides in the load area (DDLDCLOD) of the default dictionary. (Programs that reside in the load area of an alternate dictionary cannot be defined during system generation.)

LOAdlib (default)

Indicates the program resides in a load library. Under z/OS, the load library is identified by the program version number. For example, a program with a version number of 2 resides in the V0002 load library.

LOADLIB is the default when you specify neither the DICTNAME nor the LOADLIB parameter in the PROGRAM statement.

DUMp threshold is *dump-count*

Specifies the number of times that a dump is to be taken for program check errors that occur in the program. A memory dump is taken each time a program check occurs up to and including the value specified by *dump-count*. When this limit is reached and additional program check errors occur, the task that uses this program is terminated abnormally with no memory dump.

Dump-count must be an integer in the range 0 through 255. The default is 0. The default of 0 indicates that a dump will be produced every time a program check occurs.

Note: Users can override this parameter at runtime with the DCMT VARY PROGRAM DUMP THRESHOLD command. For more information about DCMT commands, see the *CA IDMS System Tasks and Operator Commands Guide*.

DYNamic

Allows users to define additional versions of the program at runtime either by means of the DCMT VARY DYNAMIC PROGRAM command or, if the program is eligible for automatic definition, through the definition of null PDEs on the SYSTEM statement.

DYNAMIC is the default when you specify neither DYNAMIC nor NODYNAMIC in the PROGRAM statement.

NODynamic

Prevents users from defining additional versions of the program at runtime. Additionally, the system generation compiler ensures that only one version of the program is included in the system definition.

ENAbled

Indicates the program is enabled at system startup.

ENABLED is the default when you specify neither ENABLED nor DISABLED in the PROGRAM statement.

DISabled

Indicates the program is not enabled at system startup. A DC/UCF system cannot access a disabled program.

Note: Users can override the ENABLED/DISABLED parameter at runtime with the DCMT VARY PROGRAM ENABLE/DISABLE command.

ERRor threshold is *error-count*

Specifies the number of program check errors that can occur before the program is disabled by the system. When the value specified by *error-count* is exceeded, the program is not executed and tasks attempting to use the program are terminated abnormally.

Error-count must be an integer in the range 1 through 255. The default is 5.

Note: Users can override this parameter at runtime with the DCMT VARY PROGRAM PROGRAM CHECK THRESHOLD command.

Note: During startup, the system ignores the values for programs ADSOMAIN and ADSORUN1. These programs are assigned an unlimited error count.

ISA size is *initial-storage-size*

For Assembler and PL/I programs only, specifies the amount of storage, in bytes, allocated for the program's initial storage area (ISA). If an ISA is specified, GET STORAGE statements are not required in the program because the DC/UCF system will automatically allocate the requested storage when the program begins executing. The storage address is passed in register 11.

Initial-storage-size must be an integer in the range 0 through 2,147,483,647. The default is 0.

LANguage

Identifies the language in which the program is written.

Note: The system automatically assigns the default value ASSEMBLER to maps and subschemas.

ADSo

Indicates a CA ADS dialog.

ASSembler

Indicates an Assembler language program.

COBol

Indicates a COBOL language program.

COBOL is the default when you omit the LANGUAGE parameter from the PROGRAM statement.

PLI/PL1

Indicates a PL/I language program. PLI and PL1 are synonyms and can be used interchangeably.

MAInline

For CA ADS dialogs only, indicates the dialog is a mainline dialog. Dialogs defined as MAINLINE are entry points into applications. The names of mainline dialogs are eligible for display on the CA ADS menu screen if so allowed by ADSO statement specifications (described under ADSO Statement.).

If you specify MAINLINE, the dialog must be generated with the MAINLINE attribute but does not have to be assigned a task code during system generation.

MENU

Indicates the dialog you are defining will appear on the CA ADS menu screen.

NOMENU

Indicates the dialog you are defining will not appear on the CA ADS menu screen.

NOMainline

For CA ADS dialogs only, indicates the dialog is not a mainline dialog.

NOMAINLINE is the default when you specify neither MAINLINE nor NOMAINLINE in the PROGRAM statement.

MPMode is

Specifies the multiprocessing mode (MPMODE) for the program.

SYStem

Directs the DC/UCF system to assign an MPMODE to the program at execution time.

SYSTEM is the default when you omit the MPMODE parameter from the PROGRAM statement.

ANY

Assigns an MPMODE of ANY to the program. ANY is appropriate for reentrant and quasireentrant programs that are defined without storage protection.

Note: If you allow programs to run with an MPMODE of ANY, you should install mechanisms and standards to ensure the programs do not simultaneously update shared storage.

MULtiple ENClave is

Specifies whether the program can share the same high level Language Environment process/enclave with other programs in the same task.

ON

Specifies the program can share the same process/enclave with other programs. This option is ignored unless enclave sharing is enabled for the system. ON is the default.

OFF

Specifies that the program must use its own unshared process/enclave.

NEW COPy is

Specifies whether the new copy facility is enabled for the program or subschema.

ENAbled

Enables the new copy facility for the program or subschema. If you specify NEW COPY IS ENABLED, users can issue DCMT VARY PROGRAM NEW COPY commands for the program. If the program is a subschema, users can also issue DC/UCF operator VARY SUBSCHEMA NEW COPY commands.

ENABLED is the default when you omit the NEW COPY parameter from the PROGRAM statement.

DISabled

Disables the new copy facility for the program or subschema.

OVErlayable

Specifies the program can be overlaid in the program pool. You should specify OVERLAYABLE only for executable programs invoked through normal DC mechanisms (for example, LINK or XCTL).

OVERLAYABLE is the default when you specify PROGRAM or LANGUAGE IS COBOL, PLI, or ASSEMBLER in the PROGRAM statement.

NONOverlayable

Specifies the program cannot be overlaid in the program pool. You should specify NONOVERLAYABLE for nonexecutable programs (for example, tables) to prevent such programs from being overwritten in the program pool while they are in use.

NONOVERLAYABLE is the default when you specify MAP, SUBSCHEMA, or TABLE in the PROGRAM statement.

Important! You must specify the NONOVERLAYABLE option for program RHDCMT00.

PROTect

Enables the storage protection feature for the specified program. Storage protection cannot be activated, however, unless the SYSTEM statement also specifies the PROTECT option.

PROTECT is the default when you specify neither PROTECT nor NOPROTECT in the PROGRAM statement.

Note: For more information about storage protection, see Storage Protection (see page 68).

NOProtect

Indicates the storage protection feature is not enabled for the program.

Note: Users can override the PROTECT/NOPROTECT specification at runtime with the DCMT VARY PROGRAM STORAGE PROTECT command.

QUAsireentrant

For COBOL programs only, specifies the program is quasireentrant. To be declared quasireentrant, a program must not modify its own code unless the program ensures the modified code is returned to its original state when the program is not in control. Quasireentrant programs are permitted to use working storage because each time the program is executed the system creates a separate copy of its working storage in the storage pool. This technique makes the program, in effect, reentrant.

QUASIREENTRANT is the default for COBOL programs.

REEntrant

Specifies the program is reentrant. To be declared reentrant, the program must acquire all variable storage dynamically and must not modify its own code.

REENTRANT is the default for all non-COBOL programs.

Note: The system automatically assigns the default value REENTRANT to maps and subschemas.

NONReentrant

Specifies the program is nonreentrant. Programs that modify their own code and do not ensure the modified code is returned to its original state when the program is not in control *must* be declared NONREENTRANT.

RESident

Specifies the program is made resident at system startup. Resident programs remain in the DC/UCF region/partition for the duration of system execution.

NONRESident

Specifies the program is not made resident. Nonresident programs are loaded into a program pool as needed and are deleted from the program pool when they are not in use, as dictated by demands for space.

NONRESIDENT is the default when you specify neither RESIDENT nor NONRESIDENT in the PROGRAM statement.

REUSable

Specifies the program can be executed repeatedly. When a request to load the program is issued, the system will load a copy of the program from external storage only if no copy exists in the program pool.

To be declared REUSABLE, a program must return all modified code to its original state for each execution. Generally, code is returned to its original state either at the start of a new execution of the program or at the finish of the previous execution. By definition, reentrant and quasireentrant programs are always reusable; however, reusable programs are not necessarily reentrant or quasireentrant.

REUSABLE is the default when you specify neither REUSABLE nor NONREUSABLE in the PROGRAM statement.

Note: The system automatically assigns the default value REUSABLE to maps and subschemas.

NONREUsable

Specifies that the program cannot be executed repeatedly. When a request to load the program is issued, the system will load a copy of the program from external storage. Programs that modify their own code without returning the code to its original state *must* be declared NONREUSABLE.

SAVearea

For Assembler programs only, specifies the system will acquire a save area automatically before each execution of the program. The save area address is passed to the program in register 13. You should specify SAVEAREA or accept it by default if the program uses normal IBM calling conventions and, at the start of execution, saves registers in the save area.

SAVEAREA is the default when you specify neither SAVEAREA nor NOSAVEAREA in the PROGRAM statement.

NOSavearea

For Assembler programs only, specifies the system will not acquire a save area for the program automatically.

Note: The system automatically assigns the default value NOSAVEAREA to maps and subschemas.

PROGRAM Statement Usage

Manual Program Definition

The system generation compiler populates the data dictionary with a program source record for each PROGRAM statement input to the compiler. At generate time, these source records are copied to object records. At system startup, the system uses the information in the object record to build a program definition element (PDE) for each program. The PDE contains information used by the system at runtime.

Automatic Program Definition

For each program load module output by a CA IDMS compiler (that is, map, edit or code table, access module, subschema, or dialog), a program source record is added to the dictionary. The first time a task or program issues a request to load a map, edit/code table, access module, subschema, or dialog for which no PDE exists, the system allocates a PDE for that program from the null PDE pool. The system stores information contained in the program's source record in the allocated null PDE.

The system then attempts to load the program:

- If the program is found, the null PDE is used to load the program. The null PDE then remains allocated to service subsequent load requests that specify the same program.
- If the program cannot be found, the null PDE is returned to the null PDE pool.

You enable automatic program definition during system generation with the SYSTEM statement UNDEFINED PROGRAM COUNT parameter, which directs the system to allocate a null PDE pool and specifies the size of the pool. For more information about automatic program definition, see the description of the UNDEFINED PROGRAM COUNT parameter in SYSTEM Statement (see page 137).

Dynamic Program Definition

The system uses information supplied in the DCMT VARY DYNAMIC PROGRAM command to build a PDE for the program. Programs defined dynamically exist only for the duration of system execution and have no effect on the system; no definitions are stored in the data dictionary. Typically, dynamic program definition is used in a test environment to accommodate new programs without shutting down the entire system. All programs are eligible for dynamic definition, provided they are not already defined to the system.

For more information about dynamic program definition, see the *CA IDMS System Operations Guide*.

Describing the Location of Program Load Modules

Program load modules are stored either in the DDLDCLOD area of a data dictionary or in system load libraries:

- **DDLDCLOD** contains load modules created by CA IDMS compilers (for example, access modules, subschemas, maps, edit and code tables, and dialogs).
- **Load (core-image) libraries** contain load modules for database procedures, system programs, and user programs. Additionally, these libraries can contain any DDLDCLOD-eligible modules that have been punched from DDLDCLOD by using the IDD DDDL compiler and link edited into the appropriate library.

Selecting Dialogs to Appear on the CA ADS Menu Screen

The MENU/NOMENU option of the MAINLINE/NOMAINLINE parameter allows you to specify which mainline dialogs will appear on the CA ADS menu screen. CA ADS APPC dialogs, which are defined as mainline dialogs, do not have to automatically appear on the CA ADS menu screen. CA ADS APPC users can specify, on a dialog-by-dialog basis, which mainline dialogs are to appear on the CA ADS menu screen.

Multithreaded Programs

Reentrant and quasireentrant programs can be multithreaded; that is, they can execute multiple requests concurrently through a single copy of code. Nonreentrant programs are always single-threaded; that is, they can execute only one request for each copy of the code.

Multiple Enclave

The performance of certain online applications which use COBOL programs under the IBM Language Environment can be improved significantly by specifying MULTIPLE ENCLAVE ON. These are the restrictions on what COBOL programs can participate in a multiple-program enclave:

1. No enabled program can do a DC RETURN DML call and then be reentered via a subsequent TRANSFER. Note that this restriction does not apply to a program which contains a DC RETURN with no subparameters. That is because the DML compiler generates a GOBACK for such a statement. The restriction does apply if the DC RETURN statement does have subparameters. For example, it is not valid to execute a "DC RETURN NEXT TASKCODE ..." statement and then reenter the same program in the same task.
2. No enabled program can issue a TRANSFER CONTROL NORETURN or a TRANSFER CONTROL XCTL.
3. Optional bit 196 is ignored for programs which are participating in a MULTIPLE USE enclave. Therefore, any program which depends on the use of optional bit 196 must have MULTIPLE ENCLAVE OFF.

Example: PROGRAM Statement

Accepting Default Values

The following statement defines program XYZ. All PROGRAM statement defaults are accepted.

```
ADD PROGRAM XYZ.
```

Overriding Default Values

The following statement adds program ABC:

```
ADD PROGRAM ABC
    LANGUAGE IS ASSEMBLER
    REENTRANT
    NOSAVEAREA
```

Modifying a Program

The following statement modifies program ABC by disallowing the new copy facility:

```
MODIFY PROGRAM ABC
   NEW COPY IS DISABLED.
```

Deleting a Program

The following statement deletes program ABC:

```
DELETE PROGRAM ABC.
```

QUEUE Statement—Defines DC/UCF System Queues

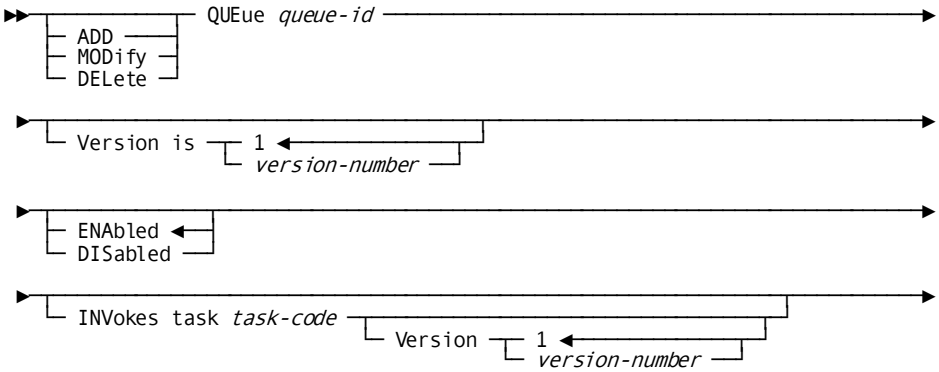
The QUEUE statement is used to define queues to a DC/UCF system. A queue is a disk work area that is shared by all tasks on all DC/UCF terminals and by batch programs. Queues might be used to collect records for subsequent printing at a centrally located printer. Entries, or queue records, are directed to queues by user programs. You do not have to define queues during system generation in order for user programs to allocate and access queue records. However, queues defined with the QUEUE statement can be assigned the following processing enhancements:

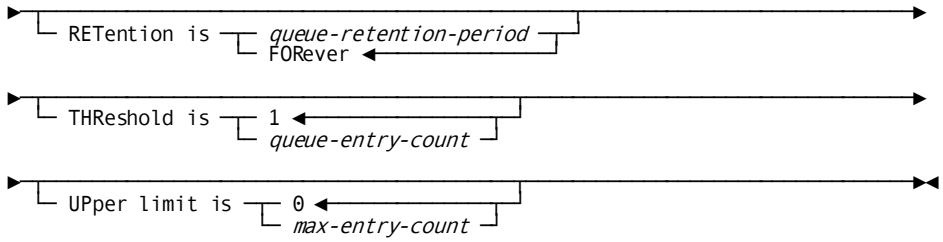
- When the number of entries in a queue reaches a specified threshold, the DC/UCF system will invoke a task defined to process the queue entries.
- When the number of entries in a queue reaches a specified upper limit, the DC/UCF will not permit further entries to be directed to the queue.

Note: Data sharing groups provide the ability to share DC queues between members of the group. This enables online tasks executing in different group members to communicate with one another, as if they were executing within the same CA IDMS system. For more information, see the *CA IDMS System Operations Guide*.

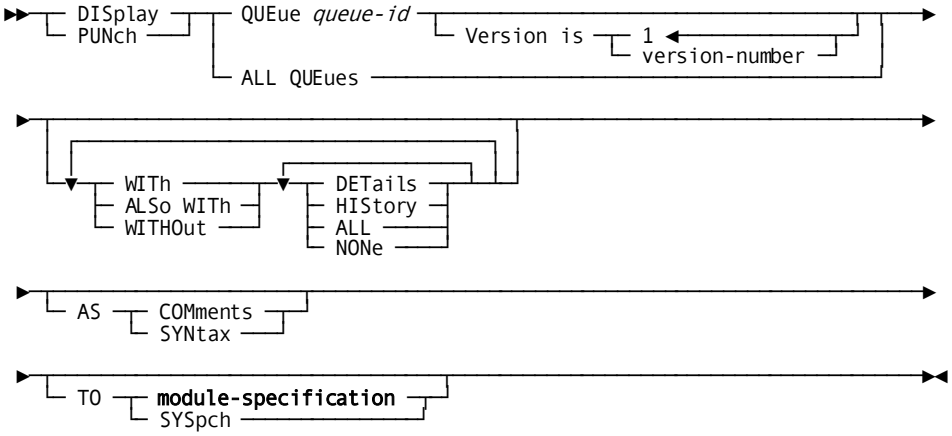
QUEUE Statement Syntax

ADD/MODIFY/DELETE QUEUE Statement





DISPLAY/PUNCH QUEUE Statement



QUEUE Statement Parameters

QUEue *queue-id*

Specifies the queue identifier.

Queue-id must be a one- through 16-character alphanumeric value.

Version is *version-number*

Qualifies the queue with a version number.

Version-number must be an integer in the range 1 through 9,999. The default is 1.

Although multiple versions of a queue can exist in the data dictionary, the DC/UCF system uses only one version of a queue at runtime. If multiple ADD QUEUE statements specify the same queue identifier, the system uses the first statement that appears in the system definition.

ENAbled

Specifies the queue is be enabled when the DC/UCF system starts up.

ENABLED is the default when you specify neither ENABLED nor DISABLED in the QUEUE statement.

DISabled

Specifies the queue is not enabled when the DC/UCF system starts up.

Note: Users can override the ENABLED/DISABLED parameter at runtime for the duration of system execution with the DCMT VARY QUEUE command.

INVokes task *task-code*

Specifies the task the DC/UCF system invokes when the number of entries in the queue reaches the limit specified in the THRESHOLD parameter (see below).

Task-code must identify a task previously defined in the data dictionary with a TASK statement.

The INVOKES TASK parameter is required for ADD operations.

Note: Users can override this parameter at runtime for the duration of system execution with the DCMT VARY QUEUE command.

Version *version-number*

Qualifies the task code with a version number.

Version-number must be an integer in the range 1 through 9,999. The default is 1.

RETention is

Specifies the amount of time the DC/UCF system is to retain the queue. The retention period begins when the first record is stored in the queue.

queue-retention-period

Specifies the queue retention period in days.

Queue-retention-period must be an integer in the range 1 through 255. A retention period of 255 is synonymous with FOREVER. A retention period of 0 defaults to 1.

FORever

Directs the DC/UCF system not to delete the queue based on a retention period.

FOREVER is the default when you omit the RETENTION parameter from the QUEUE statement.

THReshold is *queue-entry-count*

Specifies the number of entries that must exist in the queue before the DC/UCF system invokes the task specified in the INVOKES TASK parameter to process the entries.

Queue-entry-count is an integer in the range 1 through 32,767. The default is 1.

Note: Users can override this parameter at runtime for the duration of system execution with the DCMT VARY QUEUE command.

UPper limit is *maximum-entry-count*

Specifies the maximum number of entries permitted in the queue.

Maximum-entry-count is an integer in the range 1 through 32,767. The default, 0, directs DC/UCF not to monitor the number of entries in the queue.

Note: Users can override this parameter at runtime for the duration of system execution with the DCMT VARY QUEUE command.

QUEUE Statement Usage

Efficient use of the Queue Area

To make most efficient use of the queue area, specify a retention period that is as short as possible.

Upper Limits in Test and Production Environments

The UPPER LIMIT specification is useful in a test environment to prevent a looping program from filling the queue area. The recommended value for this parameter in a production environment is 0.

Example: QUEUE Statement

Adding a Queue with the Default Version Number

The following statement adds queue ABCQ, which is version 1 by default:

```
ADD QUEUE ABCQ
    INVOKES TASK QTSK1.
```

Adding a Queue with a Specified Version Number

The following statement adds queue ABCQ version 2:

```
ADD QUEUE ABCQ VERSION IS 2
    DISABLED
    INVOKES TASK QTSK2
    THRESHOLD IS 5
    UPPER LIMIT IS 2000.
```

Modifying a Queue

The following statement modifies queue ABCQ version 2 by changing the upper limit value to 1,000:

```
MODIFY QUEUE ABCQ VERSION 2
   UPPER LIMIT IS 1000.
```

Deleting a Queue

The following statement deletes version 1 of queue ABCQ:

```
DELETE QUEUE ABCQ VERSION 1.
```

RESOURCE TABLE Statement—Defines a Resource Table

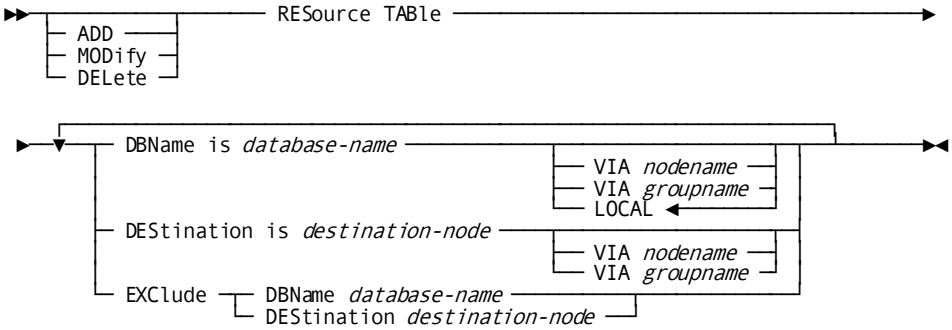
The RESOURCE TABLE statement defines the nodes on which resources in your DC/UCF communications network are located. CA IDMS creates a resource name table from the RESOURCE TABLE statement. The resource name table is used at runtime to identify the location of resources required to satisfy database requests.

If all database requests in your DC/UCF communications network will take place within a single region, then you do not have to explicitly code a RESOURCE TABLE statement. CA IDMS will automatically generate a resource name and node entry in a resource name table for the resources located on the system you are defining.

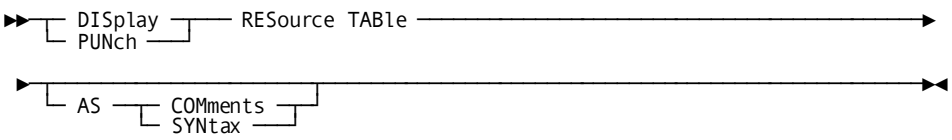
You must use the RESOURCE TABLE statement to explicitly define resources located on another node within your DC/UCF communications network, if they can be accessed by the DC/UCF system you are defining.

RESOURCE TABLE Statement Syntax

ADD/MODIFY/DELETE RESOURCE TABLE Statement



DISPLAY/PUNCH RESOURCE TABLE Statement



RESOURCE TABLE Statement Parameters

DBName is *db-name*

Specifies the name of the database or dictionary included in the resource name table. *Db-name* is a one- through eight-character alphanumeric value. The last character of *db-name* can be an asterisk (*) indicating a wildcard character. For more information about the use of the wildcard character, see Usage (see page 279).

VIA *nodename*

Identifies the name of the DC/UCF system where the named resource is located or the name of an intermediate node through which the request for data will be routed.

Nodename is the system name identified on the SYSTEM ID parameter of the SYSTEM statement or overridden by the DCNAME parameter in the SYSIDMS file at startup and must match a nodename defined with the NODE statement.

VIA groupname

Identifies the name of the DBGROUP to which the request for data will be dynamically routed.

Groupname is the name of a DBGROUP defined in the database name table of one or more DC/UCF systems any of which are capable of servicing the request for data. Groupname must match a nodename defined by a NODE statement specifying a GROUP parameter.

LOCal

Specifies the resource is located on the DC/UCF system you are defining.

LOCAL is the default.

DEStination is *destination-node*

Specifies a node name to which requests for data are sent.

Specify a *destination-node* rather than a *database-name* when user applications will specify a *nodename* on a native DML BIND RUNUNIT statement or a DC batch application BIND TASK statement.

The last character of destination-node can be an asterisk (*) indicating a wildcard character. For more information about the use of the wildcard character, see Usage (see page 279).

Destination-node is a unique one- through 8- character alphanumeric value.

EXClude

DBName *database-name*

Identifies the name of a previously defined database to exclude from the resource name table.

DEStination *destination-node*

Identifies the name of a previously defined *destination-node* to exclude from the resource name table.

RESOURCE TABLE Statement Usage

What are Resources

A resource is either a database or a node (system) from which requests for a database are forwarded. You specify a node name as a DESTINATION when:

- You don't know the ultimate target node or
- No physical communication link exists except for the DC/UCF system you are defining and the final destination node

Using Wildcards for Resource Names

You can use a wildcard character with the *db-name* and *destination-name* variables. For example, you could define:

```
ADD RESOURCE TABLE
 DBNAME IS MIS* VIA SYSTEM84
```

MIS* would be a single entry in the resource name table. At runtime, any request for a database name with MIS, would be matched with MIS* and routed to SYSTEM84.

Additionally, CA IDMS automatically generates the following entries as the last two entries in the resource name table:

```
DBNAME * LOCAL
DESTINATION *.
```

This ensures that all database requests are routed to the DC/UCF system you are defining.

Sequence of Resource Names is Important

CA IDMS generates entries in the resource name table in the order they are defined on the RESOURCE TABLE statement. This is important because the resource name table is searched from the beginning of the table to the end until a match is found. The first match CA IDMS finds in the resource name table is the node name it will use to locate the requested resource.

You should define specific resource names first and less specific resource names next.

If the resource is not located in the resource name table or the node name does not match the node name specified on the request, an error is returned to the application program.

Specifying Resources

The type of resource you specify is either a database or a destination (nodename). In most cases, you will specify a database name.

The only time you need to explicitly define a destination resource is when the target node is not defined using a NODE statement. This can be the case because:

- There is no direct communications path from the system being defined to the target system, thus requiring database requests to be routed through an intermediate node. If this is the case, you must define the target node as a destination resource and specify the intermediate node in its VIA parameter.
- Dynamic routing through DBGROUPs is used to direct database connections to any of several systems capable of processing the request. The default access method is used to access the dynamically selected target node. If this is the case, you must define the members of the DBGROUP as destination resources and specify the name of the DBGROUP in their VIA parameter. If the node names of all DBGROUP members follow a unique naming convention, then wild-carding can be used in the destination nodename to reduce the number of required definitions and to allow new members to be added without necessitating changes to the resource table.

Modifying the Resource Table

You can modify and delete individual entries in the resource table without deleting the entire resource table. Use the EXCLUDE clause of the RESOURCE TABLE statement to delete a specific DBNAME or DESTINATION entry from the resource table.

Use the MODIFY RESOURCE TABLE statement to add new entries to an existing resource table. Note that new entries added to the resource table on a MODIFY operation are added to the end of the resource table. To control the sequence of entries in the resource table when adding new entries to an existing resource table, you have to delete and then add the resource table; submitting the entries in the sequence you want them to appear in the resource table.

You can also modify the LOCAL/VIA option to change the location of a database name resource.

Example: RESOURCE TABLE Statement

Defining a Resource Table

```
ADD RESOURCE TABLE
    DBNAME IS SYS104 VIA EDCQAM01
    DESTINATION IS PRODC* VIA CUSTGRP
    DBNAME IS MIS* VIA SYSTEM84.
```

Modifying a Resource Table to Add a Database Name

```
MODIFY RESOURCE TABLE
    DBNAME IS SYS103 VIA EDCQA01.
```

Modifying the Resource Table to Delete an Entry

```
MODIFY RESOURCE TABLE
  EXCLUDE DESTINATION SYSQA02.
```

RUNUNITS Statement—Creates Predefined Run Units

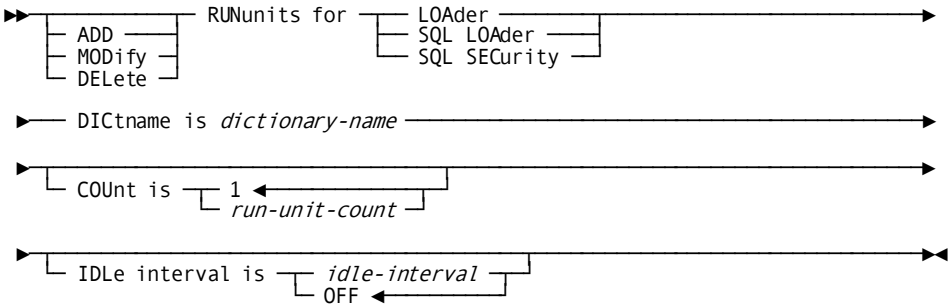
The RUNUNITS statement is used to predefine:

- System run units for load area processing for an alternate dictionary or catalog
- Run units to perform security checking for SQL objects in an alternate catalog

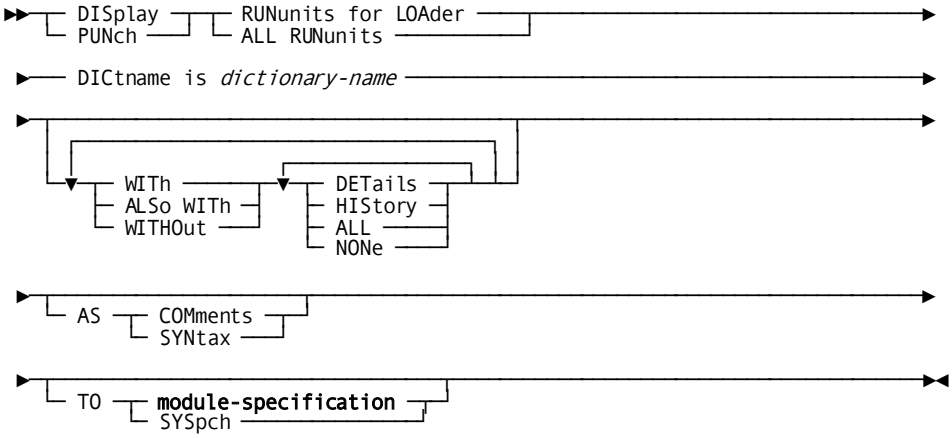
Run units predefined can be controlled at runtime by means of the DCMT DISPLAY and VARY RUN UNIT LOADER commands. For more information about DCMT commands, see the *CA IDMS System Tasks and Operator Commands Guide*.

RUNUNITS Statement Syntax

ADD/MODIFY/DELETE RUNUNITS Statement



DISPLAY/PUNCH RUNUNITS Statement



RUNUNITS Statement Parameters

LOAder

Allows you to predefine rununits for loading from dictionary load areas.

SQL LOAder

Allows you to predefine rununits for loading access modules when using the SQL option.

SQL SECurity

Allows you to predefine rununits that will perform security checking against SQL-related objects such as tables, access modules and SQL-defined schemas.

DICtname is *dictionary-name*

Identifies the data dictionary for which the run units are being predefined.

Dictionary-name must be the one- through eight-character name of a data dictionary included in a segment of the DMCL defined for the runtime environment.

You must explicitly identify an alternate dictionary. *Dictionary-name* cannot be the system default dictionary. You specify a default dictionary for predefined run units on the RUNUNIT FOR clause of the SYSTEM statement.

COUnt is *run-unit-count*

Specifies the number of run units being predefined.

Run-unit-count must be an integer in the range 1 through 999. The default is 1.

IDLe interval is

Specifies how long the DC/UCF system is to permit a predefined run unit to be inactive before issuing a FINISH command for the run unit. A terminated run unit will be rebound when a program requires access to the load area and no predefined run units are available.

idle-interval

Specifies the idle interval in minutes.

Idle-interval must be an integer in the range 1 through 9,999.

OFF

Directs the system not to terminate inactive run units based on an idle interval.

OFF is the default when you omit the IDLE INTERVAL parameter from the RUNUNITS statement.

Example: RUNUNITS Statements

Predefining Run Units

The following statement creates five predefined run units for load area processing in the TSTDICT dictionary. The run units will be terminated if they remain inactive for more than eight minutes.

```
ADD RUNUNITS FOR LOADER
    DICTNAME IS TSTDICT
    COUNT IS 5
    IDLE INTERVAL IS 8.
```

Changing the Idle Interval

The following statement changes the idle interval for the predefined run units for the TSTDICT dictionary:

```
MODIFY RUNUNITS FOR LOADER
    DICTNAME IS TSTDICT
    IDLE INTERVAL IS 5.
```

Deleting Predefined Run Units

The following statement deletes the predefined run units for the TSTDICT dictionary:

```
DELETE RUNUNITS FOR LOADER
    DICTNAME IS TSTDICT.
```

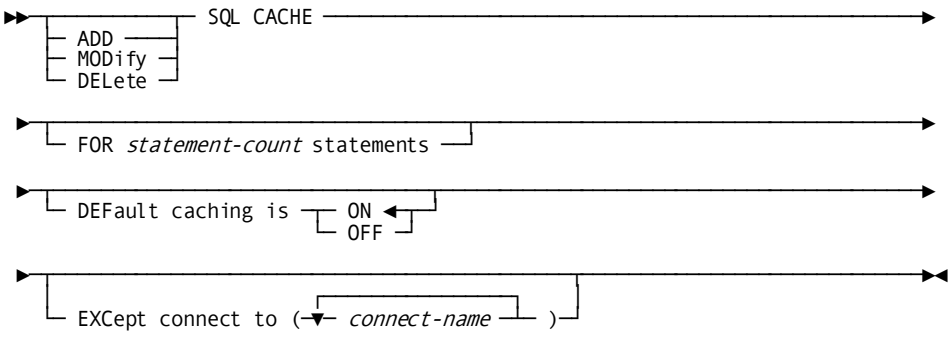
For more information about predefined run units, see System Run Units (see page 37).

SQL CACHE Statement—Controls SQL Caching

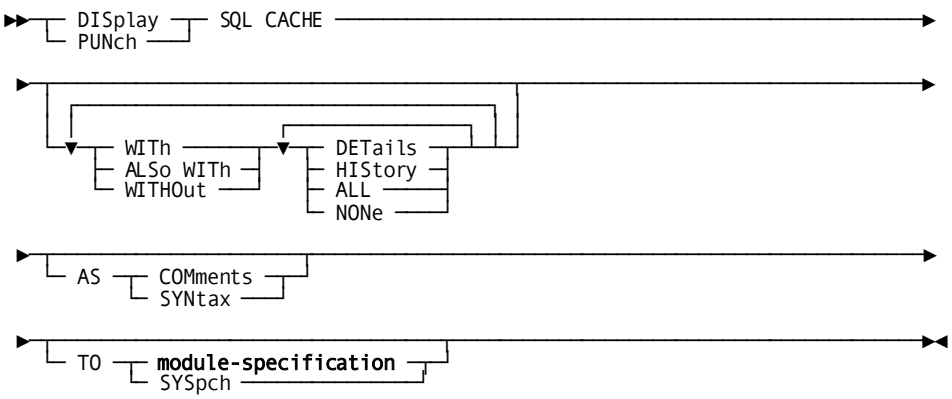
The SQL CACHE statement controls SQL caching in a central version.

SQL CACHE Statement Syntax

ADD/MODIFY/DELETE SQL CACHE Statement



DISPLAY/PUNCH SQL CACHE Statement



SQL CACHE Statement Parameters

statement-count

Specifies the maximum number of SQL statements that can be placed in the SQL statement cache. The default value is 100. The maximum theoretical value is 2,147,483,647. The actual maximum depends on available memory.

DEFault caching

- ON - Specifies that caching of dynamic SQL statements is enabled. ON is the default.
- OFF - Specifies that caching of dynamic SQL statements is disabled.

connect-name

Specifies the name of a dictionary or catalog to which a user of the CV can connect. You can specify multiple connect-names to form an exception list to the default caching specification.

SQL CACHE Statement Usage

Dynamically changing caching attributes: All of the options that can be specified in an SQL CACHE statement can be changed dynamically by issuing SQL DML statements against CA-supplied tables. For more information, see the *CA IDMS SQL Reference Guide*.

Default caching status: If an SQL CACHE statement is not specified for a system, the dynamic SQL caching is disabled at system startup. SQL caching can be dynamically enabled by inserting a row into the SYSCA.SQLCACHEOPT table. For more information, see the *CA IDMS SQL Reference Guide*.

Specifying an exception list: You can specify an exception list of **connect-names** for which caching is enabled or disabled depending on what was implicitly or explicitly specified in the DEFAULT CACHING clause. If default caching is enabled, caching is disabled for any session connected to a dictionary or database whose name appears in the exception list. Conversely, if default caching is disabled, caching is enabled for any such session.

Example: SQL CACHE Statement

Enabling an SQL Cache

The following statement enables an SQL cache to hold up to 500 SQL statements. Caching will be active for all connect names except for the SYSTEM dictionary.

```
ADD SQL CACHE
 FOR 500 STATEMENTS
 DEFAULT CACHING IS ON
 EXCEPT CONNECT TO(SYSTEM).
```

Modifying the Connect Exception List

The following statement will set the dictionaries SYSTEM and APPLDICT in the exception list.

```
MOD SQL CACHE
 EXCEPT CONNECT TO(SYSTEM APPLDICT).
```

Removing SQL caching

The following statement removes the SQL cache from the current system definition. Please note that it will still be possible to dynamically add SQL caching through SQL DML statements. Refer to the examples in the appropriate appendix of the *CA IDMS SQL Reference Guide.*

```
DELETE SQL CACHE.
```

STORAGE POOL Statement—Defines Secondary 24-Bit Storage Pools

The STORAGE POOL statement is used to define secondary 24-bit storage pools and their characteristics, including the storage pool number, size, and type of storage the pool contains. Using the STORAGE POOL statement, you can define up to 127 alternate 24-bit storage pools, each containing up to six types of storage.

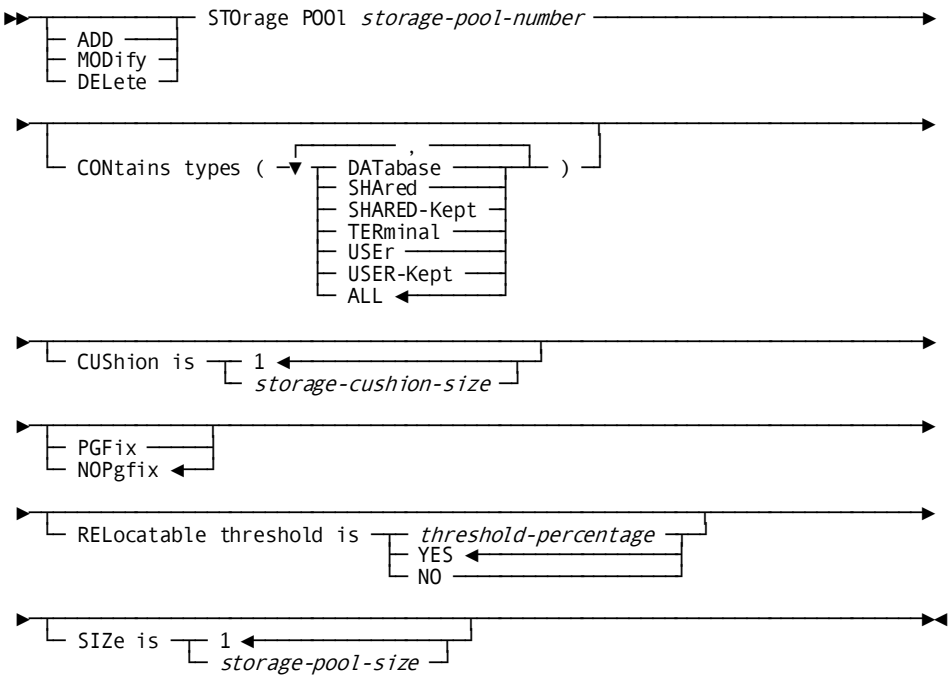
You define each storage pool with a separate STORAGE POOL statement, specifying a number that identifies the storage pool. You can specify optional parameters or allow parameter defaults noted in the syntax description.

At runtime, users can display summary statistics for all storage pools in the system with the DCMT DISPLAY ALL STORAGE POOLS statement. Users can display statistics for a single storage pool using the DCMT DISPLAY ACTIVE STORAGE statement.

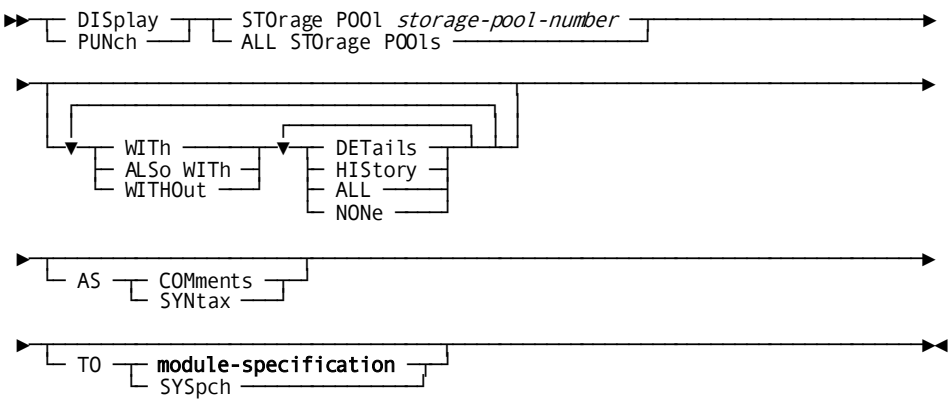
When using storage protect in a production environment, the storage pools must be defined in such a manner that all forms of user-oriented storage are segregated from the system-oriented storage. In other words, explicitly define both an XA and a non-XA storage pool for user storage types. Storage types: User, User kept, Shared, and Shared kept, can be together, but they must be defined to secondary storage pools and must be isolated from any secondary pools which contain either Database or Terminal type storage. Do not use the ALL keyword in the sub-clause "Contains types (ALL)" and do not permit this sub-clause to default on any storage pool being defined for a storage protected production environment, instead the types must be explicitly stated for each pool being defined.

STORAGE POOL Statement Syntax

ADD/MODIFY/DELETE STORAGE POOL Statement



DISPLAY/PUNCH STORAGE POOL Statement



STORAGE POOL Statement Parameters

STOrage POOl *storage-pool-number*

Specifies a number that uniquely identifies a 24-bit storage pool.

Storage-pool-number must be an integer in the range 1 through 127.

CONtains types

Specifies the types of storage the named storage pool can accommodate.

Storage types must be enclosed by parentheses. If you specify more than one storage type, each type must be separated from the next by a blank or a comma.

DATabase

Specifies the storage pool can contain storage for DMCL buffers. The DMCL buffers hold copies of database pages.

SHAred

Specifies the storage pool can contain storage that is designated shared.

SHARED-Kept

Specifies the storage pool can contain storage that is designated shared kept.

TERminal

Specifies the storage pool can contain storage for terminal buffers.

USEr

Specifies the storage pool can contain storage that is designated user.

USER-Kept

Specifies the storage pool can contain storage that is designated user kept.

ALL

Specifies the storage pool can contain all of the storage types listed above.

ALL is the default when you omit the CONTAINS TYPES parameter from the STORAGE POOL statement.

CUShion is *storage-cushion-size*

Specifies the amount of free storage, in 1K bytes, to be reserved in the specified storage pool to help prevent exhausting space in the storage pool.

Storage-cushion-size must be an integer in the range 1 through 16,383. The default is 1.

Note: Users can override this parameter at runtime with the DCMT VARY STORAGE POOL CUSHION command.

PGFix

For virtual storage systems only, specifies that pages in the storage pool are fixed as they are allocated.

NOPgfix

For virtual storage systems only, suppresses page fixing.

NOPGFIX is the default when you specify neither PGFIX nor NOPGFIX in the STORAGE POOL statement.

RELocatable threshold is

Specifies the point at which the DC/UCF system is to write relocatable storage in the named storage pool to the scratch area (DDLDCSCR) of the data dictionary.

threshold-percentage

Directs the system to write relocatable storage to the scratch area across a pseudo-converse when the amount of used space in the storage pool exceeds the specified threshold.

Threshold-percentage must be an integer in the range 0 through 100. A value of 0 is synonymous with YES. A value of 100 is synonymous with NO.

YES

Directs the system always to write relocatable storage to the scratch area across a pseudo-converse.

YES is the default when you omit the RELOCATABLE THRESHOLD parameter from the STORAGE POOL statement.

NO

Directs the system never to write relocatable storage to the scratch area across a pseudo-converse.

SIZe is *storage-pool-size*

Specifies the amount of storage, in 1K bytes, to be made available for system and program variable storage.

Storage-pool-size must be an integer in the range 1 through 16,383. The default is 1.

Note: For more information about runtime storage allocation, see the *CA IDMS System Operations Guide*.

Example: STORAGE POOL Statement

Adding a Storage Pool with Default Characteristics

The following statement defines storage pool 3. All STORAGE POOL statement defaults are accepted:

```
ADD STORAGE POOL 3.
```

Changing the Types of Storage Allowed in a Storage Pool

The following statement modifies storage pool 3 by changing the storage types:

```
MODIFY STORAGE POOL 3
   CONTAINS TYPES (TERMINAL DATABASE).
```

Adding a Storage Pool with Specified Characteristics

The following statement adds storage pool 5:

```
ADD STORAGE POOL 5
    SIZE IS 250
    CUSHION IS 50
    PGFIX
    CONTAINS TYPES (SHARED SHARED-KEPT).
```

Changing the Size of a Storage Pool

The following statement modifies storage pool 5 by changing its size to 300:

```
MODIFY STORAGE POOL 5
   SIZE IS 300.
```

Deleting a Storage Pool

The following statement deletes storage pool 5:

```
DELETE STORAGE POOL 5.
```

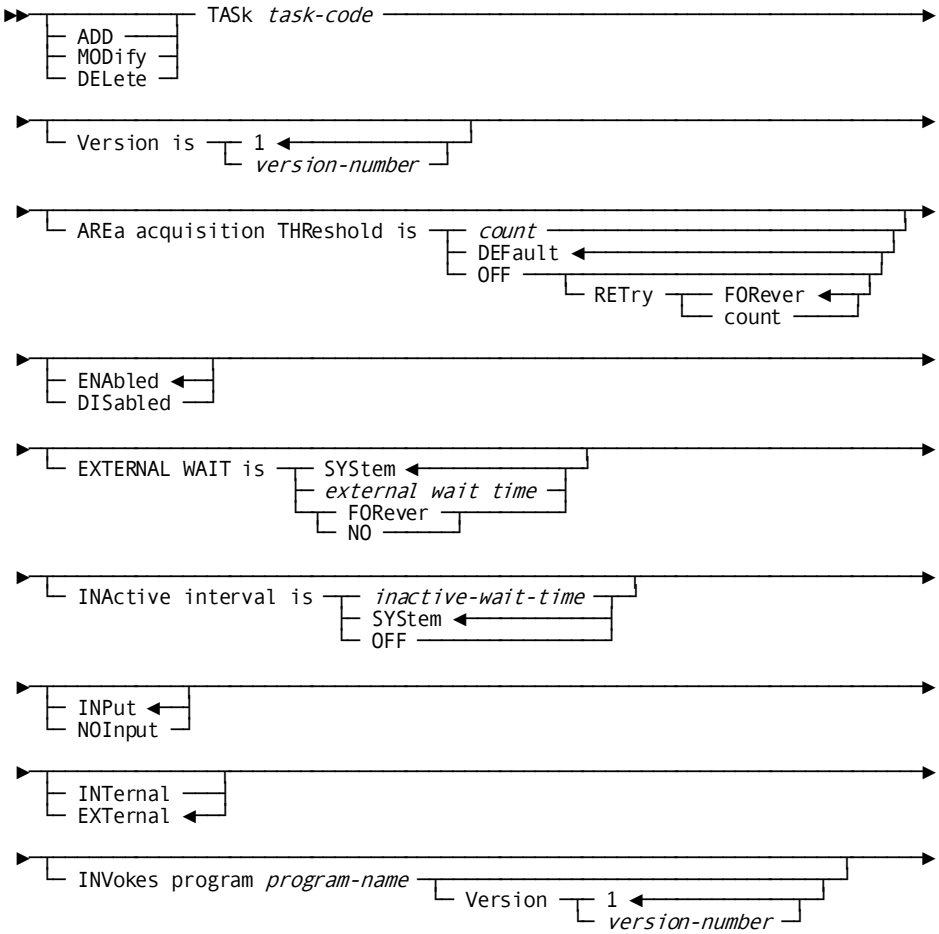
TASK Statement

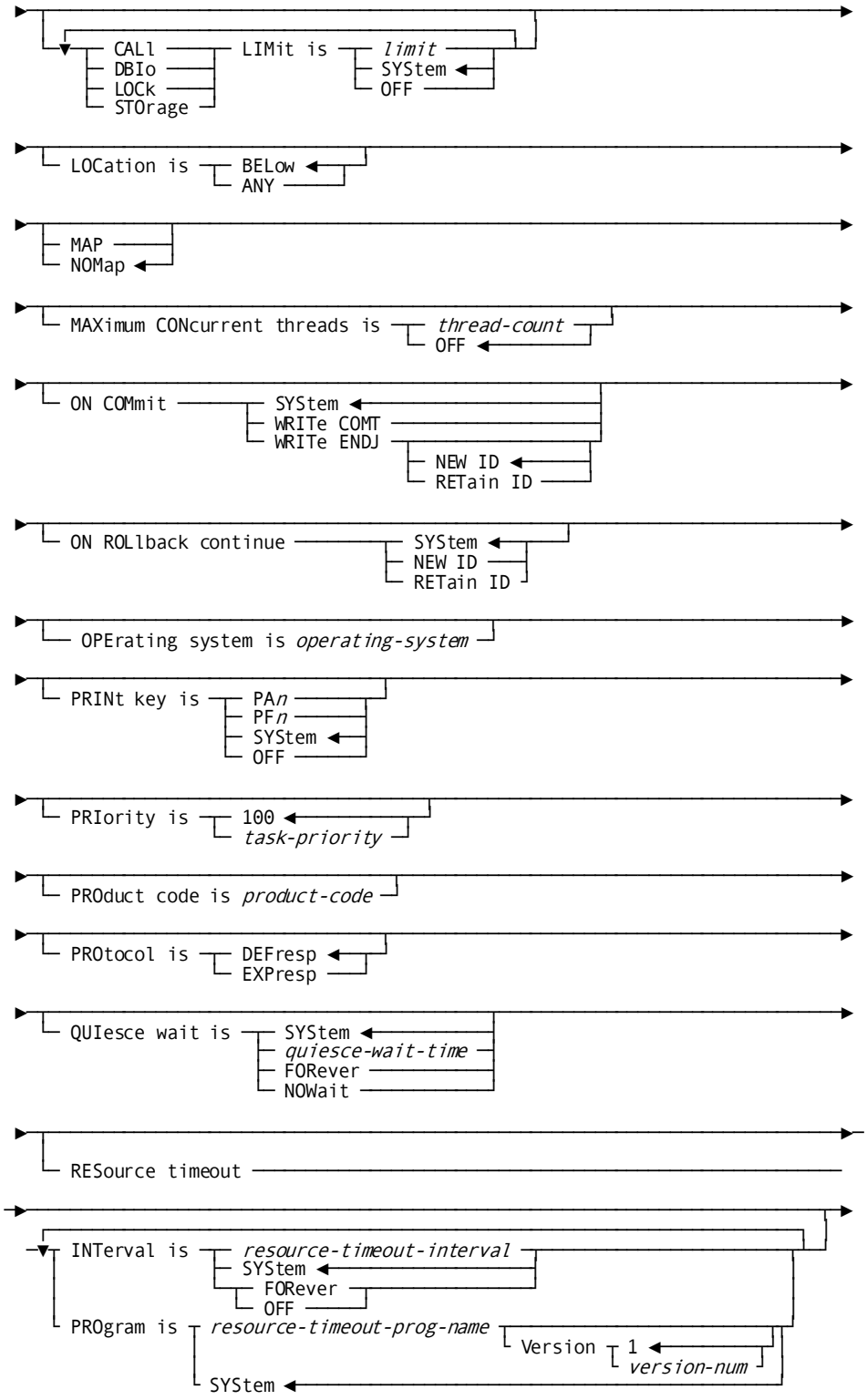
The TASK statement is used to define a task and its characteristics, including the code used to invoke the task, and to associate the task with a DC/UCF system. The task definition names the first program to be invoked by the task. Subsequent programs are invoked according to program instructions (for example, LINK) and are not specified in the task definition. The TASK statement optionally specifies an upper limit for system resources owned by a task.

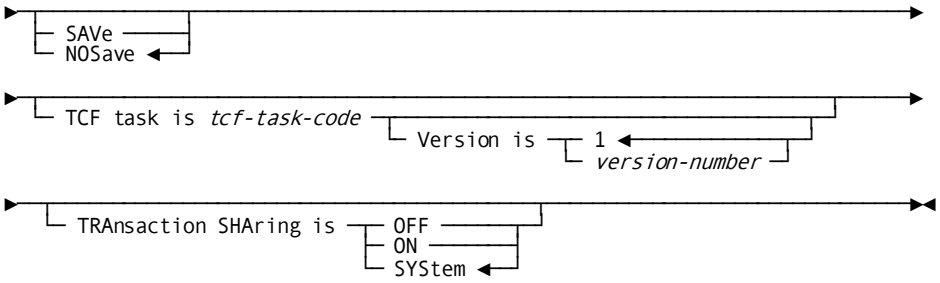
Users can override certain TASK parameters at runtime by using the DCMT VARY TASK command. The allowable overrides are noted in the syntax rules for the applicable parameters.

TASK Statement Syntax

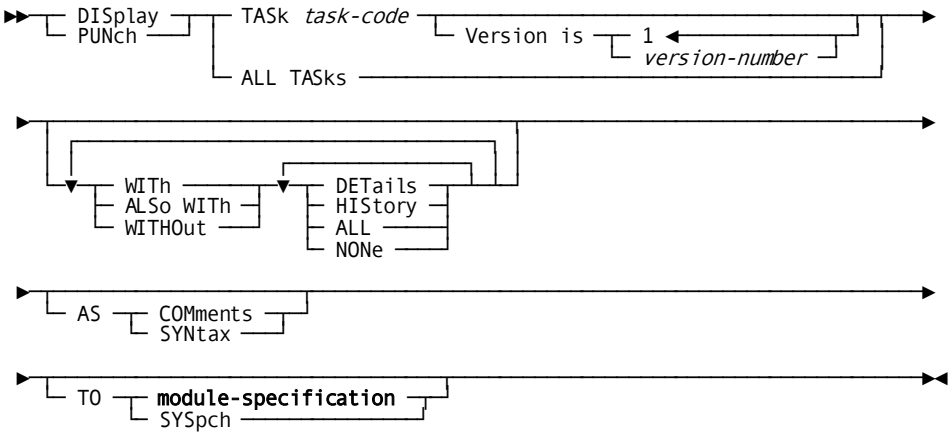
ADD/MODIFY/DELETE TASK




CALl
DBIo
LOCk
STOrage
LIMit is
limit
SYStem
OFF
LOCation is
BELow
ANY
MAP
NOMap
MAXimum CONcurrent threads is
thread-count
OFF
ON COMmit
SYStem
WRITe COMT
WRITe ENDJ
NEW ID
RETain ID
ON ROLlback continue
SYStem
NEW ID
RETain ID
OPErating system is operating-system
PRINt key is
PAn
PFn
SYStem
OFF
PRIority is
100
task-priority
PROduct code is product-code
PROtocol is
DEFresp
EXPresp
QUIesce wait is
SYStem
quiesce-wait-time
FOREver
NOWait
RESource timeout
INTerval is
resource-timeout-interval
SYStem
FOREver
OFF
PROgram is
resource-timeout-prog-name
Version
1
version-num
SYStem



DISPLAY/PUNCH TASK Statement



TASK Statement Parameters

TASk *task-code*

Specifies a code that identifies the task and is used at runtime by a terminal operator or program to invoke the task.

Task-code must be a one- through eight-character value.

Note: CA ADS mainline dialogs do not require task codes in order to be invoked.

Version is *version-number*

Differentiates tasks with identical task codes (for example, production and test versions).

Version-number must be an integer in the range 1 through 9,999. The default is 1.

Although multiple versions of a task can exist in the data dictionary, only one version of a task is used by a system at runtime. If multiple ADD TASK statements specify the same task code, at runtime the system uses the one that appears first in the system definition.

AREa acquisition THReshold is

Controls whether the system will accumulate area locks during ready processing of multiple areas for a single database transaction.

The values you specify on the TASK statement will override those specified on the SYSTEM statement.

count

Specifies the number of times, during ready processing, the system will wait on an area lock before it starts to accumulate area locks for a transaction. This value only applies if multiple areas are being readied at one time.

Count must be an integer in the range 1 through 32,767.

Before the threshold count is reached, the system will free locks on areas previously locked by the database transaction if the transaction must wait to place a lock on another area.

Once the threshold is reached, the system will not release existing area locks while waiting for a new area lock.

DEFault

Directs the system to use the values specified in the AREA ACQUISITION THRESHOLD of the SYSTEM statement.

DEFAULT is the default.

OFF

Directs the system not to accumulate area locks until it can acquire all areas needed by a database transaction.

RETry count

Defines a limit on the number of times the system will continue trying to gain access to all areas without accumulating area locks. *Count* must be an integer in the range 1 through 32,767.

RETry FORever

FORever is the default and directs the system to continue to try to gain access to all needed areas until it successfully acquires all areas or until operating system resource and time limits are exceeded. You should specify the default of FORever unless experience shows that a transaction is not gaining access to areas as needed.

ENAbled

Indicates the task is enabled at system startup and can access the system.

ENABLED is the default when you specify neither ENABLED nor DISABLED in the TASK statement.

DISabled

Indicates the task is not enabled at system startup and is prohibited from accessing the system until the task is enabled.

Note: Users can override the ENABLED/DISABLED parameter at runtime with the DCMT VARY TASK command.

EXTERNAL WAIT is

Specifies the length of time the system waits for an external request for the named task before abnormally terminating the task.

Note: Users can override the EXTERNAL WAIT parameter at runtime with the DCMT VARY TASK command.

SYStem

Directs the system to use the external wait time specified on the SYSTEM statement. A value of 0 is synonymous with SYSTEM.

external-wait-time

Specifies the amount of time, in wall clock seconds, the system is to wait for an external request for the named task.

External-wait-time must be an integer in the range 0 through 32,767.

FOREVER/NO

Directs the system not to terminate the task based on an external wait time.

INActive interval is

Specifies the amount of time the system permits a DC task or external user session to wait for a resource before abnormally terminating the task.

Note: Users can override this parameter at runtime with the DCMT VARY TASK STALL command.

inactive-wait-time

Specifies the inactive interval in wall-clock seconds.

Inactive-wait-time must be an integer in the range 1 through 32,767. The specified interval overrides the INACTIVE INTERVAL parameter of the current SYSTEM statement.

SYStem

Specifies the system will terminate the task based on the SYSTEM statement INACTIVE INTERVAL parameter specification.

SYSTEM is the default when you omit the INACTIVE INTERVAL parameter from the TASK statement.

OFF

Specifies the system will not terminate the task based on an inactive interval.

Note: For more information about the inactive interval, see Abend Detection and Timed Functions (see page 43).

INPut

Specifies the terminal input buffer can contain data along with the task code. You should specify INPUT if the program invoked by the task requests a transfer of data from the terminal buffer to the task via a READ TERMINAL, READ LINE TERMINAL, or MAPIN request, as its first I/O operation, or if an external task permits the terminal operator to specify parameters or commands following the task code (for example, DCUF SHOW USERS).

INPUT is the default when you specify neither INPUT nor NOINPUT in the TASK statement.

NOInput

Specifies the terminal buffer can contain only the task code. You should specify NOINPUT if the program invoked by the task does not request a transfer of data from the terminal buffer to the task as its first I/O operation or if an external task does not permit the terminal operator to specify parameters or commands following the task code (for example, BYE).

INTernal

Specifies the task can be invoked internally only. A task is invoked internally when an executing program specifies the task code in an ATTACH or DC RETURN NEXT TASK CODE request.

EXTernal

Specifies the task can be invoked either externally or internally. A task is invoked externally when the user enters a task code in response to the system prompt.

EXTERNAL is the default when you specify neither INTERNAL nor EXTERNAL in the TASK statement.

INVokes program *program-name*

Specifies the name of the initial program to be invoked by the system for the task.

Program-name must be the name of a program previously defined in the data dictionary.

The INVOKES PROGRAM parameter is required in ADD TASK statements.

Note: Users can override this parameter at runtime with the DCMT VARY TASK PROGRAM command.

Version *version-number*

Verifies the specified version of *program-name* exists in the data dictionary and is associated with the current system. This parameter has no effect on runtime operations.

Version-number must be an integer in the range 1 through 9,999. The default is 1.

LIMit is

Specifies limits on system resources held by tasks. You can code one LIMIT parameter for each resource type.

Note: To enforce limits on a task's resources, task statistics must be collected. You use the STATISTICS parameter of the system generation SYSTEM statement to enable the collection of task statistics. For more information about runtime considerations for task resource limits, see the *CA IDMS System Operations Guide*.

Note: Users can override this parameter at runtime with the DCMT VARY TASK command.

CALl

Limits the number of system service calls (for example, OBTAIN CALC) issued by an online task. When you specify CALL, *limit* must be an integer in the range 1 through 2,147,483,647.

DBIo

Limits the number of database I/O operations (reads and writes) performed by online task. When you specify DBIO, *limit* must be an integer in the range 1 through 2,147,483,647.

LOCk

Limits the number of record locks allocated to an online task during the life of the task. When LOCK is specified, *limit-n* is an integer in the range 1 through 2,147,483,647.

STOrage

Limits the amount of storage, in 1K bytes, that an online task can hold at one time. When you specify STORAGE, *limit* must be an integer in the range 1 through 16,383.

limit

Directs the system to use the specified limit for the indicated resource.

SYStem

Directs the system to use the limit for the resource defined in the SYSTEM statement LIMIT FOR ONLINE TASKS parameter.

SYSTEM is the default when you omit the LIMIT parameter from the TASK statement.

OFF

Directs the system not to limit the task's use of the named resource.

LOCation is

Specifies the memory location from which the DC/UCF system loads programs and allocates storage for the named task.

Note: Users can override this parameter at runtime with the DCMT VARY TASK LOCATION command.

BELow

Indicates that programs are loaded into 24-bit program and reentrant pools, and storage is allocated from 24-bit storage pools.

BELOW is the default when you omit the LOCATION parameter from the TASK statement.

ANY

Indicates that programs are loaded into 24-bit or 31-bit program pools and storage is allocated from a 24-bit or a 31-bit storage pool:

- The system chooses a **program pool** or reentrant pool by checking the program RMODE and REENTRANT/QUASIREENTRANT/NONREENTRANT specification
- The system chooses a **storage pool** by checking the type of storage specified in the user GET STORAGE request

Note: For more information about how the system selects a program pool or a storage pool at runtime, see the *CA IDMS System Operations Guide*.

MAP

Specifies the task performs a mapout automatically upon initiation. The DC/UCF user program will not perform this I/O operation.

NOMap

Specifies the task will not perform a mapout automatically upon initiation. If you specify NOMAP, the task is not dedicated to a mapout operation and the task's initial program, as specified in the INVOKES PROGRAM parameter, does not have to be a map.

NOMAP is the default when you specify neither MAP nor NOMAP in the TASK statement.

MAXimum CONcurrent threads is

Limits the number of threads that can be active concurrently for the task. When the limit is exceeded, a message is routed to the terminal.

Note: Users can override this parameter at runtime with the DCMT VARY TASK MAXIMUM CONCURRENT command.

thread-count

Specifies the maximum number of concurrent threads.

Thread-count must be an integer in the range 1 through 32,767.

OFF

Indicates the system will not limit the number of concurrent threads for the task.

OFF is the default when you omit the MAXIMUM CONCURRENT THREADS parameter from the TASK statement.

ON COMmit

Specifies options that control commit behavior. These options apply only to commit operations in which the database session remains active.

SYSTEM

Specifies that the commit behavior for the task should default to that specified for the system.

WRIte COMT

Specifies that a COMT journal record should be written.

WRIte ENDJ

Specifies that an ENDJ journal record should be written.

NEW ID

Specifies that a new local transaction ID should be assigned to the next transaction associated with the database session.

RETain ID

Specifies that the existing local transaction ID should be assigned to the next transaction associated with the database session.

ON ROLlback continue

Specifies options that control rollback behavior. These options apply only to rollback operations in which the database session remains active.

SYSTEM

Specifies that rollback behavior for the task should default to that specified for the system.

RETain ID

Specifies that following a rollback, the current local transaction ID should be assigned to the next transaction associated with the database session.

NEW ID

Specifies that following a rollback, a new local transaction ID should be assigned to the next transaction associated with the database session.

PRINt key is

Overrides the system-wide print-screen key assignment (specified by the PRINT KEY parameter of the system generation SYSTEM statement) for the named task.

PA*n*

Identifies a program attention key. *N* must be the integer 1, 2, or 3.

PF*n*

Identifies a program function key. *N* must be an integer in the range 1 through 24.

Note: The transfer control facility (TCF) uses PF3 and PF9 for the TERMINATE and SUSPEND functions. For tasks that execute under TCF, do not specify PF3 or PF9 as the print-screen key.

SYSTEM (default)

Indicates the print-key assignment specified in the PRINT KEY parameter for the current SYSTEM statement is used.

SYSTEM is the default when you omit the PRINT KEY parameter from the TASK statement.

OFF

Disables the print-screen facility for the task.

Note: For more information about assigning a print-screen key, see the description of the SYSTEM statement PRINT KEY parameter in SYSTEM Statement (see page 137).

PRIority is *task-priority*

Specifies the dispatching priority for the online task.

Task-priority must be an integer in the range 0 (lowest priority) through 240 (highest priority). The default is 100.

For more information about the dispatching priority of certain tasks, see Specifying a TASK PRIORITY

Note: Users can override this parameter at runtime with the DCMT VARY TASK PRIORITY command.

Note: The PRIORITY clause has no impact on tasks initiated as a result of an ATTACH statement in a COBOL or PL/I program or a #ATTACH macro in an Assembler program.

PROduct code is *product-code*

Identifies a product and related task codes by a generic name.

Product-code must be a one- through eight-character generic name of the product associated with the task.

When using this parameter in conjunction with TCF, *product-code* must be one of the following values: IDD, OLM, SCHEMA, SSC, SYSGEN, OLQ, ADSA, ADS2, or ADSC.

PROtocol is

Specifies the response protocol to be used by the task when communicating with terminals associated with a VTAMLIN type line.

DEFresp

Specifies the task is to use definite response protocol. The terminal from which the task is executed must respond with a completion status when a terminal write is requested from the DC/UCF system.

DEFRESP is the default when you omit the PROTOCOL parameter from the TASK statement.

Printers run with definite response protocol regardless of the protocol specification for the task.

Note: If you specify DEFRESP the VTAM line definition statement, then you must specify EXPRESP on the task definition statement for each individual task.

EXPresp

Specifies the task is to use exception response protocol. Exception response protocol reduces transmission time because terminals are not required to respond with a completion status when a terminal write is requested from the DC/UCF system.

Note: If you specify EXPRESP on the VTAM line definition statement, then all tasks will run using the exception response protocol, and the specification you make here has not effect.

QUIesce wait is

Specifies if the system permits the task to wait for a quiesce operation to terminate; and if waiting is permitted the amount of time the task waits before it is abnormally terminated.

Note: Users can override the QUIESCE WAIT parameter at runtime with the DCMT VARY TASK command.

SYStem

Specifies the quiesce wait time for the task is determined by the quiesce wait setting for the system. This is the default.

quiesce-wait-time

Specifies the quiesce wait interval in wall-clock seconds. *quiesce-wait-time* must be an integer in the range 1 through 32,767. The specified value overrides the QUIESCE WAIT parameter of the current SYSTEM statement.

FORever

Directs the system not to terminate tasks based on quiesce wait time. FORever overrides the QUIESCE WAIT parameter of the current SYSTEM statement.

NOWait

Specifies tasks do not wait for quiesce operations to terminate and instead, receive an error indicating an area is unavailable. For navigational DML requests, this results in an error-status value of 'xx66'. NOWait overrides the QUIESCE WAIT parameter of the current SYSTEM statement.

RESource timeout

Defines the task's resource timeout interval and resource timeout program used for pseudo-conversational transactions.

Note: Users can override this parameter at runtime with the DCMT VARY TASK command.

INTerval is

Specifies the amount of time the system is to permit a terminal to be inactive (that is, have no task executing) before invoking the terminal resource program to handle (for example, delete) the resources owned by the inactive terminal.

resource-timeout-interval

Specifies the resource timeout interval in wall-clock seconds.

Resource-timeout-interval must be an integer in the range 1 through 32,767.

SYStem

Directs the system to use the INTERVAL IS value specified in the RESOURCE TIMEOUT parameter of the current SYSTEM statement.

SYSTEM is the default when you omit the RESOURCE TIMEOUT INTERVAL parameter from the TASK statement.

FORever/OFF

Disables the resource timeout facility.

FOREVER and OFF are synonyms and can be used interchangeably.

PROgram is

Identifies the program the system will invoke to handle the resources owned by an inactive terminal following the expiration of the resource timeout interval.

resource-timeout-prog-name

Explicitly specifies the resource timeout program.

Resource-timeout-prog-name must be the name of a program previously defined in the data dictionary with a PROGRAM statement.

Version is *version-number*

Qualifies the named program with a version number.

Version-number must be an integer in the range 1 through 9,999. The default is 1.

SYStem

Directs the system to use the value specified in the PROGRAM IS option of the RESOURCE TIMEOUT parameter in the current SYSTEM statement.

SYSTEM is the default when you omit the RESOURCE TIMEOUT PROGRAM parameter from the TASK statement.

Note: For more information about the resource-timeout mechanism, see Abend Detection and Timed Functions (see page 43).

SAVe

Indicates that current terminal output associated with the task when the terminal on which the task is executing receives a write-direct-to-terminal data stream.

Note: With line-mode I/O, terminal output is always saved unless a program specifies the NOBACKPAGE parameter.

NOSave

Indicates that the system will not save the contents of the terminal screen before writing a write-direct-to-terminal data stream.

NOSAVE is the default when you specify neither SAVE nor NOSAVE in the TASK statement.

Note: Users can override the SAVE/NOSAVE specification at runtime with the DCMT VARY TASK SAVE/NOSAVE command.

TCF task is *tcf-task-code*

Specifies the named task is eligible to run under the transfer control facility (TCF).

Tcf-task-code must be a previously defined task code that invokes the TCF control program (RHDCUMBR).

Version is *version-number*

Differentiates identical TCF task codes (for example, production and test versions).

Version-number must be an integer in the range 1 through 9,999. The default is 1.

TRAnsaction SHAring is

Specifies options that control transaction sharing.

OFF

Specifies that transaction sharing is initially disabled when a task of this type is initiated.

ON

Specifies that transaction sharing is initially enabled when a task of this type is initiated.

SYStem

Specifies that the initial transaction sharing setting for a task is the value specified in the TRANSACTION SHARING clause of the SYSTEM statement. SYSTEM is the default if you omit the TRANSACTION SHARING parameter from the TASK statement.

Note: For more information about transaction sharing, see the *CA IDMS Database Administration Guide*.

More information

SYSTEM Statement (see page 137)
Abend Detection and Timed Functions (see page 43)

TASK Statement Usage

Effect on DC RETURN NEXT TASK CODE

If a DC RETURN NEXT TASK CODE request is issued and the next task code is assigned the INPUT attribute, the task does not execute until the terminal operator enters data. If a DC RETURN NEXT TASK CODE request is issued and the next task code is assigned the NOINPUT attribute, the task executes immediately.

Associating a Task with a PF Key

You can associate a task with a program function (PF) key by specifying *task-code* in the form PF*n*. *N* must be an integer in the range 1 through 24. At runtime, to invoke a task associated with a PF key, the terminal operator presses the appropriate key.

Location Mode under XA Systems

If the DC/UCF system is running under an operating system supporting the XA feature, tasks should be defined with LOCATION IS BELOW unless all programs invoked under the task have been tested to ensure that they can execute in 31-bit addressing mode.

Specifying MAP

Typically, you specify MAP for the first task to be executed in a pseudo-conversational transaction. In this case, the task's initial program, as defined in the INVOKES PROGRAM parameter (see above), must be a map, and the first field of the map must specify the next task code to be initiated. The field can be a variable data field into which the terminal operator will enter the appropriate task code, or it can be a literal field that contains the task code. If a literal field is used, it must be defined with a MODIFY DATA TAG specification of YES and, typically, with the darkened and protected attributes.

Specifying a TASK PRIORITY

For the following task types, the *task-priority* specified on the PRIORITY clause is the dispatching priority for the task at runtime:

- A task initiated as a result of exceeding a queue threshold
- A startup or shutdown autotask
- A task initiated as a result of a SET TIMER START TASK statement in a COBOL or PL/I program or a #SETTIME macro in an Assembler program, if no priority is specified in the SET TIMER statement or the #SETTIME macro.

  For tasks associated with a logical terminal, the specified priority is added to the values specified in the PRIORITY parameters in the LTERM statement to determine the priority assigned to the task at runtime. If the sum of the above values is greater than 240, a dispatching priority of 240 is assigned. A task that is initiated in one of the following ways is associated with a logical terminal:

  - The task code is entered by the terminal operator in response to the "Enter Next Task Code" prompt
  - The task is initiated as a result of a previous task specifying a next task code parameter on a DC RETURN statement or #RETURN macro
  - The task is an LTERM autotask

Use of Product Codes

When a task code is different from the product name (for example, TASK IDDTCF INVOKES PROGRAM IDMSDDDC, where IDDTCF differs from IDD, the installation default), the PRODUCT CODE parameter relates the task code to the product. The system adds an entry to the task definition element (TDE), listing the task code, referenced by its product code.

The transfer control facility uses the table to switch to a different session. At runtime, the system first scans the list of task codes, then scans the product codes to identify and transfer control to the product requested by the terminal operator.

Specifying commit and rollback options

You can specify options that control the following commit and rollback behavior:

- The type of journal record written on a commit
- Whether a new local transaction ID is assigned on a rollback continue or commit.

You can control whether a COMT or ENDJ journal record is written on a commit operation in which the database session remains active. Writing an ENDJ can reduce recovery time because less data has to be examined to locate the start of a recovery unit. This benefit applies to online recovery, warmstart, and ROLLBACK and ROLLFORWARD recovery operations. ENDJ is most beneficial in cases where long-running transactions perform relatively infrequent updates between commit operations. In cases where update transactions are committed frequently, writing ENDJ journal records might negatively impact the amount of information journaled because another BEGN journal record has to be written before the first update following a commit operation.

Note: ENDJ journal records are always written when system rununits are committed, regardless of the ON COMMIT option specified.

You can control whether a new local transaction ID is assigned following a commit or rollback operation in which the database session remains active. Assigning a new transaction ID reduces the chance of duplicate IDs should this value wrap within a single cycle of a central version. It also has the effect of recording journal statistics separately by commit recovery unit rather than across all recovery units within a database transaction. You can assign a new ID on a commit operation only if you also specify that an ENDJ checkpoint record be written.

Note: A new transaction ID is always assigned when system run units are committed or rolled out.

Example: TASK Statements

Adding a TCF Task

The following statement directs the system generation compiler to add task IDDTCF, to run under TCF, to the data dictionary:

```
ADD TASK IDDTCF
    EXTERNAL
    INVOKES PROGRAM IDMSDDDC
    PRIORITY IS 65
    INPUT
    LOCATION IS ANY
    RESOURCE TIMEOUT
       INTERVAL IS SYSTEM
       PROGRAM IS SYSTEM
    SAVE
    TCF TASK IS TCF
    PRODUCT CODE IS IDD.
```

Adding a User Task

The following statement directs the system generation compiler to add task ABC to the data dictionary:

```
ADD TASK ABC
    EXTERNAL
    INVOKES PROGRAM ABCPROG
    PRIORITY IS 60
    INPUT
    LOCATION IS ANY
    RESOURCE TIMEOUT
       INTERVAL IS SYSTEM
       PROGRAM IS SYSTEM
    SAVE
```

Modifying a Task

The following statement modifies task ABC by changing its priority class to 32:

```
MODIFY TASK ABC
   PRIORITY IS 32.
```

Deleting a Task

The following statement deletes task ABC:

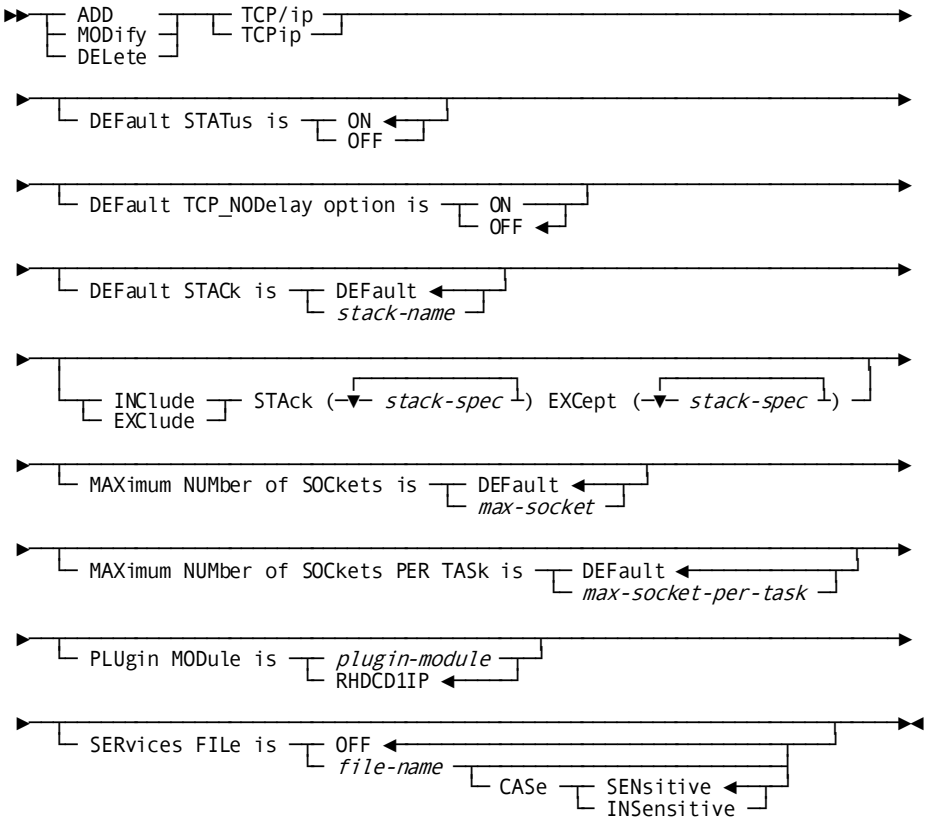
```
DELETE TASK ABC.
```

TCP/IP Statement—Defines TCP/IP Runtime Environment

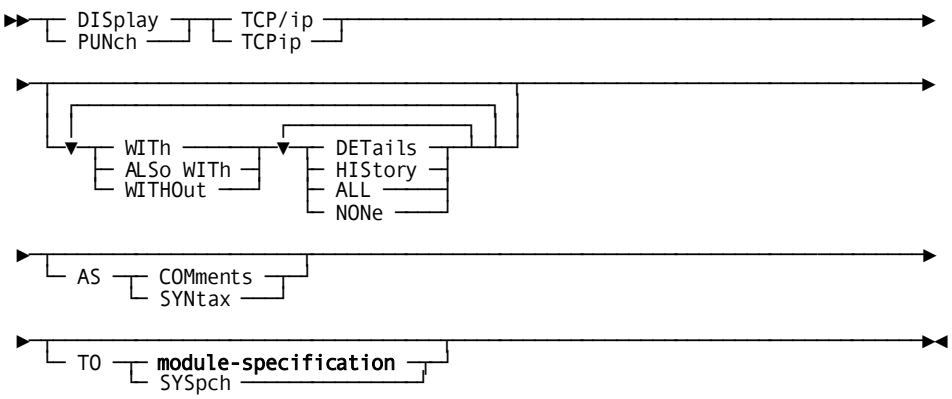
The TCP/IP statement is used to define the TCP/IP runtime environment of a DC/UCF system.

TCP/IP Statement Syntax

ADD/MODIFY/DELETE TCP/IP Statement



DISPLAY/PUNCH TCP/IP Statement



TCP/IP Statement Parameters

TCP/ip and TCPip

These are equivalent keywords that can be used the same way everywhere. They can be specified in SYSGEN definitions or DCMT commands.

DEFault STATus is

Specifies the status of TCP/IP support in CA IDMS. OFF disables TCP/IP support for CA IDMS at startup. ON enables support. The default is ON if an ADD TCP/IP statement is coded. If the TCP/IP entity is not defined to the system, the default is OFF.

Note:

- For compatibility with earlier releases, if the TCP/IP entity is not defined to SYSGEN, but the same system contains the definition of an enabled SOCKET line, TCP/IP is automatically enabled during startup. A warning message is displayed to the log recommending the use of the TCP/IP SYSGEN entity.
- The default TCP/IP status value defined to SYSGEN can be overwritten at startup by the new TCP/IP_STATUS=ON/OFF SYSIDMS parameter, or it can be changed dynamically at runtime using the new DCMT VARY TCP/IP command.

DEFault TCP_NODelay option is

Specifies the default value for the NO_DELAY SOCKET option. Unless overridden for a specific socket connection, this is the value that will be used for all communication. The default value is OFF, meaning that a delay may be experienced between consecutive sends in order to optimize overall data movement.

Note: For more information about the TCP_NODELAY socket option, see the GETSOCKOPT and SETSOCKOPT SOCKET functions in the *CA IDMS Callable Services Guide*.

DEFault STACk is

Specifies the default stack to be used by the DC/UCF system.

stack-name

Identifies the name of the stack to be used as a default.

DEFault

Specifies that the CA IDMS assigned default stack is to be used. DEFAULT is the default.

The default stack for a DC/UCF system varies by operating system.

- On z/OS, the operating system assigns a specific stack as the default stack. Unless that stack is explicitly excluded from use by SYSGEN or SYSIDMS parameters, CA IDMS uses the operating-system assigned default stack. If the default stack has been excluded, CA IDMS chooses the first active stack from the list of stacks as the default.
- On z/VM, the default stack is the first stack in the list of stacks.

INClude/EXClude STack *stack-spec*

Controls or limits the stacks that can be used by the socket applications running in the CA IDMS system. This option is useful only in a multiple stack environment where multiple TCP/IP stacks run concurrently; it is ignored on systems where only one TCP/IP stack is active. It is used differently depending on the operating system:

- On z/OS, the INCLUDE or EXCLUDE list is used to customize the default stacks list returned by the operating system when CINET is active. Both lists are mutually exclusive. If no INCLUDE or EXCLUDE list is specified, all stacks in the list returned by the operating system are included.

  If specified, the resulting list of stacks depends on the type of list being defined:

  - INCLUDE List—This list is built by excluding all the stack names that are not present in the SYSGEN INCLUDE list.
  - EXCLUDE List—This list is built by excluding all the stack names that are present in the SYSGEN EXCLUDE list.

  Wildcards can be used as special names for *stack-spec* to define groups of stack names starting with the same pattern. When wildcards are used in the INCLUDE or EXCLUDE list, the EXCEPT list can be used to refine the set of included or excluded stacks by excluding specific stacks.

  Wildcards can also be used for *stack-spec* in the EXCEPT list if they represent a sub-group of names from a larger group declared in the INCLUDE or EXCLUDE list. See examples at the end of this section.

- On z/VM, only an INCLUDE list is available. Use the INCLUDE list to define the full list of stacks to use in the CA IDMS system. Wildcards are not accepted.

  This list can be used to replace the r16 definitions using the SYSTCPD file and the existing SYSIDMS parameters; these definitions are ignored when the stacks are defined through SYSGEN.

An empty list can be specified for the INCLUDE, EXCLUDE or EXCEPT list in order to remove all entries from the corresponding list. Duplicate names are ignored when specified within the same list of stacks.

MAXimum NUMber of SOCkets is *max-socket*

Specifies the maximum number of sockets that can be created globally in the DC/UCF system. *max-socket* is a positive number between 1 and 65535. If DEFAULT is specified, a default value is assigned at startup. This default value depends on the operating system: 65535 on z/OS, 8000 on z/VSE, and 512 on z/VM.

The maximum number of sockets that can be created in one address space can also be limited by the operating system, for example, through USS definitions under z/OS.

MAXimum NUMber of SOCkets per TASk is *max-socket-per-task*

Specifies the maximum number of sockets that can be created by a single task in the DC/UCF system. The maximum value and the default value for this parameter are both equal to the value assigned at runtime to *max-socket*. If the *max-socket-per-task* value is greater than *max-socket*, it is truncated.

PLUgin MODule is *plugin module*

Specifies the name of the plug-in module that implements support for specific TCP/IP stack implementations. The only plug-in module name that is accepted is RHDCD1IP; this is also the default value.

Note: In prior releases, the name of the plug-in module was specified on the MODULE is plug-in clause of the SOCKET LINE SYSGEN statement. While this clause is still supported for upward compatibility, it is no longer required and the name of the plug-in module should now be specified using the PLUGIN MODULE clause of the new system generation TCP/IP statement.

SERvices FILe is

Defines the file to be used for translating service names to port numbers and vice versa.

file-name

Specifies the ddname (z/OS and z/VM) or the file name (z/VSE) of the services file.

If the data set or file corresponding to *file-name* cannot be found at runtime (DD card not specified in the startup JCL or data set not cataloged), an error message is written to the log file. Subsequent calls to the GETSERVBYNAME or GETSERVBYPORT socket function returns a specific ERRNO code.

OFF

Indicates that no services file is available and port number/service name resolution is not supported. OFF is the default.

CASe

Indicates whether the service name specified on input to a GETSERVBYNAME socket function is case-sensitive or case-insensitive. The default value is case-sensitive.

Note: For more information about the Services File and the Services Resolver, see the *CA IDMS System Operations Guide*.

Example: TCP/IP Statement

Including or Excluding TCP/IP Stacks

This example illustrates a list of INCLUDE and EXCLUDE TCP/IP stack definitions and the TCP/IP stacks generated from them.

Assume the special system call on z/OS returns the following list of TCP/IP stacks as defined to CINET:

```
TCPSY100 - TCPSY110 - TCPSY200 - RUNTCP10 - RUNTCP11 - TESTTCP
```

The following SYSGEN definitions illustrate how to specify the TCP/IP stacks to include or exclude in the CA IDMS system:

- This statement

  ```
  MOD TCPIP
   INCLUDE STACK (TCPSY*,RUNTCP*) EXCEPT (TCPSY2*,RUNTCP11).
  ```

  produces the following list of stacks:

  ```
  TCPSY100 - TCPSY110 - RUNTCP10
  ```

- This statement

  ```
  MOD TCPIP
   INCLUDE STACK (*) EXCEPT (TCPSY*,TESTTCP).
  ```

  produces the following list of stacks:

  ```
  RUNTCP10 - RUNTCP11
  ```

- This statement

  ```
  MOD TCPIP
   EXCLUDE STACK (TCP*) EXCEPT (TCPSY200).
  ```

  produces the following list of stacks:

  ```
  TCPSY200 - RUNTCP10 - RUNTCP11 - TESTTCP
  ```

XA STORAGE POOL Statement—Defines the 31-Bit Storage Pools

The XA STORAGE POOL statement, for operating systems supporting the XA feature, is used to define 31-bit storage pools and their characteristics, including the storage pool number, size, and types of storage the pool contains.

The XA STORAGE POOL statement is used to define 31-bit storage pools for user applications. To define the 31-bit storage pool (storage pool number 255) for the processing of system modules, use the XA STORAGE POOL parameter of the system generation SYSTEM statement.

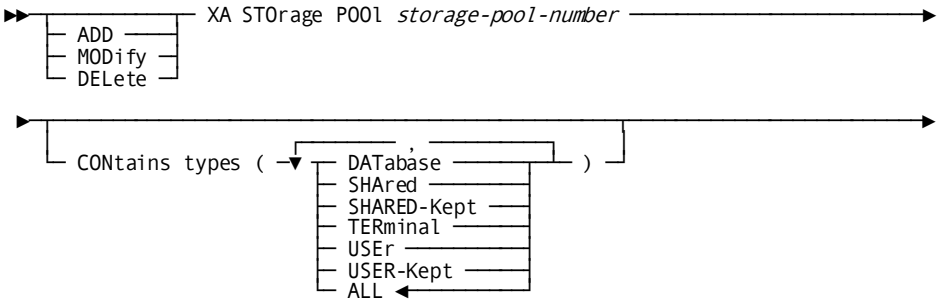
You can define up to 127 31-bit storage pools, each of which can contain up to four types of storage.

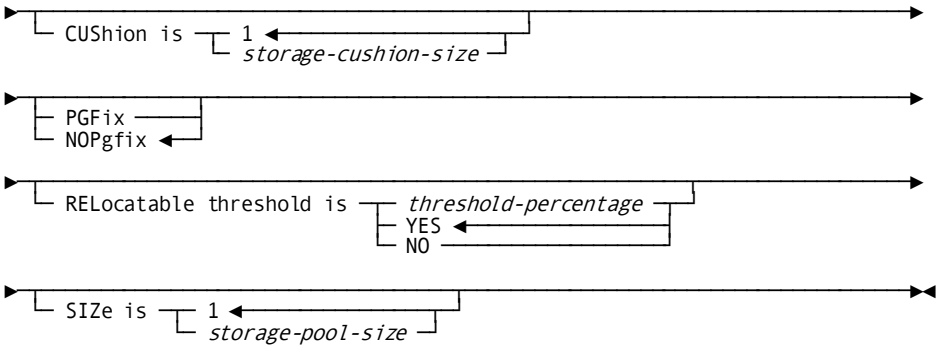
You define each XA storage pool with a separate XA STORAGE POOL statement, specifying a number that identifies the storage pool. You can specify optional parameters or allow parameter defaults, noted in the syntax description.

Users can display summary statistics for all storage pools in the system with the DCMT DISPLAY ALL STORAGE POOLS statement. Users can display statistics for a single XA storage pool using the DCMT DISPLAY ACTIVE STORAGE *storage-pool-number* statement.

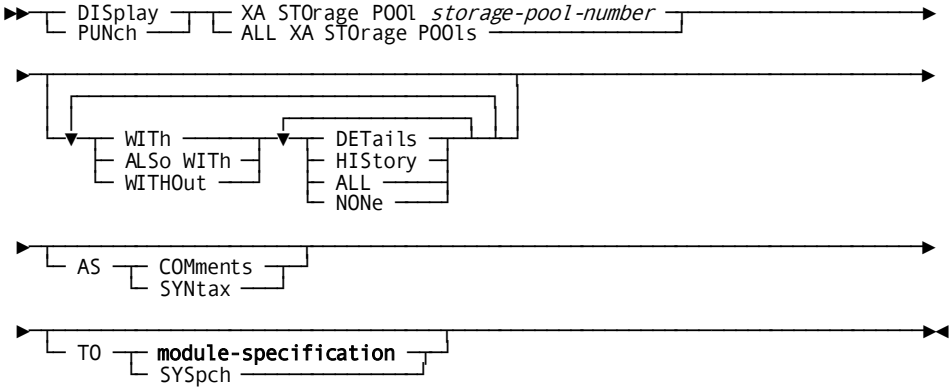
XA STORAGE POOL Statement Syntax

ADD/MODIFY/DELETE XA STORAGE POOL Statement





DISPLAY/PUNCH XA STORAGE POOL Statement



XA STORAGE POOL Statement Parameters

XA STOrage POOl *storage-pool-number*

Specifies a number that uniquely identifies a 31-bit storage pool.

Storage-pool-number must be an integer in the range 128 through 254.

Note: For more information about storage pools, see Storage Pools (see page 63).

CONtains types

Specifies the types of storage the named storage pool can accommodate.

Storage types must be enclosed by parentheses. If you specify more than one storage type, each type must be separated from the next by a blank or a comma.

DATabase

Specifies the storage pool can contain storage for DMCL buffers. The DMCL buffers hold copies of database pages.

SHAred

Specifies the storage pool can contain storage that is designated shared.

SHARED-Kept

Specifies the storage pool can contain storage that is designated shared kept.

TERminal

Specifies the storage pool can contain storage for terminal buffers.

USEr

Specifies the storage pool can contain storage that is designated user.

USER-Kept

Specifies the storage pool can contain storage that is designated user kept.

ALL

Specifies the storage pool can contain all of the storage types listed above.

ALL is the default when you omit the CONTAINS TYPES parameter from the XA STORAGE POOL statement.

CUShion is *storage-cushion-size*

Specifies amount of free storage, in 1K bytes, to be reserved in the specified storage pool to help prevent exhausting space in the storage pool.

Storage-cushion-size must be an integer in the range 1 through 16,383. The default is 1.

Note: Users can override this parameter at runtime with the DCMT VARY STORAGE POOL CUSHION command.

PGFix

For virtual storage systems only, specifies pages are fixed in the storage pool as they are allocated.

NOPgfix

For virtual storage systems only, suppresses page fixing.

NOPGFIX is the default when you specify neither PGFIX nor NOPGFIX in the XA STORAGE POOL statement.

RELocatable threshold is

Specifies the point at which the system is to write relocatable storage in the named storage pool to the scratch area (DDLDCSCR) of the data dictionary.

threshold-percentage

Directs the system to write relocatable storage to the scratch area across a pseudo-converse when the amount of used space in the storage pool exceeds the specified threshold.

Threshold-percentage must be an integer in the range 0 through 100. A value of 0 is synonymous with YES. A value of 100 is synonymous with NO.

YES

Directs the system always to write relocatable storage to the scratch area across a pseudo-converse.

YES is the default when you omit the RELOCATABLE THRESHOLD parameter from the XA STORAGE POOL statement.

NO

Directs the system never to write relocatable storage to the scratch area across a pseudo-converse.

Note: For more information about relocatable storage, see Storage Pools (see page 63).

SIZe is *storage-pool-size*

Specifies the amount of storage, in 1K bytes, to be made available for system and program variable storage.

Storage-pool-size must be an integer in the range 1 through 2,097,151. The default is 1.

Note: For more information about runtime storage allocation, see the *CA IDMS System Operations Guide.*

Example: XA STORAGE POOL Statement

Adding a 31-bit Storage Pool

The following statement adds XA storage pool 200:

```
ADD XA STORAGE POOL 200
    SIZE IS 400
    CUSHION IS 75
    PGFIX
    CONTAINS TYPES (USER USER-KEPT).
```

Modifying a 31-bit Storage Pool

The following statement modifies XA storage pool 200 by suppressing page fixing:

```
MODIFY XA STORAGE POOL 200
   NOPGFIX.
```

Deleting a 31-bit Storage Pool

The following statement deletes XA storage pool 200:

```
DELETE XA STORAGE POOL 200.
```

Chapter 8: Teleprocessing Network Statements

Three Types of Teleprocessing Network Statements

You use three system generation statements to define a teleprocessing network:

- **LINE** defines a group of hardware devices (physical terminals) that use the same access method.
- **PTERM** associates a physical terminal with a line and defines device characteristics. A physical terminal is any teleprocessing device or group of devices including printers, teletypes, and CRT terminals. A physical terminal can be associated with only one line.
- **LTERM** associates a logical terminal with a physical terminal and defines the physical terminal as an interactive terminal, a printer, or a batch device.

Associating Logical and Physical Terminals and Lines

Logical terminal/physical terminal associations and physical terminal/line associations are established during system generation in one of two ways:

- **Explicitly** by naming the associated physical terminal in the LTERM statement and by naming the line associated with the physical terminal in the PTERM statement
- **Implicitly** by establishing currency with a LINE statement and coding PTERM statements for each physical terminal in the line, and by establishing currency with a PTERM statement and coding an LTERM statement for the associated logical terminal

This section presents:

- Syntax and syntax rules for the LINE, PTERM, and LTERM statement parameters that apply to all device types. ADD/MODIFY/DELETE and DISPLAY/PUNCH syntax for each entity type are presented together. Syntax rules follow the presentation of both types of syntax. Rules presented in System Generation Compiler are not repeated.
- Device-specific LINE and PTERM statement parameters.
- A sample teleprocessing network definition.

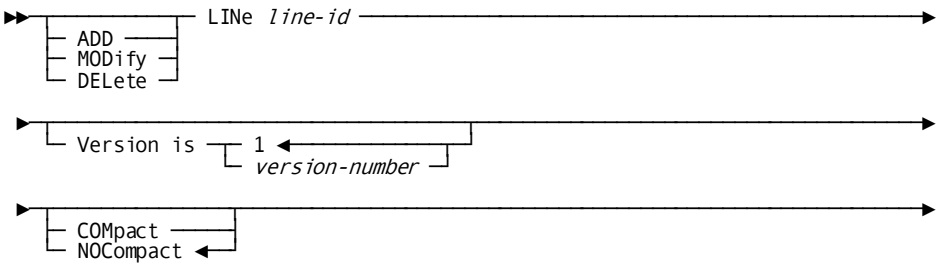
This section contains the following topics:

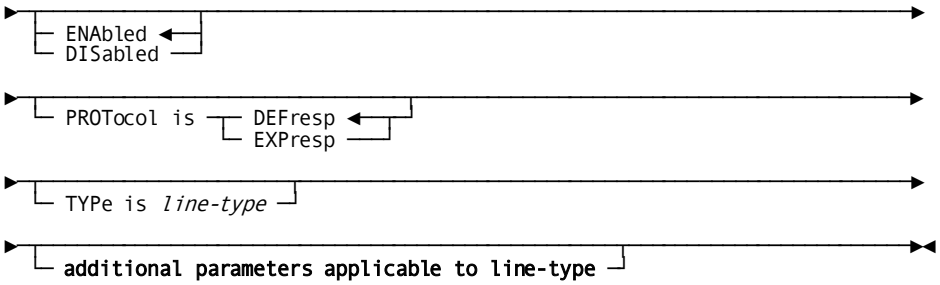
LINE Statement

The LINE statement represents a method of communication and defines line-dependent characteristics to the data dictionary. The ADD, MODIFY, and DISPLAY LINE statements are also used to establish line currency.

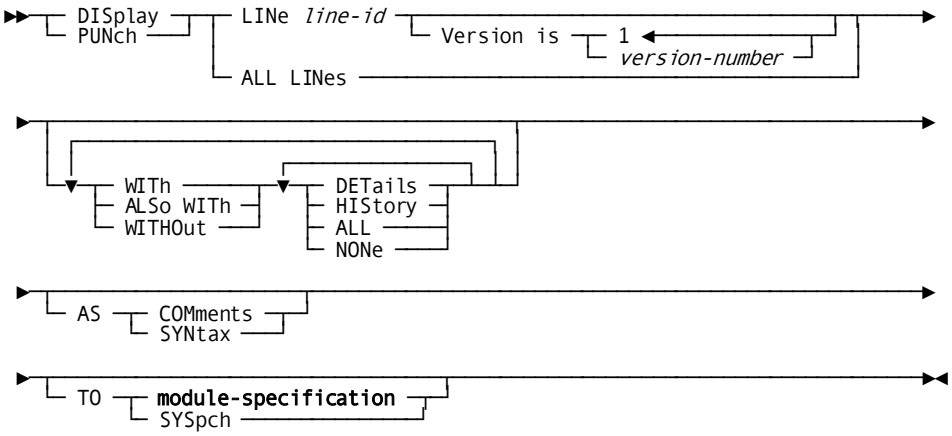
You code one LINE statement for each line to be associated with the DC/UCF system. All system definitions should include a LINE statement for the operator's console.

LINE Statement Syntax





DISPLAY/PUNCH LINE Statement



LINE Statement Parameters

LINe *line-id*

Specifies the line identifier.

Line-id must be a one- through eight-character value.

Version is *version-number*

Qualifies the line definition with a version number.

Version-n must be an integer in the range 1 through 9999. The default is 1.

Although multiple versions of a line can exist in the data dictionary, only one version can be used by a system at runtime. If multiple ADD LINE statements specify the same line identifier, the system uses the version that appears first in the system definition.

COMpact

Indicates that redundant data in data streams transmitted to 3270-type terminals is condensed.

NOCompact

Indicates that redundant data in data streams transmitted to 3270-type terminals is not condensed.

NOCOMPACT is the default when you specify neither COMPACT nor NOCOMPACT in the LINE statement.

ENAbled

Indicates the line is enabled at system startup.

ENABLED is the default when you specify neither ENABLED nor DISABLED in the LINE statement.

DISabled

Indicates the line is not enabled at system startup.

Note: Users can override the ENABLED/DISABLED specification at runtime with the DCMT VARY LINE command.

PROTocol is

For the line type VTAMLIN only, specifies the response protocol to be assigned to the line.

DEFresp

Specifies definite response protocol is in effect for the line. Terminals associated with the line must respond with a completion status when a terminal write is requested from the DC/UCF system.

DEFRESP is the default when you omit the PROTOCOL parameter from the LINE statement.

Printers associated with the line run with definite response protocol regardless of the PROTOCOL parameter specification.

EXPresp

Specifies that exception response protocol is in effect for the line. All tasks performed on the line use exception response protocol.

Exception response protocol reduces transmission time because terminals are not required to respond with a completion status when a terminal write is requested from the DC/UCF system.

TYPe is *line-type*

Specifies the line type. Valid values for *line-type* are:

Line type	Devices supported
ASYNC	Asynchronous start/stop devices

Line type	Devices supported
BSC2	Binary synchronous switched or nonswitched point-to-point devices
BSC3	Binary synchronous leased multipoint devices Binary synchronous remote 3270 or 3280 devices
CCI	Common Communications Interface (CCI) line driver
CONSOLE	Operator's console
DDS	DDS line driver
INOUTL	SYSIN/SYSOUT devices
LAPPCEMU	Emulated APPC support
L3270B	Local 3270 devices using BTAM
L3280B	Local 3280 devices using BTAM
SOCKET	Support Generic Listening and DDS using TCP/IP
SYSOUTL	SYSOUT devices using QSAM (z/OS systems only) Printers that will receive spooled output (z/VM systems only) When line type SYSOUTL is specified, all LTERMs defined for the line must be explicitly set to PRINTER.
S3270Q	Simulated 3270 devices using QSAM
TCAMLIN	3270 or 3280 devices using TCAM
UCFLINE	Universal Communications Facility (UCF) line driver
VTAMLIN	Asynchronous VTAM devices 3270 or 3280 devices using VTAM
VTAMLU	SNA/VTAM logical units

The TYPE parameter is required to create an executable system.

additional parameters applicable to line-type

Specify optional characteristics that complete the line definition.

Depending on the value specified for *line-type*, one or more additional parameters may be required.

Syntax for the additional parameters applicable to each line type is presented under the heading for the line type later in this section.

Example: LINE Statement

Examples of the LINE statement for various line types can be found under Device Definitions (see page 337).

PTERM Statement

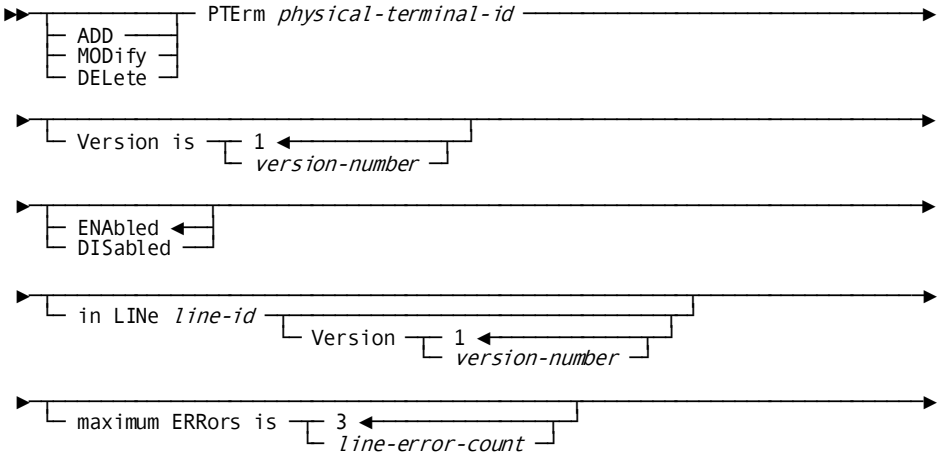
The PTERM statement is used to define a physical terminal to the data dictionary and to associate the physical terminal with a line. The ADD, MODIFY, and DISPLAY PTERM statements are also used to establish physical terminal currency.

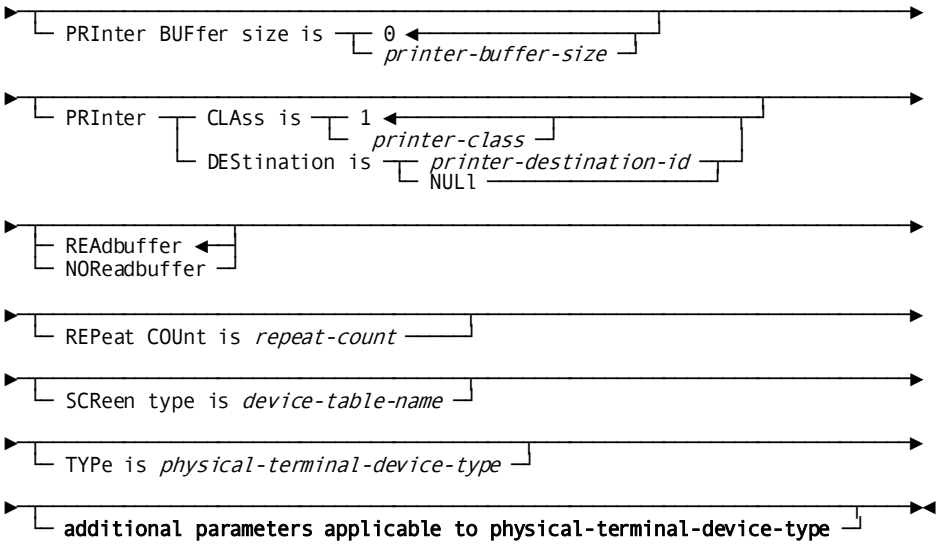
One PTERM statement is coded for each physical terminal to be associated with a line. Multiple physical terminals can be associated with a line; however, only one physical terminal can be associated with a line defined as an operator's console.

A single PTERM statement can be used to define multiple physical and logical terminals with identical characteristics by using the REPEAT COUNT clause. This eliminates the need for using individual LTERM and PTERM statements for each terminal.

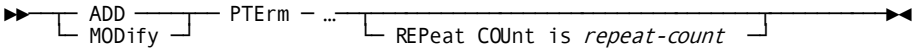
PTERM Statement Syntax

ADD/MODIFY/DELETE PTERM Statement

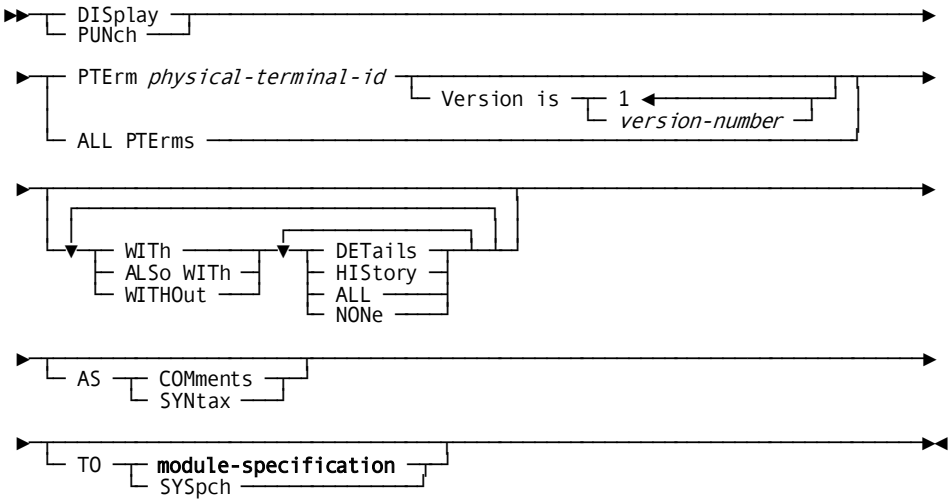




Cloning LTERM and PTERM Definitions



DISPLAY/PUNCH PTERM Statement



PTERM Statement Parameters

PTErm *physical-terminal-id*

Specifies the physical terminal identifier. *Physical-terminal-id* must be a one- through eight-character value.

Version is *version-number*

Qualifies physical terminal definition with a version number.

Version-number must be an integer in the range 1 through 9999. The default is 1.

Although multiple versions of a physical terminal can exist in the data dictionary, a system can use only one version of the physical terminal at runtime. If multiple ADD PTERM statements specify the same physical terminal identifier, the system uses the version that appears first in the system definition.

ENAbled

Indicates the physical terminal is enabled at system startup.

ENABLED is the default when you specify neither ENABLED nor DISABLED in the PTERM statement.

DISabled

Indicates the physical terminal is not enabled at system startup.

Note: See the *CA IDMS System Tasks and Operator Commands Guide* for PTERM runtime override options.

in LINe *line-id*

Specifies the line with which the physical terminal is associated.

Line-id must be the identifier of a line previously defined in the data dictionary with a LINE statement.

Version *version-number*

Qualifies the line identifier with a version number.

Version-number must be an integer in the range 1 through 9999. The default is 1.

This parameter can be omitted if the physical terminal is to be associated with the current line.

maximum ERRors is *line-error-count*

Specifies the maximum number of retries (after a terminal I/O error) the system is to perform before disabling the physical terminal.

Line-error-count must be an integer in the range 0 through 255. The default is 3.

PRInter BUFfer size is *printer-buffer-size*

Defines the size, in bytes, of the printer's physical buffer. The buffer size determines the largest data stream that can be written to the printer at one time.

Printer-buffer-size must be an integer in the range 0 through 32,767. The default is 0. If 0 is specified, the largest data stream that can be written to the printer is 480 bytes.

Note: If the value specified by this parameter exceeds the actual size of the printer buffer, data may be lost. The user is not notified when data is lost.

PRInter

Establishes the default class or destination for WRITE TO PRINTER requests issued from the physical terminal.

CLAss is *printer-class*

Establishes the default printer class for WRITE TO PRINTER requests issued from the physical terminal. Printer classes are associated with a printer device through the PRINTER CLASS parameter of the printer's LTERM statement (described under LTERM Statement (see page 327)).

Printer-class must be an integer in the range 0 through 64. The default is 1. If 0 is specified, print output is not required for the physical terminal. For example, the terminal is a printer.

DEStination is

Establishes the default printer destination for WRITE TO PRINTER requests issued from the physical terminal.

printer-destination-id

Specifies the printer destination.

Printer-destination-id is the name of a printer destination previously defined with a DESTINATION statement.

You must be sure the destination entity occurrence exists. When a destination is deleted from a system definition, all affected PTERM statements must be updated to ensure the system remains executable.

NULl

Indicates the physical terminal has no default printer destination.

REAdbuffer

For 3270-type devices only, allows the specified PTERM to execute a READ BUFFER command.

READBUFFER is the default when you specify neither READBUFFER nor NOREADBUFFER in the PTERM statement.

NOReadbuffer

For 3270-type devices only, prevents the specified PTERM from executing a READ BUFFER command.

REPeat COUnt is *repeat-count*

Specifies the number of times the physical and eventually associated logical terminal should be cloned when a central version is started. repeat-count must be an integer in the range 0 through 32767. Repeat-count 0 means no cloning. If a non-zero repeat-count is specified, the physical and logical terminal name should end on a sequence number and the sum of that sequence number and the repeat count should not cause a digit overflow.

SCReen type is *device-table-name*

Associates a device independence table with a visual-display teletypewriter terminal (glass TTY). The device independence table provides support for mapping operations to and from the TTY.

Device-table-name must be a 3-character alphanumeric name suffix of a device independence table, as specified in the NAME= parameter of the #TTYDIT macro.

Note: Users can override this parameter at runtime with the DCUF SET SCREEN command.

TYPe is *physical-terminal-device-type*

Specifies the physical terminal device type.

Physical-terminal-device-type must be a valid device type for the line with which the physical terminal is associated.

The TYPE parameter is required to create an executable system.

additional parameters applicable to physical-terminal-device-type

Specify optional characteristics that complete the physical terminal definition.

Syntax for the additional parameters applicable to each physical terminal device type is presented under the heading for the associated line type later in this section.

PTERM Statement Usage

Cloning PTERM/LTERM uses a naming convention: the PTERM/LTERM name ends on a number of digits called the sequence number. This sequence number is incremented for each cloned PTERM and for its associated LTERM if it exists. SYSGEN makes sure that enough digits are available. It is the DBA's responsibility to ensure that a name conflict does not exist. For example, an existing PTERM/LTERM is defined with a name that equals the name of a cloned PTERM/LTERM. If a name conflict is encountered, a warning message is output, but cloning continues.

Note: A single record in the dictionary represents cloned PTERM/LTERMs. Cloning starts after all dictionary PTERM/LTERM records are read and their associated control blocks built. If there is a name conflict, the PTERM/LTERM with a conflicting name is built as defined by the dictionary record and the cloned PTERM/LTERM is discarded.

Example: PTERM Statement

```
ADD PTERM BULKP01
    REPEAT COUNT 98
    TYPE IS BULK.

ADD LTERM BULKL01
    PTERM BULKP01.
```

This definition results in the creation of 99 PTERM/LTERM pairs:

- BULKP01/BULKL01,
- BULKP02/BULKL02,
- BULKP03/BULKL03
- ... until
- BULKP99/BULKL99

If a PTERM with name BULKP21 is also defined in the dictionary, this occurs:

- The PTERM BULKP21 and its associated LTERM (if any) is built according to the dictionary definition of BULKP21.
- At run time, during startup, warning message DC391009 is output.
- The clone pair BULKP21/BULKL21 is not built, but cloning proceeds with BULKP22.

Examples of the PTERM statement for various device types can be found under Device Definitions (see page 337).

More Information

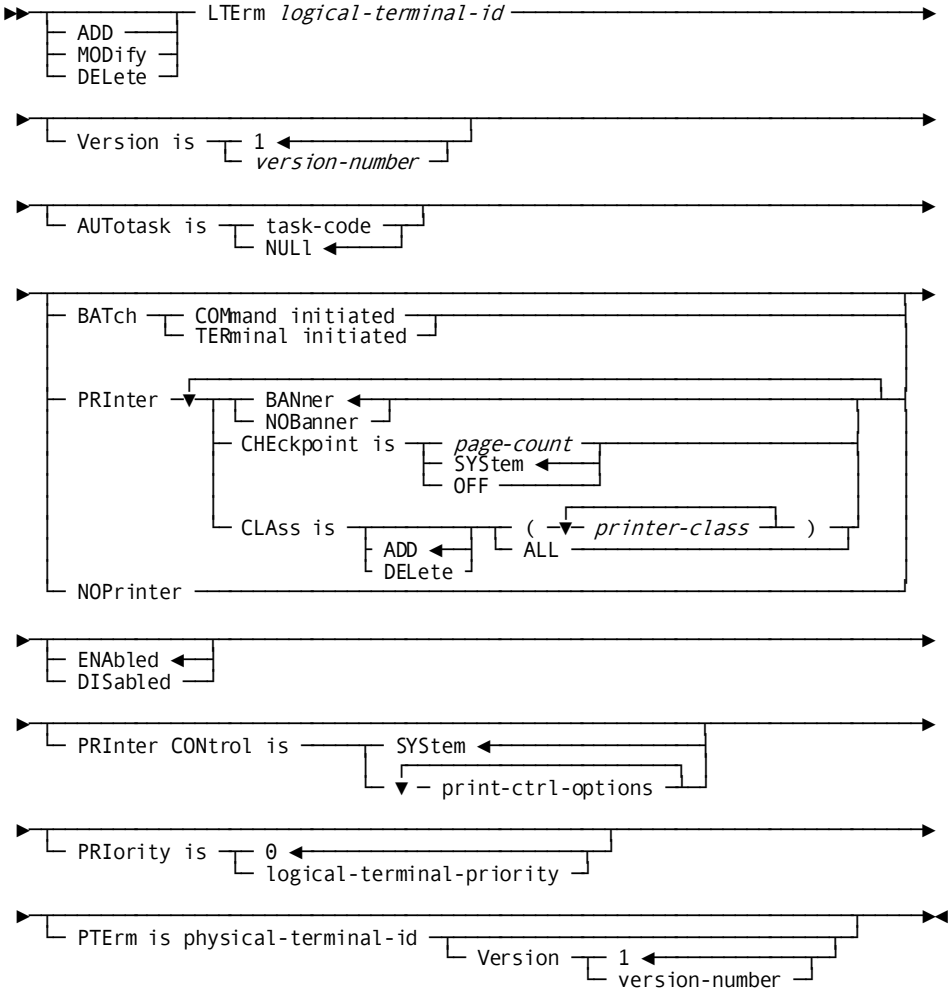
- For more information about the DESTINATION entity type, see DESTINATION Statement (see page 218).
- For more information about mapping support for glass TTYs, see the *CA IDMS Mapping Facility Guide*.

LTERM Statement

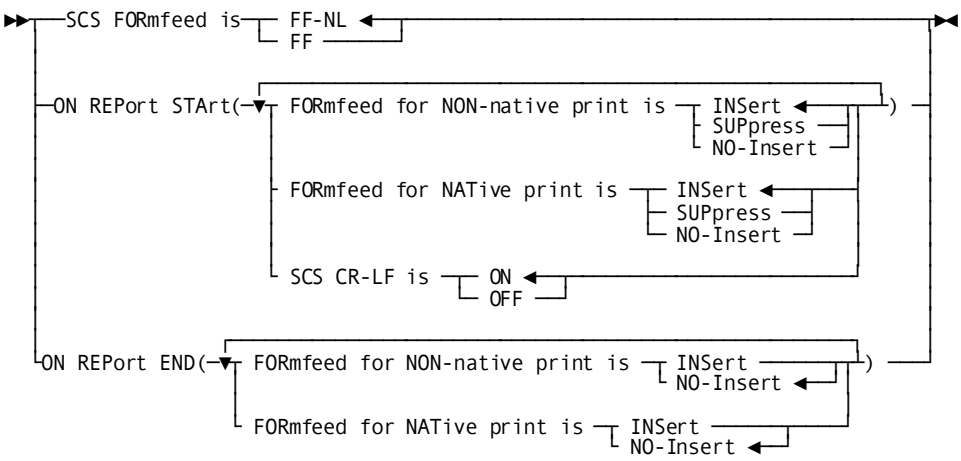
The LTERM statement is used to define a logical terminal and to associate the logical terminal with a physical terminal.

LTERM Statement Syntax

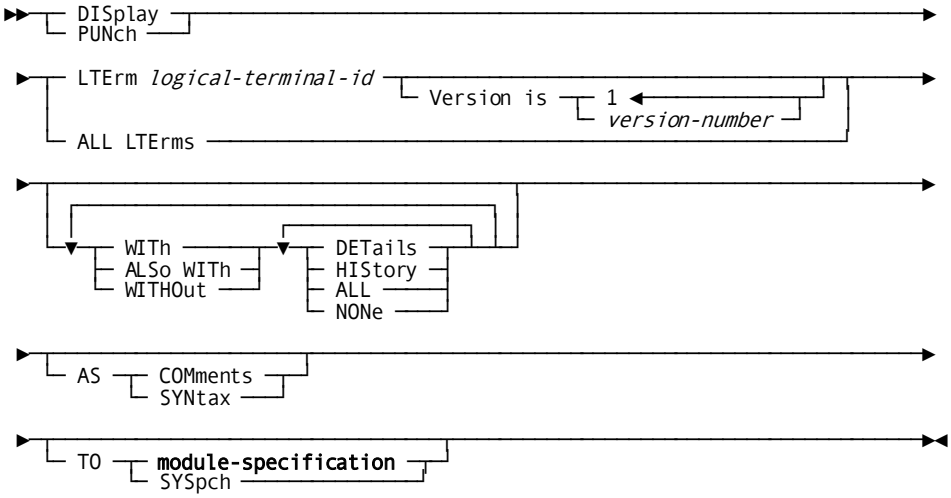
ADD/MODIFY/DELETE LTERM Syntax



Expansion of print-ctrl-options



DISPLAY/PUNCH LTERM Statement



LTERM Statement Parameters

LTErm *logical-terminal-id*

Specifies the logical terminal identifier.

Logical-terminal-id must be a one- through eight-character value.

Version is *version-number*

Qualifies the logical terminal definition with a version number.

Version-number must be an integer in the range 1 through 9999. The default is 1.

Although multiple versions of a logical terminal can exist in the data dictionary, only one version of a logical terminal can be used by a system at runtime. If multiple ADD LTERM statements specify the same logical terminal identifier, the system uses the version that appears first in the system definition.

AUTotask is

Specifies whether the system is to initiate a task automatically when the logical terminal is enabled.

Note: Users can override the AUTOTASK specification at runtime with the DCMT VARY LTERM ONLINE command.

task-code

Specifies the system will execute the task identified by *task-code* whenever the ENTER NEXT TASK CODE prompt normally would be displayed and when a DC RETURN request specifying no next task code is issued.

Task-code must be a task code previously defined in the data dictionary with a TASK statement. If the TASK statement for *task-code* specifies the INPUT option, the task will not begin executing until the terminal operator enters data. If the TASK statement specifies the NOINPUT option, the task begins executing as soon as it receives control.

NULl

Indicates no task will be initiated automatically for the logical terminal.

NULL is the default when you omit the AUTOTASK parameter from the LTERM statement.

Note: Logical terminals defined as printers *must* use the default value of NULL.

BATch

Specifies the logical terminal is a batch device.

COMmand initiated

Specifies the logical terminal will process batch data by using the task code specified in the AUTOTASK parameter.

TERminal initiated

Specifies the logical terminal will process data in response to a task code entered from the batch terminal. The system leaves a read request outstanding for the terminal. If TERMINAL INITIATED is specified, the system prompt (ENTER NEXT TASK CODE) is not displayed at the terminal.

Note: Users can override the COMMAND/TERMINAL INITIATED specification at runtime with the DCMT VARY LTERM command.

PRInter

Specifies the terminal is a printer.

BANner

Indicates a banner page is printed with each report on the printer device defined by the PRINTER parameter. A banner page separates each report and contains information about when the report was created and who created it.

BANNER is the default when you specify neither BANNER nor NOBANNER with the PRINTER parameter of the LTERM statement.

NOBanner

Indicates that no banner page will be printed.

CHEckpoint is

Specifies the printer checkpoint value to use when printing reports. At runtime, printer checkpoints are taken for all active reports at a specified interval. If printing is interrupted by a system abend or a hardware problem (for example, out-of-paper), the system resumes printing the report at the last checkpoint.

page-count

Specifies the printer checkpoint interval

Page-count must be an integer in the range 0 through 32,767. A value of 0 is synonymous with OFF.

SYStem

Directs the system to use the value specified in the PRINTER CHECKPOINT parameter of the current SYSTEM statement.

SYSTEM is the default when you omit the CHECKPOINT parameter from the PRINTER parameter of the LTERM statement.

OFF

Disables the printer checkpoint facility. The system resumes printing interrupted reports from the beginning of the file.

CLAss is

Defines the printer class list for the logical terminal.

Note: Users can override the CLASS specification at runtime with the DCMT VARY PRINTER command.

ADD

Adds one or more printer classes to the printer class list.

ADD is the default when you specify neither ADD nor DELETE in the CLASS parameter of the PRINTER parameter of the LTERM statement.

DELete

Deletes one or more printer classes from the printer class list.

DELETE is valid only for MODIFY operations.

(*printer-class*)

Specifies one or more printer classes.

Printer-class must be an integer in the range 1 through 64. Multiple printer classes must be separated by blanks.

ALL

Assigns all printer classes (that is, 1 through 64) to the logical terminal.

NOPrinter

For MODIFY statements only, changes a logical terminal previously defined as a printer back to an interactive device. When you specify NOPRINTER, the system generation compiler automatically clears all other printer-related parameters such as CLASS, CHECKPOINT, and BANNER. The LTERM specification reverts to the default, INTERACTIVE BREAK.

ENAbled

Indicates the logical terminal is enabled at system startup.

ENABLED is the default when you specify neither ENABLED nor DISABLED in the LTERM statement.

DISabled

Indicates the logical terminal is not enabled at system startup.

Note: Users can override the ENABLED/DISABLED specification at runtime with the DCMT VARY LTERM command.

PRInter CONtrol is

Specifies the printer form feed options.

SYStem

Specifies the printer control options established for the system are used for this printer. This is the default.

SCS FORmfeed is

Specifies the form feed sequence sent to SCS devices.

FF-NL

Specifies the form feed sequence is "FF" (form feed) followed by "NL" (new line). FF-NL is the default.

FF

Specifies the form feed sequence contains "FF" only.

ON REPort STArt

Specifies what happens when a report starts printing.

FORmfeed for NATive print is

Specifies the form feed processing for native mode print reports.

FORmfeed for NON-Native print is

Specifies the form feed processing for non-native mode print reports.

Parameters for the two FORmfeed options are:

INSert

A form feed is inserted, if needed.

SUPpress

The report never starts with a form feed, i.e., if the report starts with a form feed, it is removed.

NO-Insert

No change to the report contents is made.

SCS CR-LF is

Suppresses the Carriage Return/Line Feed sequence at the beginning of a report transmitted to an SCS printer.

ON REPort END

Specifies what happens when a report finishes printing.

FORmfeed for NATive print is

Specifies the form feed processing for native mode print reports.

FORmfeed for NON-Native print is

Specifies the form feed processing for non-native mode print reports.

Parameters for the two FORmfeed options are:

INSert

A form feed is inserted.

NO-Insert

No form feed is inserted.

PRIority is *logical-terminal-priority*

Specifies the logical terminal's dispatching priority. For tasks associated with a logical terminal, the specified priority is added to the priorities specified in the TASK statement (described in TASK Statement (see page 291)) to determine the priority assigned to the task at runtime.

If the sum of the above values is greater than 240, a dispatching priority of 240 is assigned at runtime. *Terminal-priority* must be an integer in the range 0 (lowest priority) through 240. The default is 0.

For more information about how terminal priorities are assigned, see Specifying a TERMINAL PRIORITY (see page 334).

PTErm is physical-terminal-id

Specifies the physical terminal with which the logical terminal is associated.

Physical-terminal-id must be the identifier of a physical terminal previously defined in the data dictionary with a PTERM statement.

This parameter can be omitted if the logical terminal is to be associated with the current physical terminal.

Note: Users can override the PTERM IS specification at runtime with the DCMT VARY LTERM command.

Version version-number

Qualifies the physical terminal identifier with a version number. *Version-number* must be an integer in the range 1 through 9999. The default is 1.

LTERM Statement Usage

Command-initiated Batch Terminals

When a system starts up, the status of a command-initiated batch terminal is offline. To activate the terminal, the user must enter a DCMT VARY LTERM ONLINE command from another terminal. The command-initiated terminal is then marked online and the AUTOTASK task executes. When the task completes execution, the terminal is marked offline, awaiting the next DCMT VARY LTERM ONLINE request. The DCMT VARY LTERM ONLINE command allows the user to specify parameters to be passed to the AUTOTASK task and to override the AUTOTASK value specified in the LTERM statement.

Specifying a TERMINAL PRIORITY

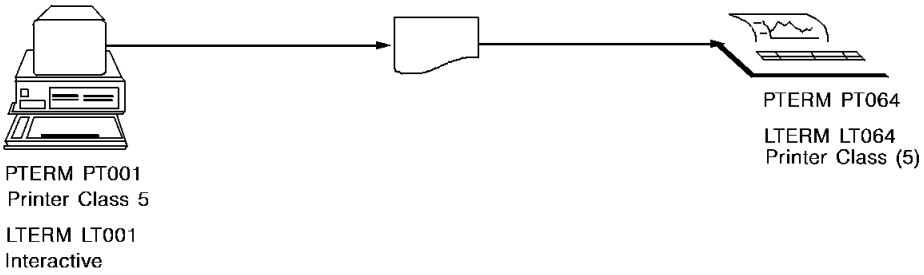
For tasks associated with a logical terminal, the *terminal-priority* specified on the PRIORITY parameter is added to the values specified in the PRIORITY parameter of the TASK statement to determine the priority assigned to the task at runtime. If the sum of the above values is greater than 240, a dispatching priority of 240 is assigned at runtime.

A task initiated in one of the following ways is associated with a logical terminal:

- The task code is entered by the terminal operator in response to the "Enter Next Task Code" prompt
- The task is initiated as a result of a previous task specifying a next task code parameter on a DC RETURN statement or #RETURN macro
- The task is an LTERM autotask

Printer Classes

A logical terminal receives print output from a physical terminal if the physical terminal's printer class appears in the logical terminal's printer class list. For example, if PRINTER CLASS 5 is specified in the PTERM statement for physical terminal PT001 and in the LTERM statement for logical terminal LT064, print output from PT001 will be routed to LT064, as illustrated next.



When multiple print classes are assigned to one logical terminal, reports are printed in order by class, starting with the lowest class and proceeding to the highest.

One printer class can be assigned to multiple logical terminals. For example, if class 2 is assigned to terminals A, B, C, and D, the system will route reports assigned to class 2 to the first printer that is not being used when the print request is issued. If all printers to which class 2 is assigned are in use, the system will queue the report and route it to the first available printer.

Printer classes assigned to no logical terminal can be used to hold reports for future printing. Users can use the DCMT VARY PRINTER or DCMT VARY REPORT command to route held reports to a printer.

Example: LTERM Statement

Defining a Logical Terminal for a Printer

The following statement directs the system generation compiler to add logical terminal LT02 to the data dictionary and associate it with physical terminal PR02:

```
ADD LTERM LT02
    PRINTER CLASS (5 18 11 63) CHECKPOINT 100
    BANNER
    PRIORITY IS 15
    PTERM IS PR02.
```

Defining a Logical Terminal for an Interactive Device

The following statement directs the system generation compiler to add logical terminal LT01 to the data dictionary and associate it with physical terminal PR01:

```
ADD LTERM LT01
    AUTOTASK IS NULL
    ENABLED
    PRIORITY IS 0
    PTERM IS PR01.
```

Modifying a Logical Terminal

The following statement modifies logical terminal LT01 by changing its priority to 35:

```
MODIFY LTERM LT01
       PRIORITY IS 35.
```

Deleting a Logical Terminal

The following statement deletes logical terminal LT01:

```
DELETE LTERM LT01.
```

For more information about DCMT commands, see the *CA IDMS System Tasks and Operator Commands Guide*.

Device Definitions

A device is defined by using a combination of LINE and PTERM statement parameters that uniquely identify the device and supply device-specific characteristics. The LINE and PTERM statement parameters used to define each supported device type supported are presented next in alphabetic order, based on the value specified in the LINE statement TYPE parameter.

Note: These parameters must be coded *in addition to* the parameters presented under LINE Statement (see page 318) and PTERM Statement (see page 322).

The following table summarizes the model number values associated with each physical terminal. You should refer to this table when coding the MODEL parameter of the PTERM statement.

Physical Terminal Type	Associated Line Type	Default Value for MODEL Parameter	Valid Values for MODEL Parameter
ASR33	ASYNC	0	A through Z, 0 through 9
CRT			
R033			
2741			
R3275S	BSC2	2	1, 2
R3275	BSC3	2	1, 2
R3277			1, 2
R3278			1 through 5
R3279			2, 3
R3284			1, 2
R3286			1, 2
R3287			1, 2
R3288			2
R3289			1, 2
L3277	L3270B	2	1, 2
L3278			1 through 5
L3279			2, 3
L3284	L3280B	2	1, 2
L3286			1, 2
L3287			1, 2
L3288			2
L3289			1, 2

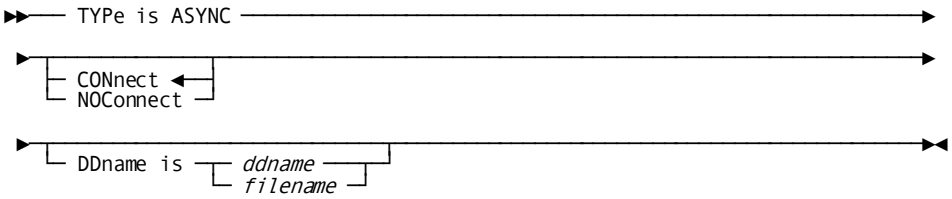
Physical Terminal Type	Associated Line Type	Default Value for MODEL Parameter	Valid Values for MODEL Parameter
S3277 S3278 S3279	S3270Q	2	1, 2 1 through 5 2, 3
TCAMTRM	TCAMLIN	2	1 through 5
V3277	VTAMLIN	2	1, 2
V3278			1 through 5
V3279			2, 3
V3284			1, 2
V3286			1, 2
V3287			1, 2
V3288			2
			1, 2

ASYNC

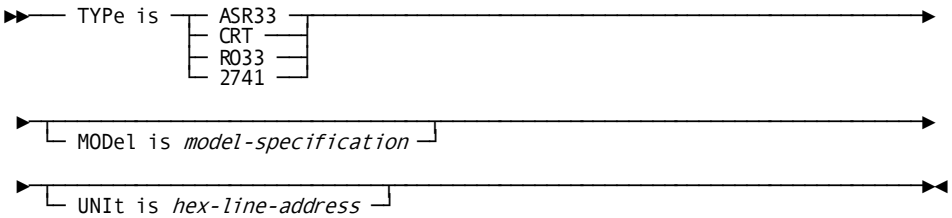
The ASYNC syntax is used for the LINE and PTERM statement parameters to define asynchronous start/stop devices.

ASYNC Syntax

LINE Syntax



PTERM Syntax



ASYNC Parameters

LINE Statement Parameters

TYPe is ASYNC

Supplies the line type.

CONnect

Specifies the line is to be treated as a connect-type line.

CONNECT is the default when you specify neither CONNECT nor NOCONNECT in the LINE statement.

NOConnect

Specifies the line is not treated as a connect-type line.

DDname is

Associates the line with an external file name.

The DDNAME parameter is required to create an executable system.

ddname

For z/OS systems only, identifies the ddname for the line, as specified in the system startup JCL.

filename

For z/VSE systems only, identifies the filename for the line, as specified in the system startup JCL.

PTERM Statement Parameters

TYPe is

Supplies the device type for the physical terminal. Valid values are:

- ASR33
- CRT
- RO33
- 2741

MODel is *model-specification*

Specifies the model of the physical terminal.

Model-specification must be a single alphanumeric character.

UNIt is *hex-line-address*

Specifies the 3-character hexadecimal address of the line associated with the physical terminal.

The UNIT parameter is required to create an executable system.

ASYNC Usage

Terminal Type Codes

When dialing into DC/UCF, the system prompts the dial-up asynchronous terminal operator to type in the terminal identifier. The terminal identifier is a one-character uppercase terminal type code followed by a one- through seven-character name:

- **The terminal type code** varies according to device characteristics and PTERM statement parameters
- **The name** can be chosen arbitrarily

The following table lists the PTERM type, terminal type code, and device characteristics for asynchronous terminals.

Terminal type code	Device type	Line length	Formfeed character	Parity	Character set
PTERM TYPE IS ASR33 or CRT					
A	Hardcopy teletype	133 char.		Even	ASCII
T	Hardcopy teletype	80 char.		Even	ASCII
W	Hardcopy teletype	158 char.		Even	ASCII
C	Glass teletype	80 char.	X'0C'	Even	ASCII
D	Glass teletype	40 char.	X'0C'	Even	ASCII
V	Glass teletype	80 char.	X'18'	Odd	ASCII
PTERM TYPE IS 2741					
B	IBM 2741			Even	PTTC/BCD
E	IBM 2741			Even	PTTC/EBCDIC

Example: ASYNC

The following LINE, PTERM, and LTERM parameters define a teletype device:

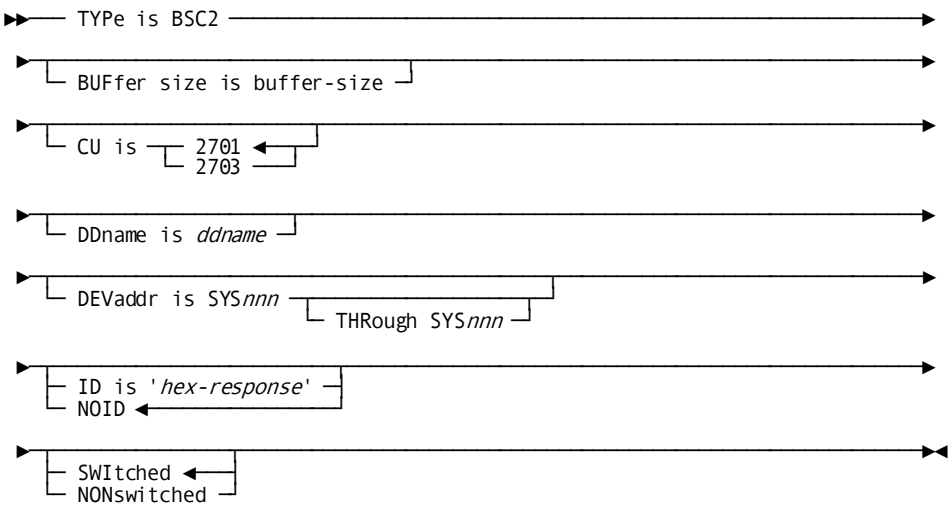
```
ADD LINE SDL60F
    TYPE ASYNC
    DDNAME = TTY60F.
ADD PTERM TTY001
    TYPE ASR33
    UNIT IS 233.
ADD LTERM LTE60F
    PTERM TTY001.
```

BSC2

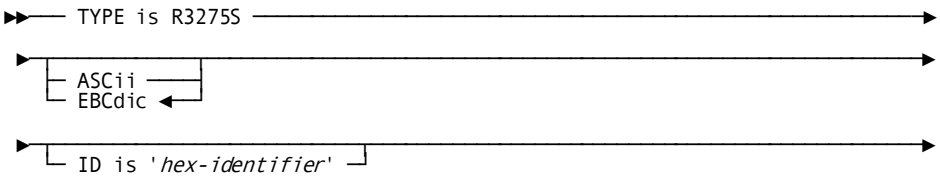
The BSC2 syntax is used by the LINE and PTERM parameters to define binary synchronous switched devices.

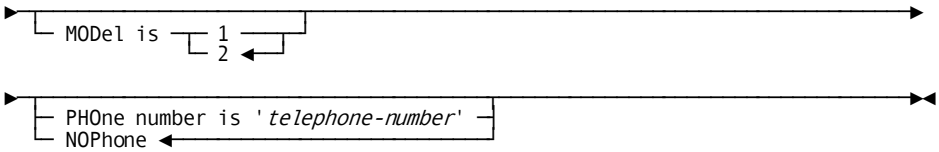
BSC2 Syntax

LINE Syntax

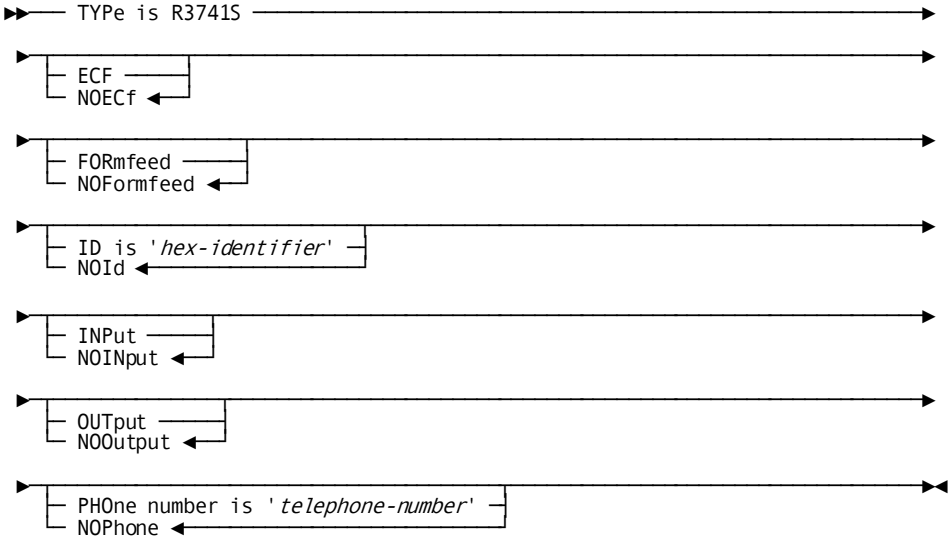


PTERM Syntax for Remote BTAM Switched Devices

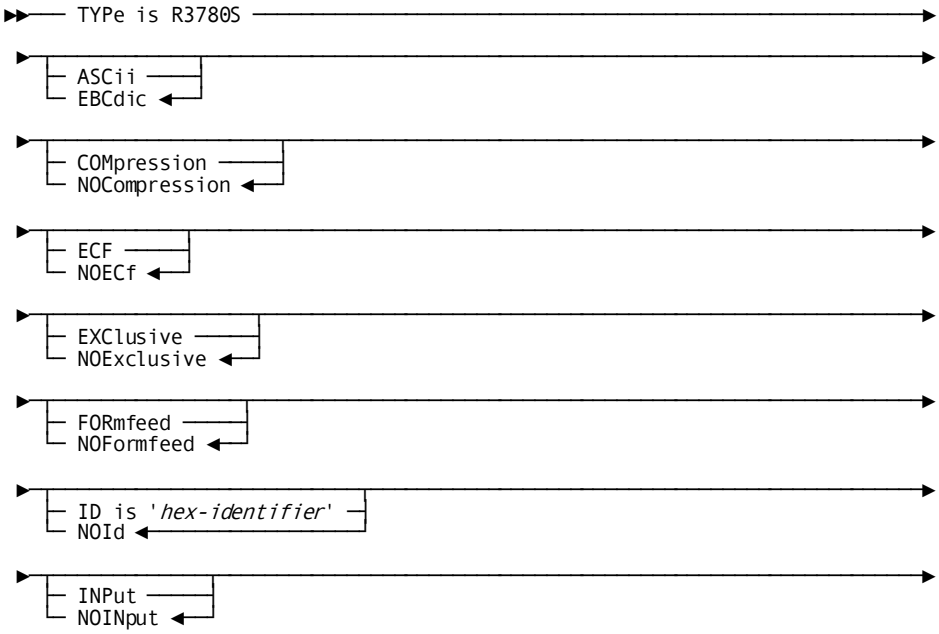


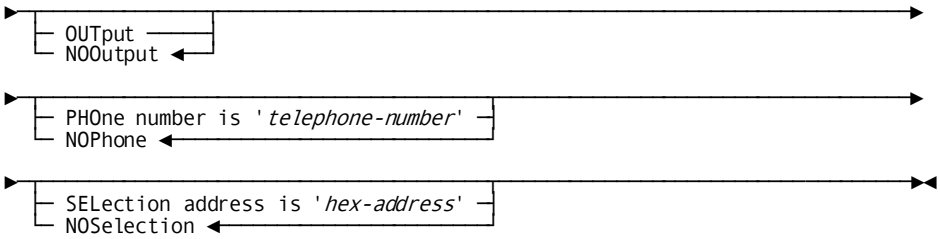


PTERM Syntax for Remote 3741 Devices



PTERM Syntax for Remote 3780 Devices





BSC2 Parameters

LINE Statement Parameters

TYPe is BSC2

Supplies the line type.

BUFfer size is *buffer-size*

Specifies the line I/O page buffer size, in bytes, for the line.

Buffer-size must be an integer in the range 1 through 32,767.

CU is

For z/VSE systems only, specifies the control unit device type.

Valid values are 2701 and 2703. The default is 2701.

DDname is *ddname*

For z/OS systems only, specifies the ddname for the line, as specified in the system startup JCL.

The DDNAME parameter is required under z/OS to create an executable system.

DEVaddr is SYS*nnn*

For z/VSE systems only, specifies the logical unit assignment of the device, as specified in the system startup JCL.

The DEVADDR parameter is required under z/VSE to create an executable system.

THRough SYS*nnn*

Specifies a range of logical unit assignments, beginning with the value specified in the DEVADDR parameter and ending with the value specified in the THROUGH parameter.

ID is '*hex-response*'

Specifies the system is to send a response to terminals when they dial into the line.

Hex-response must be the 2- through 30-character hexadecimal response enclosed in site-standard quotation marks.

NOID

Specifies the system will not send a response to terminals when they dial into the line.

NOID is the default when you specify neither ID nor NOID in the LINE statement.

SWItched

Indicates the connections to physical terminals associated with the line are switched (that is, connections are established by dialing).

SWITCHED is the default when you specify neither SWITCHED nor NONSWITCHED in the LINE statement.

NONswitched

Indicates the connections to physical terminals associated with the line are nonswitched (that is, leased).

PTERM Statement Parameters for Remote BTAM Switched Devices

TYPe is R3275S

Specifies the device type for the physical terminal.

ASCii

Specifies the physical terminal supports the ASCII character set.

EBCdic

Specifies the physical terminal supports the EBCDIC character set.

ID IS *'hex-identifier'*

Specifies the physical terminal identifier that will be transmitted to the DC/UCF system when connection is established.

Hex-identifier must be the 2- through 30-character hexadecimal identifier enclosed in site-standard quotation marks.

The ID parameter is required to create an executable system.

MODel is

Specifies the model number of the physical terminal.

Valid values are 1 and 2. The default is 2.

PHOne number is *telephone-number*

Specifies the system will dial up the terminal automatically, using the specified number.

Telephone-number must be a one- through 16-character value enclosed in site-standard quotation marks. Blanks and hyphens can be inserted when applicable. At least one numeric character must be specified.

NOPhone

Specifies the system will not dial up the terminal automatically. Connection must be established manually.

NOPHONE is the default when you specify neither PHONE NUMBER nor NOPHONE in the PTERM statement.

PTERM Statement Parameters for Remote 3741 Devices

TYPe is R3741S

Specifies the device type for the physical terminal.

ECF

Specifies logical records are blocked.

NOECf

Specifies logical records are not blocked.

NOECF is the default when you specify neither ECF nor NOECF in the PTERM statement.

FORmfeed

Specifies the physical terminal has formfeed capabilities.

NOFormfeed

Specifies the physical terminal does not have formfeed capabilities.

NOFORMFEED is the default when you specify neither FORMFEED nor NOFORMFEED in the PTERM statement.

ID is *'hex-identifier'*

Specifies the terminal will transmit an identifier to the system when connection is established.

Hex-identifier must be the 2- through 30-character hexadecimal identifier enclosed in site-standard quotation marks.

NOId

Specifies the terminal will not transmit an identifier to the system when connection is established.

NOID is the default when you specify neither ID nor NOID in the PTERM statement.

INPut

Specifies the system will read input from the physical terminal.

NOINput

Specifies the system will not read input from the physical terminal.

NOINPUT is the default when you specify neither INPUT nor NOINPUT in the PTERM statement.

OUTput

Specifies the system will write output to the physical terminal.

NOOutput

Specifies the system will not write output to the physical terminal.

NOOUTPUT is the default when you specify neither OUTPUT nor NOOUTPUT in the PTERM statement.

PHOne number is '*telephone-number*'

Specifies the system will dial up the terminal automatically, using the specified number.

Phone-number-q must be a one- through 16-character value enclosed in site-standard quotation marks. Blanks and hyphens can be inserted as desired. At least one numeric character must be specified.

NOPhone

Specifies the system will not dial up the terminal automatically. Connection must be established manually.

NOPHONE is the default when you specify neither PHONE NUMBER nor NOPHONE in the PTERM statement.

PTERM statement parameters for remote 3780 devices

TYPe is R3780S

Specifies the device type for the physical terminal.

ASCii

Specifies the physical terminal supports the ASCII character set.

EBCdic

Specifies the physical terminal will support the EBCDIC character set.

EBCDIC is the default when you specify neither ASCII nor EBCDIC in the PTERM statement.

COMpression

Specifies the system will use the space compression feature when writing output to the physical terminal.

NOCompression

Specifies the system will not use the space compression feature when writing output to the physical terminal.

NOCOMPRESSION is the default when you specify neither COMPRESSION nor NOCOMPRESSION in the PTERM statement.

ECF

Specifies logical records are blocked.

NOECF is the default when you specify neither ECF nor NOECF in the PTERM statement.

NOECf

Specifies logical records are not blocked.

EXClusive

Specifies the remote 3780 device will have exclusive use of the line for the duration of input data-stream transmission.

NOExclusive

Specifies the remote 3780 device will not have exclusive use of the line for the duration of input data-stream transmission.

NOEXCLUSIVE is the default when you specify neither EXCLUSIVE nor NOEXCLUSIVE in the PTERM statement.

FORmfeed

Specifies the physical terminal has formfeed capabilities.

NOFormfeed

Specifies the physical terminal does not have formfeed capabilities.

NOFORMFEED is the default when you specify neither FORMFEED nor NOFORMFEED in the PTERM statement.

ID is '*hex-identifier*'

Specifies the physical terminal will transmit an identifier to the system when connection is established.

Hex-identifier must be the 2- through 30-character hexadecimal response enclosed in site-standard quotation marks.

NOId

Specifies the terminal will not transmit an identifier to the system when connection is established.

NOID is the default when you specify neither ID nor NOID in the PTERM statement.

INPut

Specifies the system will read input from the physical terminal.

NOINput

Specifies the system will not read input from the physical terminal.

NOINPUT is the default when you specify neither INPUT nor NOINPUT in the PTERM statement.

OUTput

Specifies the system will write output to the physical terminal.

NOOutput

Specifies the system will not write output to the physical terminal.

NOOUTPUT is the default when you specify neither OUTPUT nor NOOUTPUT in the PTERM statement.

PHOne number is '*telephone-number*'

Specifies the system dials up the terminal automatically, using the specified number.

Phone-number-q must be a one- through 16-character value enclosed in site-standard quotation marks. Blanks and hyphens can be inserted when applicable. At least one numeric character must be specified.

NOPhone

Specifies the system will not dial up the terminal automatically. Connection must be established manually.

NOPHONE is the default when you specify neither PHONE NUMBER nor NOPHONE in the PTERM statement.

SELection address is '*hex-address*'

Specifies the physical terminal uses the 3780 component selection feature.

Hex-address must be a 2-character hexadecimal literal enclosed in site-standard quotation marks.

NOSelection

Specifies the physical terminal will not use the 3780 component selection feature.

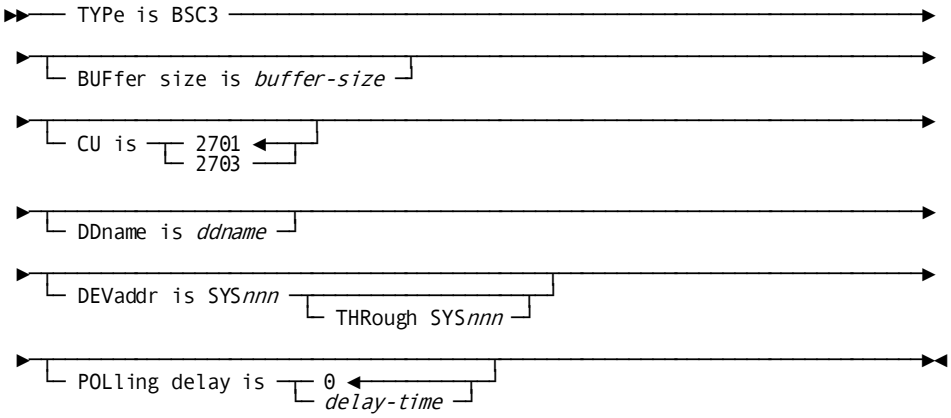
NOSELECTION is the default when you specify neither SELECTION ADDRESS nor NOSELECTION in the PTERM statement.

BSC3

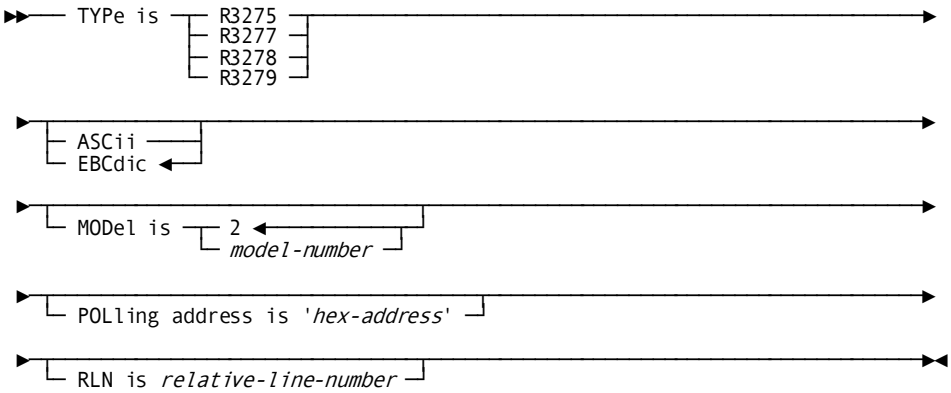
The BSC3 syntax for the LINE and PTERM parameters is used to define binary synchronous leased multipoint or remote 3270 devices.

BSC3 Syntax

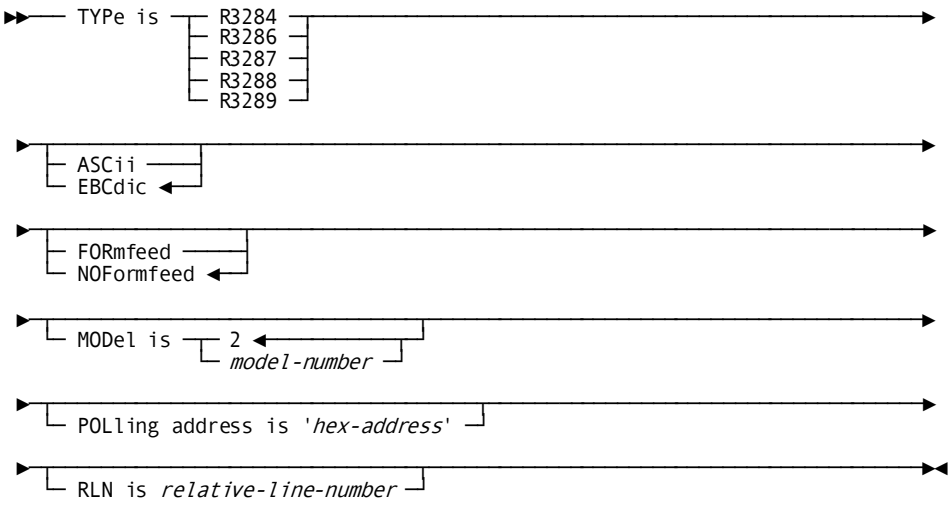
LINE Syntax



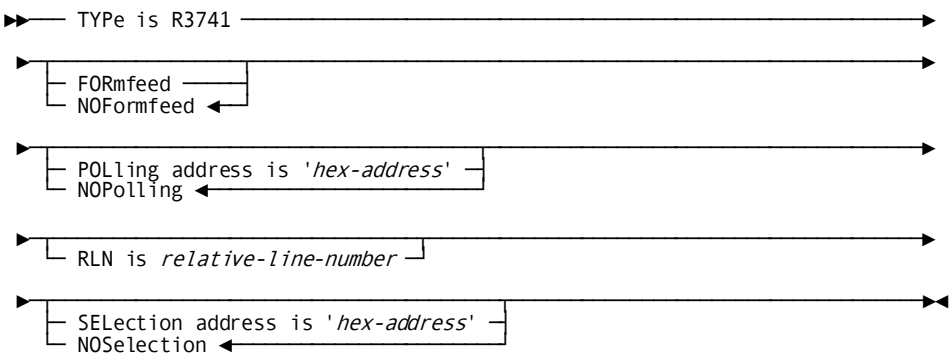
PTERM Syntax for Remote 3270 Devices



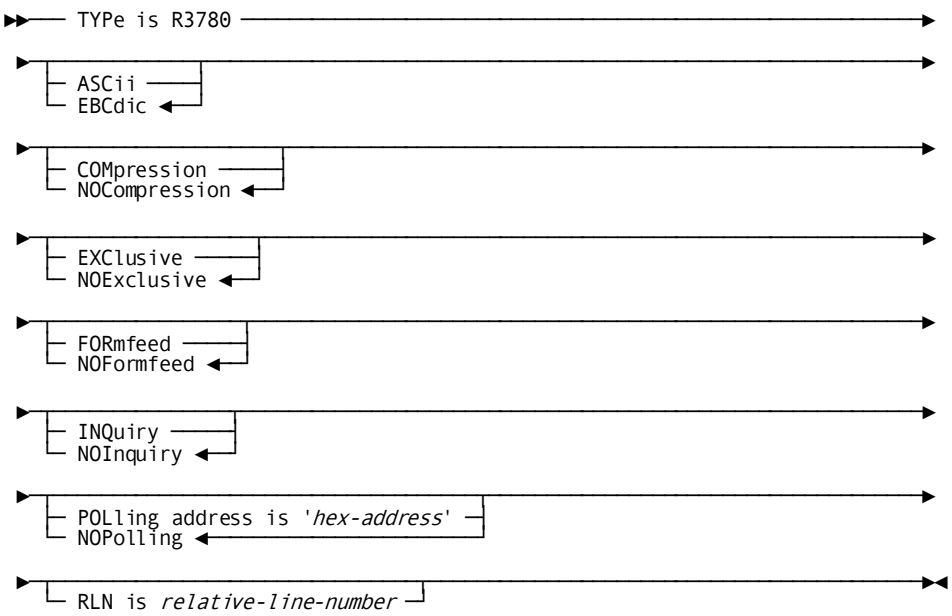
PTERM Syntax for Remote 3280 Devices



PTERM Syntax for 3741 Devices



PTERM Syntax for Remote 3780 Devices



BSC3 Parameters

LINE Statement Parameters

TYPe is BSC3

Specifies the line type.

BUFfer size is *buffer-size*

Specifies the line I/O page buffer size, in bytes, for the line.

Buffer-size must be an integer in the range 1 through 32,767.

CU is

For z/VSE systems only, specifies the control unit device type.

Valid values are 2701 and 2703. The default is 2701.

DDname is *ddname*

For z/OS systems only, specifies the ddname for the line, as specified in the system startup JCL.

The DDNAME parameter is required under z/OS to create an executable system.

DEVaddr is SYS*nnn*

For z/VSE systems only, specifies the logical unit assignment of the device, as specified in the system startup JCL.

The DEVADDR parameter is required under z/VSE to create an executable system.

THRough SYS*nnn*

Specifies a range of logical unit assignments, beginning with the value specified in the DEVADDR parameter and ending with the value specified in the THROUGH parameter.

POLling delay is *delay-time*

Specifies the interval, in wall-clock seconds, at which the line will be polled.

Delay-time must be an integer in the range 0 through 2,147,483,647. The default, 0, specifies the line is polled continuously.

PTERM Statement Parameters for Remote 3270 Devices

TYPe is

Specifies the device type for the physical terminal. Valid values are:

- R3275
- R3277
- R3278
- R3279

ASCii

Specifies the physical terminal supports the ASCII character set.

EBCdic

Specifies the physical terminal supports the EBCDIC character set.

EBCDIC is the default when you specify neither ASCII nor EBCDIC in the PTERM statement.

MODel is *model-number*

Specifies the model number of the physical terminal. Valid model numbers for each physical terminal type are:

Physical terminal type	Model number
R3275	1 and 2
R3277	1 and 2
R3278	1 through 5
R3279	2 and 3

The default is 2 for all physical terminal types.

POLling address is '*hex-address-q*'

Specifies the address the system uses to read input from the physical terminal.

Hex-address must be a 4-character hexadecimal value enclosed in site-standard quotation marks.

The POLLING ADDRESS parameter is required to create an executable system.

RLN is *relative-line-number*

Specifies the line to which the physical terminal is connected in a BTAM BSC3 line group.

Under z/OS, *relative-line-number* must be an integer in the range 1 through 255. The default is 1.

Under z/VSE, *relative-line-number* must be an integer in the range 0 through 255. The default is 0.

PTERM Statement Parameters for Remote 3280 Device Types

TYPe is

Specifies the device type for the physical terminal. Valid values are:

- R3284
- R3286
- R3287
- R3288
- R3289

ASCii

Specifies the physical terminal supports the ASCII character set.

EBCdic

Specifies the physical terminal supports the EBCDIC character set.

EBCDIC is the default when you specify neither ASCII nor EBCDIC in the PTERM statement.

FORmfeed

Specifies the physical terminal has formfeed capabilities.

The FORMFEED parameter is invalid for physical terminal type R3284.

NOFormfeed

Specifies the physical terminal does not have formfeed capabilities.

NOFORMFEED is the default when you specify neither FORMFEED nor NOFORMFEED in the PTERM statement.

MODel is *model-number*

Specifies the model number of the physical terminal. Valid model numbers for each physical terminal type are:

Physical terminal type	Model number
R3284	1 and 2
R3286	1 and 2
R3287	1 and 2
R3288	2
R3288	1 and 2

The default is 2 for all physical terminal types.

POLling address is '*hex-address-q*'

Specifies the address the system uses to read input from the physical terminal.

Hex-address must be a 4-character hexadecimal value enclosed in site-standard quotation marks.

The POLLING ADDRESS parameter is required to create an executable system.

RLN is *relative-line-number*

Specifies the line to which the physical terminal is connected in a BTAM BSC3 line group.

Under z/OS, *relative-line-number* must be an integer in the range 1 through 255. The default is 1.

Under z/VSE, *relative-line-number* must be an integer in the range 0 through 255. The default is 0.

PTERM Statement Parameters for 3741 Devices

TYPe is R3741

Specifies the device type for the physical terminal.

FORmfeed

Specifies the physical terminal has formfeed capabilities.

NOFormfeed

Specifies the physical terminal does not have formfeed capabilities.

NOFORMFEED is the default when you specify neither FORMFEED nor NOFORMFEED in the PTERM statement.

POLling address is '*hex-address*'

Specifies the system will read input from the physical terminal at the specified address.

Hex-address must be a 4- through 8-character value enclosed in site-standard quotation marks.

NOPolling

The system will not read input from the physical terminal.

NOPOLLING is the default when you specify neither POLLING ADDRESS nor NOPOLLING in the PTERM statement.

RLN is *relative-line-number*

Specifies the line to which the physical terminal is connected in a BTAM BSC3 line group.

Under z/OS, *relative-line-number* must be an integer in the range 1 through 255. The default is 1.

Under z/VSE, *relative-line-number* must be an integer in the range 0 through 255. The default is 0.

SELection address is '*hex-address*'

Specifies the system will write output to the physical terminal.

Hex-address must be a 4- through 8-character hexadecimal value enclosed in site-standard quotation marks.

NOSelection

Specifies the system will not write output to the physical terminal.

NOSELECTION is the default when you specify neither SELECTION ADDRESS nor NOSELECTION in the PTERM statement.

PTERM Statement Parameters for 3780 Devices

TYPe is R3780

Specifies the device type for the physical terminal.

ASCii

Specifies the physical terminal supports the ASCII character set.

EBCdic

Specifies the physical terminal supports the EBCDIC character set.

EBCDIC is the default when you specify neither ASCII nor EBCDIC in the PTERM statement.

COMpression

Specifies the system will use the space compression feature when writing output to the physical terminal.

NOCompression

Specifies the system will not use the space compression feature when writing output to the physical terminal.

NOCOMPRESSION is the default when you specify neither COMPRESSION nor NOCOMPRESSION in the PTERM statement.

EXClusive

Specifies the remote 3780 device has exclusive use of the line for the duration of input data-stream transmission.

NOExclusive

Specifies the remote 3780 device does not have exclusive use of the line for the duration of input data-stream transmission.

NOEXCLUSIVE is the default when you specify neither EXCLUSIVE nor NOEXCLUSIVE in the PTERM statement.

FORmfeed

Specifies the physical terminal has formfeed capabilities.

NOFormfeed

Specifies the physical terminal does not have formfeed capabilities.

NOFORMFEED is the default when you specify neither FORMFEED nor NOFORMFEED in the PTERM statement.

INQuiry

Specifies the terminal will transmit data to the system in inquiry mode.

NOInquiry

Specifies the terminal will not transmit data to the system in inquiry mode.

NOINQUIRY is the default when you specify neither INQUIRY nor NOINQUIRY in the PTERM statement.

POLling address is '*hex-address*'

Specifies the system will read input from the physical terminal at the specified address.

Hex-address must be a 4- through 8-character value enclosed in site-standard quotation marks.

NOPolling

The system will not read input from the physical terminal.

NOPOLLING is the default when you specify neither POLLING ADDRESS nor NOPOLLING in the PTERM statement.

RLN is *relative-line-number*

Specifies the line to which the physical terminal is connected in a BTAM BSC3 line group.

Under z/OS, *relative-line-number* must be an integer in the range 1 through 255. The default is 1.

Under z/VSE, *relative-line-number* must be an integer in the range 0 through 255. The default is 0.

SELection address is '*hex-address*'

Specifies the system will write output to the physical terminal.

Hex-address must be a 4- through 8-character hexadecimal value enclosed in site-standard quotation marks.

NOSelection

Specifies the system will not write output to the physical terminal.

NOSELECTION is the default when you specify neither SELECTION ADDRESS nor NOSELECTION in the PTERM statement.

Example: BSC3

The following LINE, PTERM, and LTERM statements define a remote 3270 line with two 3277 devices:

```
ADD LINE R3270B1
    TYPE IS BSC3
    DDNAME IS R3270B1.

ADD PTERM PR3270B1
    TYPE IS R3277
    MODEL IS 2
    POLLING ADDRESS IS '4040'.
ADD LTERM LR3270B1
    PTERM IS PR3270B1.

ADD PTERM PR3270B2
    TYPE IS R3277
    MODEL IS 2
    POLLING ADDRESS IS '40C1'.
ADD LTERM LR3270B2
    PTERM IS PR3270B2.
```

CCI

CCI lines (CA IDMS DDS and CA IDMS Server users only) are used to connect a DC/UCF system (host node) with another DC/UCF system (target node) located on a different CPU in the CA IDMS communications network. To include a DC/UCF system in the DDS network, you must explicitly define the system as a node with an access type of CCI on the system generation NODE statement. Additionally, you define the resources (databases and systems) that can be accessed by DDS using the system generation RESOURCE TABLE statement. The NODE (NODE Statement) and RESOURCE TABLE (RESOURCE TABLE Statement) statements are described in System Generation Statements (see page 201).

You define one CCI line for the DC/UCF system you are defining.

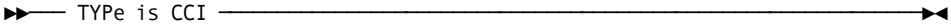
You define a PTERM and LTERM pair for the maximum number of concurrent DDS user sessions you will allow within a DC/UCF system.

To define an LTERM, simply add the LTERM and the associated PTERM. There are default LTERM options the DC/UCF system uses at runtime.

The CCI line manages the physical terminals. The physical terminals perform the actual communication between CPUs.

CCI Syntax

LINE Syntax



PTERM Syntax

CCI Parameters

LINE Statement Parameters

TYPe is CCI

Identifies the line as a CCI line that is used to connect two DC/UCF systems (nodes).

This parameter is required for ADD operations.

PTERM Statement Parameters

TYPe is BULK

Specifies the data transfer between DC/UCF systems is bulk.

The TYPE parameter is required for ADD operations.

Example

The following LINE, PTERM, and LTERM statements define a simulated 3270 line and terminal:

```
ADD LINE S3270Q1
    TYPE IS S3270Q
    INPUT DDNAME IS SIMIN1
    OUTPUT DDNAME IS SIMOUT1.

ADD PTERM PS3270Q1
    TYPE IS S3277
    MODEL IS 2.
ADD LTERM LS3270Q1
    PTERM IS PS3270Q1.
```

More Information

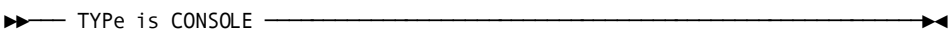
- For more information about the NODE (NODE Statement (see page 242)) and RESOURCE TABLE (RESOURCE TABLE Statement (see page 277)) statements, see System Generation Statements (see page 201).
- For more information about DDS, see the *CA IDMS DDS Design and Operations Guide*.
- For more information about CAICCI, see the *CA Common Services for z/OS Administrator Guide* and the *CA Common Services for z/OS Getting Started*.

CONSOLE

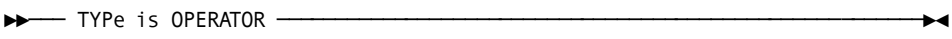
The CONSOLE syntax for the LINE and PTERM parameters is used to define the operator's console. The teleprocessing network can include only one console definition. To define the operator's console, the LINE identifier must be CONSOLE, the PTERM identifier must be OPERATOR, and the LTERM identifier must be CONSOLE.

CONSOLE Syntax

LINE Syntax



PTERM Syntax



CONSOLE Parameter

LINE Statement Parameter

TYPe is CONSOLE

Specifies the line type.

The LINE identifier, as described in LINE Statement (see page 318), must be CONSOLE to define the operator's console.

PTERM Statement Parameter

TYPe is OPERATOR

Specifies the device type for the physical terminal.

The PTERM identifier, as described in PTERM Statement (see page 322), must be OPERATOR to define the operator's console.

Example

The following LINE, PTERM, and LTERM statements define a simulated 3270 line and terminal:

```
ADD LINE S3270Q1
    TYPE IS S3270Q
    INPUT DDNAME IS SIMIN1
    OUTPUT DDNAME IS SIMOUT1.

ADD PTERM PS3270Q1
    TYPE IS S3277
    MODEL IS 2.
ADD LTERM LS3270Q1
    PTERM IS PS3270Q1.
```

DDS

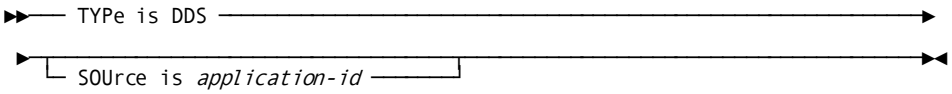
DDS lines are used to connect a DC/UCF system with another DC/UCF system in the DDS network, using the VTAM access method.

A DDS line, together with a physical terminal, creates a port through which the system passes request and response packets to another node. In order for communication to occur between two DDS nodes, a port must be defined for each node.

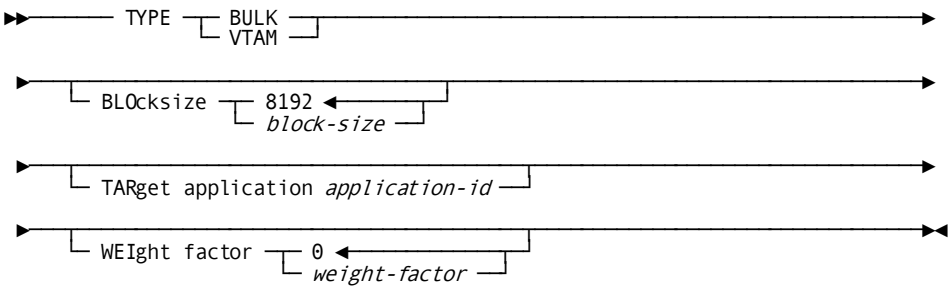
Syntax for the LINE and PTERM parameters used to define DDS lines is presented below. An LTERM statement is not required to define a VTAM PTERM.

DDS Syntax

LINE Syntax



PTERM Syntax



DDS Parameters

LINE Statement Parameters

TYPe is DDS

Specifies DDS as the line type.

SOUrce is *application-id*

Specifies the VTAM LUNAME of the DDS application to be created by the line driver.

PTERM Statement Parameters

TYPE

BULK

Specifies the data transfer between DC/UCF systems is BULK. You must define at least two PTERMS with a TYPE of BULK.

VTAM

Specifies the PTE that will be used to transmit packets through a VTAM communications link. Specify VTAM if the connection being established is between two nodes residing on the same or different machines connected by VTAM. You must define at least one PTERM with a TYPE of VTAM.

If you specify VTAM, you must specify the TARGET parameter and optionally the BLOCKSIZE and WEIGHT parameters, which are described below. For additional information about DDS VTAM considerations, see VTAM Considerations (see page 417) and the *CA IDMS DDS Design and Operations Guide*.

BLOcksize

Specifies the size of the buffer to use to pass run unit request and response packets between nodes. If two connected nodes specify different block sizes, DDS uses the smaller size.

8192

Specifies the default block size.

block-size

Specify an integer in the range 1 through 32,767.

TARget application *application-id*

Specifies the VTAM LUNAME of the destination application program. *Application-id* is a unique one- through eight-character name that corresponds to an ACB name or label specified in an APPL statement. This name must correspond to the *application-id* specified on the DDS LINE statement SOURCE parameter for the target node.

WEIght factor

Specifies the priority to assign to the port defined by this physical terminal and its associated line.

0

Specifies the default *weight-factor*.

weight-factor

Specify an integer in the range 0 through 999,999,999.

DDS Usage

Defining DDS Lines

One LINE statement must be coded for each DDS node to which the system is to be directly attached, except under VTAM. Under VTAM, one LINE statement can be used to directly connect a DDS node to one or more nodes.

One PTERM statement must be coded for each DDS line, with the exception of VTAM connections. Under VTAM, one or more physical terminals can be defined for each line.

Specifying a Weight Factor

When selecting a port through which to pass request and response packets, the node bases its selection on the weight factor specified for the port that connects the system to the target node. A port can directly connect the system to the target node or to a node that, in turn, is connected to the target node either directly or indirectly. If such multiple paths exist, the host node selects the path having the lowest cumulative weight factor.

For more information about weight factors, see the *CA IDMS DDS Design and Operations Guide*.

Example: DDS

Defining a DDS Port that Communicates using VTAM

The following statements define a DDS port that communicates through a VTAM line. In the system in New York, define:

```
ADD LINE NY2BOS
    TYPE DDS
    SOURCE DDSVTM01.

ADD PTERM PT001
    TYPE VTAM
    BLOCKSIZE 8192
    TARGET DDSVTM02
    WEIGHT FACTOR 10.
```

In the system located in Boston, define:

```
ADD LINE BOS2NY
    TYPE DDS
    SOURCE DDSVTM02.

ADD PTERM PT001
    TYPE VTAM
    TARGET DDSVTM01.
```

Modifying the Weight Factor

The following statement modifies physical terminal PT001, increasing its weight factor to 25:

```
MODIFY PTERM PT001
WEIGHT FACTOR 25.
```

Deleting a DDS Port

The following statement deletes the DDS port that communicates through line NY2BOS:

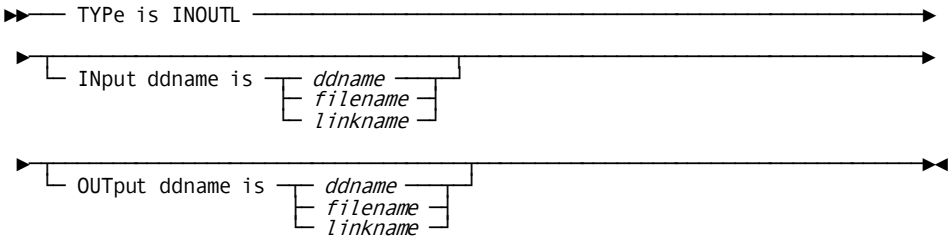
```
DELETE PTERM PT001.

DELETE LINE NY2BOS.
```

INOUTL

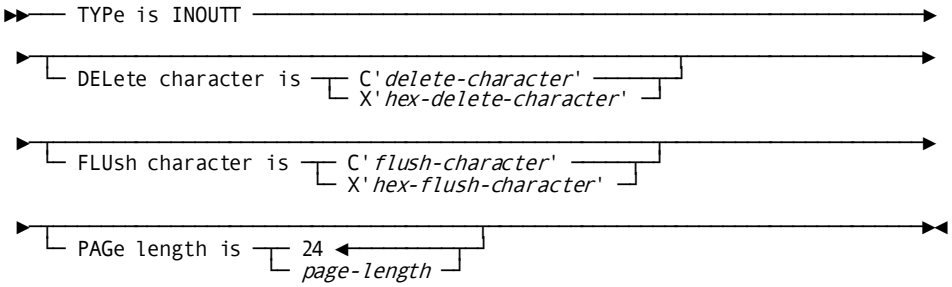
The INOUTL syntax for the LINE and PTERM parameters is used to define SYSIN/SYSOUT devices.

INOUTL Syntax

LINE Syntax



PTERM Syntax



INOUTL Parameters

LINE Statement Parameters

TYPe is INOUTL

Specifies the line type.

INput ddname is

Specifies the external name of the input file for the line, as specified in the system startup JCL.

The INPUT DDNAME IS parameter is required to create an executable system.

ddname

For z/OS systems, specifies the ddname of the input file for the line.

filename

For z/VSE systems, specifies the filename of the input file for the line.

OUTput ddname is

Specifies the external name of the output file for the line, as specified in the system startup JCL.

The OUTPUT DDNAME IS parameter is required to create an executable system.

ddname

For z/OS systems, specifies the ddname of the output file for the line.

filename

For z/VSE systems, specifies the filename of the output file for the line.

PTERM Statement Parameters

TYPe is INOUTT

Specifies the device type for the physical terminal.

DELete character is

Specifies the control character to be used to delete characters.

C'*delete-character*'

Specifies the delete character as a one-character literal.

X'*hex-delete-character*'

Specifies the delete character as a 2-digit hexadecimal literal.

FLUsh character is

Specifies the control character used to delete lines.

C'*flush-character*'

Specifies the flush character as a one-character literal.

X'*hex-flush-character*'

Specifies the flush character as a 2-digit hexadecimal literal.

PAGe length is *page-length*

Specifies the maximum page size, in text lines, for the physical terminal.

Page-length must be an integer in the range 1 through 32,767. The default is 24.

INOUTL Usage

z/OS DD Statements for INOUTL Lines

For z/OS systems, the DD statement for the input file for an INOUTL line must include the following DCB specifications:

```
RECFM=F,BLKSIZE=80,LRECL=80
```

The DD statement for the output file for an INOUTL line must include the following DCB specifications:

```
RECFM=VBA,BLKSIZE=141,LRECL=137
```

Example

The following LINE, PTERM, and LTERM statements define a simulated 3270 line and terminal:

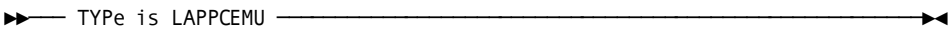
```
ADD LINE S3270Q1
    TYPE IS S3270Q
    INPUT DDNAME IS SIMIN1
    OUTPUT DDNAME IS SIMOUT1.

ADD PTERM PS3270Q1
    TYPE IS S3277
    MODEL IS 2.
ADD LTERM LS3270Q1
    PTERM IS PS3270Q1.
```

LAPPCEMU

The following syntax for LINE and PTERM parameters is used to define emulated APPC.

LAPPCEMU Syntax

LINE Syntax



PTERM Syntax

LAPPCEMU Parameters

LINE Statement Parameters

TYPe is LAPPCEMU

Specifies the line type.

PTERM Statement Parameters

TYPe is PAPPCEMU

Specifies the physical terminal type as PAPPCEMU.

You should associate only one physical terminal with an LAPPCEMU line.

Example: LAPPCEMU

Sample Line and Terminal Definitions

The following DC/UCF system generation statements define a line and associated physical terminal to support emulated APPC:

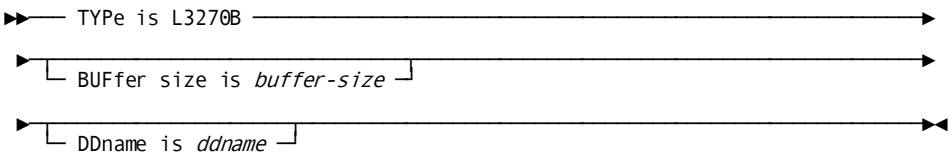
```
ADD LINE APPCLIN
    TYPE IS LAPPCEMU
    ENABLED.

ADD PTERM APPCPTE
    TYPE IS PAPPCEMU
    ENABLED.

ADD LTERM APPCLTE
    ENABLED.
```

L3270B

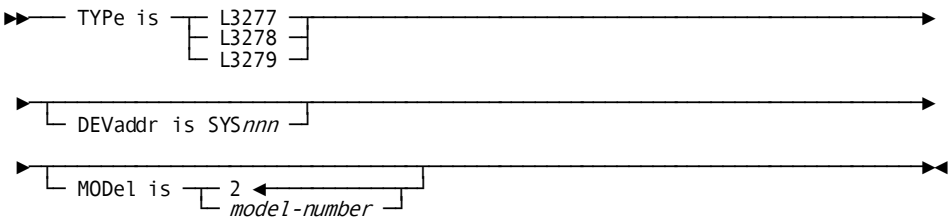
The following syntax for LINE and PTERM parameters is used to define local 3270 devices using BTAM.

L3270B Syntax

LINE Syntax



PTERM Syntax



L3270B Parameters

LINE Statement Parameters

TYPe is L3270B

Specifies the line type.

BUFfer size is *buffer-size*

Specifies the line I/O page buffer size, in bytes, for the line.

Buffer-size must be an integer in the range 1 through 32,767.

DDname is *ddname*

For z/OS systems only, specifies the ddname for the line, as specified in the system startup JCL.

The DDNAME parameter is required under z/OS to create an executable system.

PTERM Statement Parameters

TYPe is

Specifies the device type for the physical terminal. Valid values are:

- L3277
- L3278
- L3279

DEVaddr is SYS*nnn*

For z/VSE systems only, specifies the logical unit assignment of the device, as specified in the system startup JCL.

This parameter is required under z/VSE to create an executable system.

MODel is *model-number*

Specifies the model number of the physical terminal. Valid model numbers for each physical terminal type are:

Physical terminal type	Model number
L3277	1 and 2
L3278	1 through 5
L3279	2 and 3

The default is 2 for all physical terminal types.

Example

The following LINE, PTERM, and LTERM statements define a simulated 3270 line and terminal:

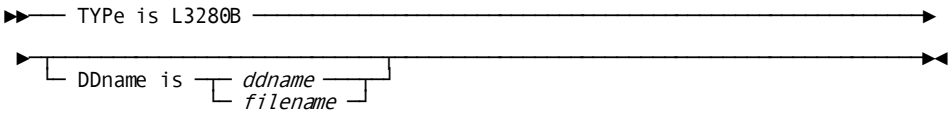
```
ADD LINE S3270Q1
    TYPE IS S3270Q
    INPUT DDNAME IS SIMIN1
    OUTPUT DDNAME IS SIMOUT1.

ADD PTERM PS3270Q1
    TYPE IS S3277
    MODEL IS 2.
ADD LTERM LS3270Q1
    PTERM IS PS3270Q1.
```

L3280B

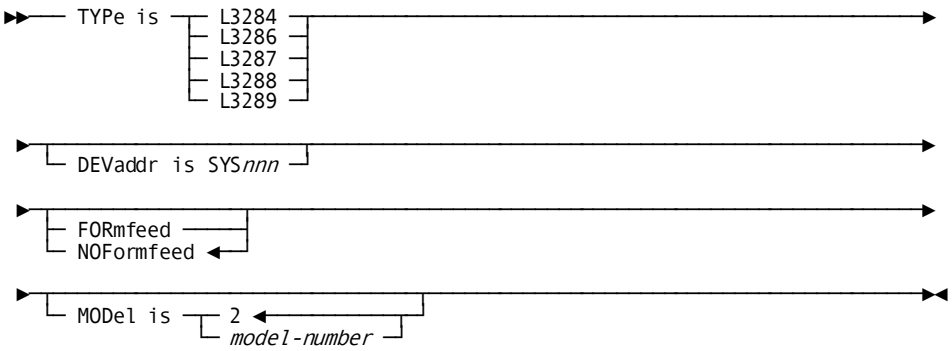
The following syntax for LINE and PTERM statements is used to define local 3280 devices using BTAM.

L3280B Syntax

LINE Syntax



PTERM Syntax



L3280B Parameters

LINE Statement Parameters

TYPe is L3280B

Specifies the line type.

DDname is

Associates the line with an external file name.

The DDNAME parameter is required to create an executable system.

ddname

For z/OS systems only, identifies the ddname for the line, as specified in the system startup JCL.

filename

For z/VSE systems only, identifies the filename for the line, as specified in the system startup JCL.

PTERM Statement Parameters

TYPe is

Specifies the device type for the physical terminal. Valid values are:

- L3284
- L3286
- L3287
- L3288
- L3289

DEVaddr is SYS*nnn*

For z/VSE systems only, specifies the logical unit assignment of the device, as specified in the system startup JCL.

This parameter is required to create an executable system.

Note: The z/VSE IPL ADD statement must define the printer device as a 3277 without a mode '01'.

FORmfeed

Specifies the physical terminal has formfeed capabilities.

NOFormfeed

Specifies the physical terminal does not have formfeed capabilities.

NOFORMFEED is the default when you specify neither FORMFEED nor NOFORMFEED in the PTERM statement.

MODel is *model-number*

Specifies the model number of the physical terminal. Valid model numbers for each physical terminal type are:

Physical Terminal Type	Model Number
R3284	1 and 2
R3286	1 and 2
R3287	1 and 2
R3288	2
R3289	1 and 2

The default is 2 for all physical terminal types.

Example: L3280B

The following LINE, PTERM, and LTERM statements define a local 3280-type printer:

```
ADD LINE PRTLINE
    TYPE IS L3280B
    DDNAME IS BTAM3280.

ADD PTERM PRTPT1
    TYPE IS L3287
    FORMFEED.
ADD LTERM PRTLT1
    PRINTER CLASS (2,11,13,42).
```

SOCKET

SOCKET lines are used to support Generic Listening and DDS using TCP/IP. Generic Listening is enabled by defining one or more LISTENER PTERMs and a number of BULK PTERMs. DDS using TCP/IP is enabled by defining one DDSTCPIP PTERM for each remote node. Associate an LTERM with each PTERM.

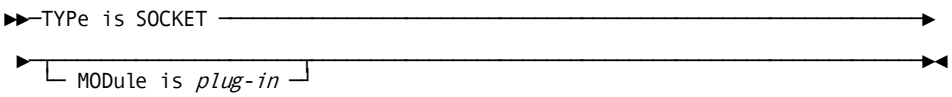
Each connection request to a LISTENER PTERM requires the use of a BULK PTERM/LTERM pair within the TCP/IP line. Define as many BULK PTERM/LTERM pairs as the expected maximum number of concurrent connections.

Notes:

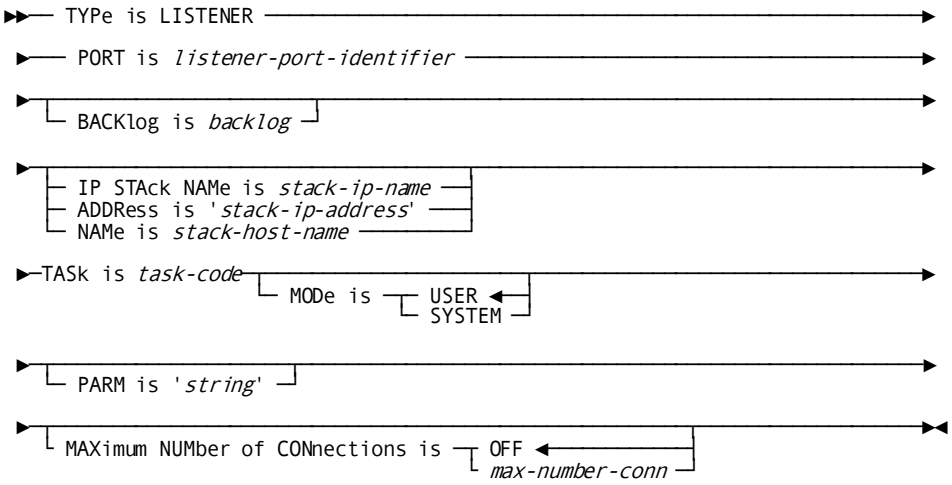
1. If you are exploiting the suspend/resume capability (in other words, tasks terminate without closing their socket), the required number of BULK PTERM/LTERM pairs can become rather large.
2. You can use the REPEAT COUNT clause of the PTERM statement to facilitate the definition of multiple PTERM/LTERM pairs.

SOCKET Syntax

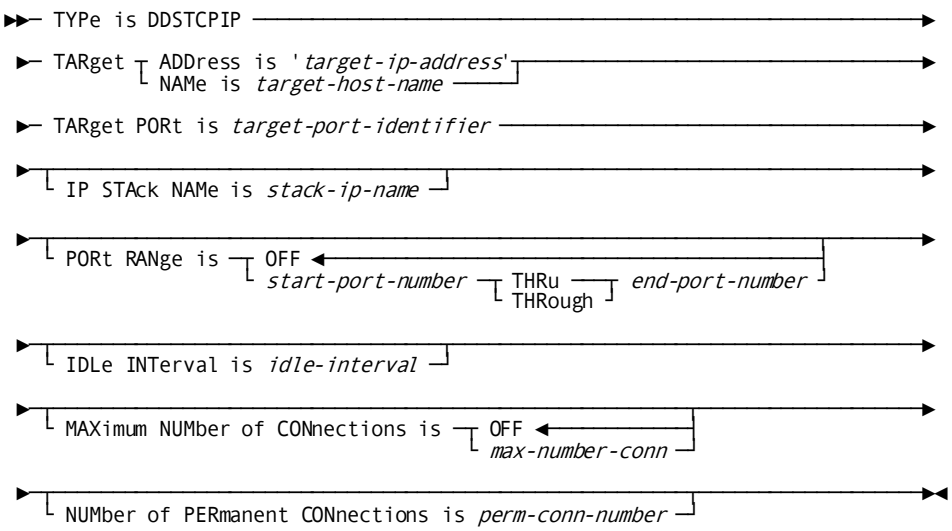
LINE Syntax



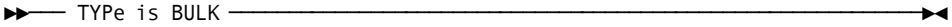
LISTENER PTERM Syntax



DDSTCPIP PTERM Syntax



BULK PTERM Syntax



SOCKET Parameters

LINE Statement Parameters

TYPe is SOCKET

Identifies the line as a TCP/IP line. An active SOCKET line is required to run any program that uses TCP/IP sockets.

plug-in

Name of the *plug-in* module that implements support for specific TCP/IP stack implementations. Possible values are:

RHDCD1IP

Supports most common TCP/IP stack implementations, including CA TCPaccess CS for z/OS, IBM TCP/IP and their run time equivalents.

RHDCD2IP, RHDCD3IP and RHDCD4IP

Names reserved for future implementations.

Note: As of r17, the *plug-in* parameter, if specified, is ignored to provide backward compatibility with r16. It is defined through the PLUGIN MODULE clause in the new TCP/IP SYSGEN entity.

LISTENER PTERM Statement Parameters

TYPE is LISTENER

Indicates that the physical terminal is a TCP/IP listener.

listener-port-identifier

Specifies the number of the listener port or a service name. If *listener-port-identifier* is a port number, it must be a positive number between 1 and 65535. If *listener-port-identifier* is a service name, it is limited to 32 characters and must be the name of a service in the services file with an associated protocol of TCP.

backlog

The value defines the maximum length for the queue of pending connections TCP/IP allows before disallowing connection requests. *Backlog* is a positive number between 1 and 1,147,483,647. The default value is 5.

The value specified for *backlog* is not necessarily the value accepted by the LISTEN call. Each TCP/IP implementation has a limit of its own. CA IDMS uses the lesser of the implementation's limit and the value specified for the *backlog* parameter.

stack-ip-name

The job name of the TCP/IP stack. The name is limited to 8 characters.

Specifying *ALL on a multi-homed system (z/OS only) causes listening to all active TCP/IP stacks. Specifying *DEFAULT causes listening to the default TCP/IP stack.

'***stack-ip-address***'

IP address of the host. The limit of an IP address depends on whether IPv4 or IPv6 is used: the limit in IPv4 is 15 characters; in IPv6, it is 45 characters.

stack-host-name

Name of the host. The maximum host name length is 64 characters.

task-code

Name of the task code to start when a connection request arrives.

MODE IS USER or SYSTEM

Indicates whether the task attached by the listener executes in SYSTEM or USER MODE. To execute in SYSTEM mode, the program must be fully reentrant and be written in either of the following:

- Assembler using DC calling conventions
- COBOL or PL/I and compiled with an LE-compliant compiler

string

A string is passed to the task attached by the generic listener. The string is limited to 80 characters.

max-number-conn

Defines the maximum number of active connections that can be started from the corresponding listener program, that is, the maximum number of active BULK PTERMs allocated by the specific LISTENER. When the number of connections reaches the value specified for *max-number-conn*, any new connection accepted by the listener program will be rejected.

max-number-conn is a positive number between 1 and 65535. The default value is OFF, indicating that the maximum number of connections is unlimited.

For information about the options that can be specified for the CA IDMS Server listener, see the following Usage section.

DDSTCPIP PTERM Parameters

TYPe is DDSTCPIP

Defines the target system for the DDS connection.

TARget

The *target-ip-address* and *target-host-name* parameters are mutually exclusive. You must specify at least one of these parameters in the definition of a DDSTCPIP type PTERM.

target-ip-address

Specifies the IP address of the target system enclosed in single quotes. The IP address limit depends on whether IPv4 or IPv6 is used: IPv4 is 15 characters; IPv6 is 45 characters.

target-host-name

Specifies the host name of the target system. The maximum host name length is 64 characters.

target-port-identifier

Specifies the number of the target port or a service name. If *target-port-identifier* is a port number, it must be a positive number between 1 and 65535. If *target-port-identifier* is a service name, it is limited to 32 characters and must be the name of a service in the services file with an associated protocol of TCP.

stack-ip-name

Specifies the job name of the TCP/IP stack to use in the local system. The job name is limited to 8 characters. Specify an empty string value (two single-quotes) to remove an IP STACK NAME definition.

start-port-number* and *end-port-number

Defines a range of port numbers that are used to BIND the local sockets explicitly. Each time a new connection is established, the first free port from the range is selected and associated (bound) with the corresponding socket. If no free port is found, the request is aborted.

The default value is OFF, indicating that the operating system will select a free port from the pool and bind the socket implicitly during the connect processing. *start-port-number* and *end-port-number* are positive numbers between 1 and 65535. *start-port-number* must be lower than or equal to *end-port-number*.

idle-interval

Defines the time interval a non-permanent connection stays in an idle state after the corresponding DDS request has finished. This allows the same connection to be reused if a new DDS request comes in before the timeout expires.

idle-interval is a positive number between 0 and 32767. The default value is 0.

max-number-conn

Defines the maximum number of active connections allowed from the local system.

max-number-conn is a positive number between 1 and 65535. The default value is OFF, indicating that the maximum number of connections is unlimited.

Note: The maximum number of connections depends on the number of free BULK PTERMs in the SOCKET line on the target (remote) system.

perm-conn-number

Defines the number of permanent connections that can exist between the host and the target systems.

perm-conn-number is a positive number between 0 and 65535. The default value is 0, indicating that permanent connections are not needed. In this case, the connections are always established dynamically when a new DDS request arrives.

BULK PTERM Parameters

TYPE is BULK

Specifies that the type of terminal is BULK.

Notes for LISTENER PTERMS Only

Parameters *stack-ip-name*, *stack-ip-address*, and *stack-host-name* are mutually exclusive. Specifying any of these parameters only makes sense in a multi-homed environment.

If one of these parameters is specified:

- Listening is restricted to the named TCP/IP stack.
- A CV can be tied to an operating system image.

If none of these parameters are specified, the generic listener processes connection requests from the default TCP/IP stack.

Note: For more information about TCP/IP and SOCKET programming, see the *CA IDMS Callable Services Guide.* For more information about CA IDMS Server, see the *CA IDMS Server r5 User Guide.* For more information about the Services File and the Services Resolver, see the *CA IDMS System Operations Guide.*

SOCKET Usage

To use the CA IDMS Server "wire protocol" drivers, define a listener PTERM/LTERM pair for the built-in server program, IDMSJSRV. This PTERM must specify the RHDCNP3J task defined during installation, SYSTEM mode, and the port used by the driver. The default port, 3709, is used by the drivers and registered with the Internet Assigned Number Authority (IANA) for CA IDMS. This can be used if only a single DC/UCF system is used on the host machine. Otherwise, a recommended convention is to append the system number to 37.

Note: Be advised that all CA IDMS systems that have task-level security turned ON must turn off security for the RHDCNP3J task. The following SECRTT entry example displays how this can be performed. Tailor this entry to meet your site-specific requirements in your CA IDMS SRTT table.

```
#SECRTT TYPE=OCCURRENCE,RESNAME='RHDCNP3J',
    RESTYPE=TASK,
    SECBY=OFF
```

Additional listener options parameters can be specified as keyword-values pairs in the PARM string on the PTERM definition. The following are the PARM keyword guidelines:

- Options are not case-sensitive.
- Options can appear in any order, separated by commas, with no embedded spaces in the string (leading spaces are ignored).
- If an error occurs, the server writes a message to the DC log and ignores the rest of the options.

The parameters are:

ACCt=*profile-key-name*

Profile key name for accounting information. If specified, any accounting information supplied by the client as part of the signon is added to the user profile. This allows SQL statements access to the accounting information using the PROFILE function. Procedures written in COBOL or CA ADS can use the IDMSIN01 GETPROF callable service to access the accounting information.

BUFLen=*default-length*

Length of the default buffer used for data received from and sent to the client. The default buffer is allocated when the task starts and freed when the task ends. Larger buffers are allocated dynamically as needed for individual requests and freed immediately after results are returned. The default is 1024 bytes. Specifying a larger buffer can minimize storage allocation requests while using more of the storage pool. The client can override this value.

BUFMax=*max-length*

Maximum length the client interface can specify for the default buffer.

TASK=*task-code*

Specifies the default task code used for signon security, timeouts, and as the next task after a pseudo converse. The IDMSJSRV task is defined during installation as a model task for this purpose. The client can override this task code.

ATTACH=Y

Causes IDMSJSRV to end the initial task immediately after processing the signon request. The specified task is attached on the next request from the client interface. If not specified (or No), IDMSJSRV copies the timeouts from specified task to the current task, which ends when (and if) explicitly requested by the client interface.

TIMeout=*seconds*

Specifies the maximum timeout the client can request for the external wait or resource timeout interval. A value of -1 allows the client interface to specify any value. A value of 0, the default, takes the value from the task or system default.

Example: SOCKET

```
*+ SAMPLE LINE DEFINITION
ADD LINE TCPIP
    TYPE IS SOCKET.

*+ WIRE PROTOCOL DRIVER LISTENER
*+ USING THE CONVENTION
*+ PORT = 3700 + SYSTEM NUMBER
ADD PTERM TCPJSRV
    TYPE IS LISTENER
    PORT IS 3799
    BACKLOG IS 100
    TASK IS RHDCNP3J
    MODE IS SYSTEM
    PARM IS 'TASK=IDMSJSRV'.

ADD LTERM TCLJSRV
    PTERM IS TCPJSRV.

*+ USER IMPLEMENTED LISTENER
ADD PTERM TCPLIS_1
  TYPE IS LISTENER
  TASK IS TSKLIS_1
  MODE IS USER
  PORT IS 12345
  BACKLOG IS 999
  PARM IS 'Parameters for TSKLIS_1'.

ADD LTERM TCPLIS_1
  PTERM TCPLIS_1.
*+ PTERM DEFINITION FOR A REMOTE DDS NODE SYSTEM
ADD PTERM PDDSNOD1
    TYPE IS DDSTCPIP
    TARGET NAME IS 'SYSNODE1'
    TARGET PORT IS 15901
    PORT RANGE IS 15950 THROUGH 15999
    IDLE INTERVAL IS 60
    NUMBER OF PERMANENT CONNECTIONS IS 3.
ADD LTERM LDDSNOD1
    PTERM IS PDDSN0D1.

*+ PTERM DEFINITION FOR 100 SOCKETS
ADD PTERM TCP0001
    TYPE IS BULK
    REPEAT COUNT IS 99.

ADD LTERM TCL0001
    PTERM IS TCP0001.
```

SYSOUTL

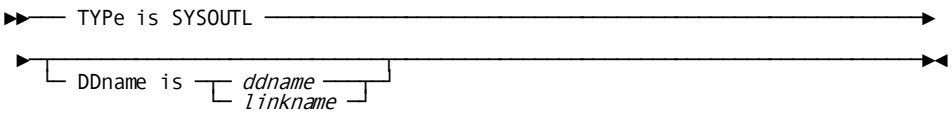
The following syntax for LINE and PTERM parameters is used to define the following device types:

- SYSOUT devices using QSAM (z/OS systems only)
- Printers that will receive spooled output (z/VM systems only)

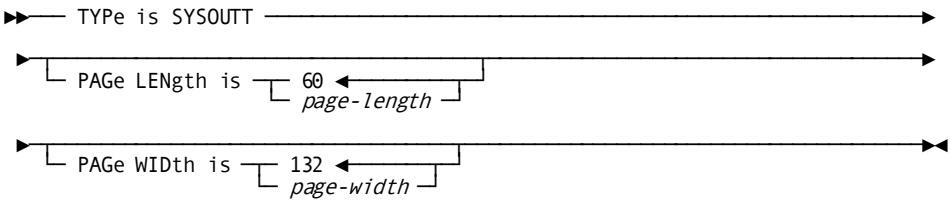
Note: To implement user exit 21, include at least one SYSOUTL line in the system definition. For more information about user exit 21, see the *CA IDMS Installation and Maintenance Guide—z/VM* and the *CA IDMS System Operations Guide*.

SYSOUT Syntax

LINE Syntax



PTERM Syntax



SYSOUT Parameters

LINE Statement Parameters

TYPe is SYSOUTL

Specifies the line type.

DDname is

Associates the line with an external file name.

The DDNAME parameter is required to create an executable system.

ddname

For z/OS and z/VM systems only, identifies the ddname for the line, as specified in the system startup JCL.

PTERM Statement Parameters

TYPe is SYSOUTT

Specifies the device type for the physical terminal.

PAGe LENgth is *page-length*

Specifies the maximum page size, in text lines, for the physical terminal.

Page-length must be an integer in the range 1 through 32,767. The default is 60.

PAGe WIDth is *page-width*

Specifies the maximum page width, in characters, for the physical terminal.

Page-width must be an integer in the range 1 through 32,767. The default is 132.

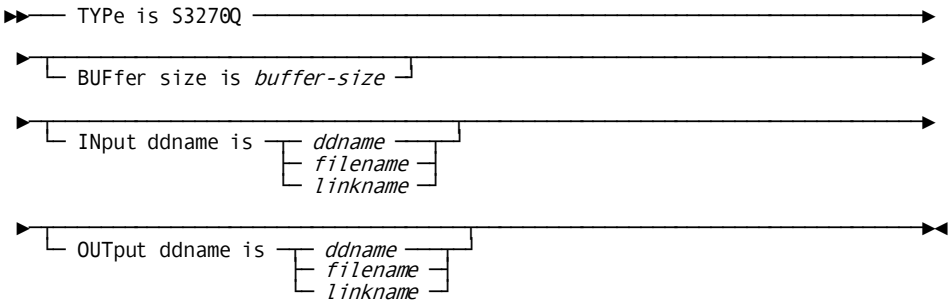
Note: The SYSOUTL line can be used in conjunction with the WRITE PRINTER command to submit batch jobs via the z/OS internal reader. For more information, see the section "Writing JCL to a JES2 Internal Reader" in the *Navigational DML Programming Guide*.

S3270Q

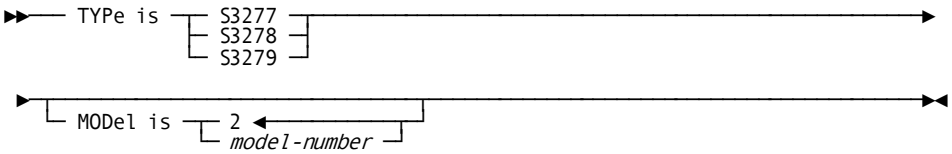
The following syntax for LINE and PTERM parameters is used to define simulated 3270 devices using QSAM.

S3270Q Syntax

LINE Syntax



PTERM Syntax



S3270Q Parameters

LINE Statement Parameters

TYPe is S3270Q

Specifies the line type.

BUFfer size is *buffer-size*

Specifies the line I/O page buffer size, in bytes, for the line.

Buffer-size must be an integer in the range 1 through 32,767.

INput ddname is

Specifies the external name of the input file for the line, as specified in the system startup JCL.

The INPUT DDNAME IS parameter is required to create an executable system.

ddname

For z/OS and z/VM systems, specifies the ddname of the input file for the line.

filename

For z/VSE systems, specifies the filename of the input file for the line.

OUTput ddname is

Specifies the external name of the output file for the line, as specified in the system startup JCL.

The OUTPUT DDNAME parameter is required to create an executable system.

ddname

For z/OS and z/VM systems, specifies the ddname of the output file for the line.

filename

For z/VSE systems, specifies the filename of the output file for the line.

PTERM Statement Parameters

TYPe is

Specifies the device type for the physical terminal. Valid values are:

- S3277
- S3278
- S3279

MODel is *model-number*

Specifies the model number of the physical terminal. Valid model numbers for each physical terminal type are:

Physical Terminal Type	Model Number
S3277	1 and 2
S3278	1 through 5
S3279	2 and 3

The default is 2 for all physical terminal types.

S3270Q Usage

z/OS DD Statements for S3270Q Lines

For z/OS systems, the DD statement for the input file for an S3270Q line must include the following DCB specifications:

```
LRECL=80
```

The DD statement for the output file for an S3270Q line must include the following DCB specifications:

```
LRECL=133
```

Example

The following LINE, PTERM, and LTERM statements define a simulated 3270 line and terminal:

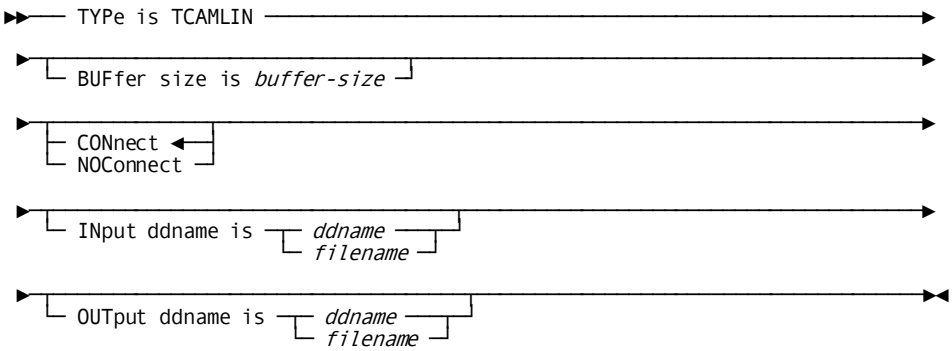
```
ADD LINE S3270Q1
    TYPE IS S3270Q
    INPUT DDNAME IS SIMIN1
    OUTPUT DDNAME IS SIMOUT1.

ADD PTERM PS3270Q1
    TYPE IS S3277
    MODEL IS 2.
ADD LTERM LS3270Q1
    PTERM IS PS3270Q1.
```

TCAMLIN

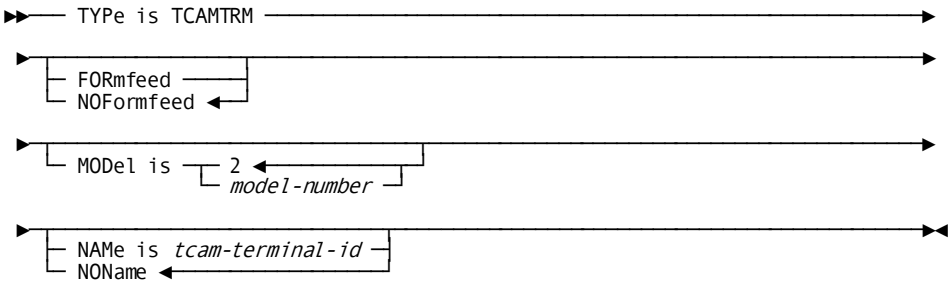
The following syntax for LINE and PTERM parameters is used to define 3270 or 3280 devices using TCAM.

TCAMLIN Syntax

LINE Syntax



PTERM Syntax



TCAMLIN Parameters

LINE Statement Parameters

TYPe is TCAMLIN

Specifies the line type.

BUFfer size is *buffer-size*

Specifies the line I/O page buffer size, in bytes, for the line.

Buffer-size must be an integer in the range 1 through 32,767.

CONnect

Specifies the line is treated as a connect-type line.

CONNECT is the default when you specify neither CONNECT nor NOCONNECT in the LINE statement.

NOConnect

Specifies the line is not treated as a connect-type line.

INput ddname is

Specifies the external name of the input file for the line, as specified in the system startup JCL.

ddname

For z/OS systems, specifies the ddname of the input file for the line.

filename

For z/VSE systems, specifies the filename of the input file for the line.

OUTput ddname is

Specifies the external name of the output file for the line, as specified in the system startup JCL.

ddname

For z/OS systems, specifies the ddname of the output file for the line.

filename

For z/VSE systems, specifies the filename of the output file for the line.

PTERM Statement Parameters

TYPe is TCAMTRM

Specifies the device type for the physical terminal.

FORmfeed

Specifies the physical terminal has formfeed capabilities.

NOFormfeed

Specifies the physical terminal does not have formfeed capabilities.

NOFORMFEED is the default when you specify neither FORMFEED nor NOFORMFEED in the PTERM statement.

MODel is *model-number*

Specifies the model number of the physical terminal.

Model-number must be an integer in the range 1 through 5. The default is 2.

NAMe is *tcam-terminal-id*

Reserves the physical terminal element (PTE) for the TCAM terminal identified by *tcam-terminal-id*.

PTEs to be used by 3280-type printers should always be defined with a TCAM terminal identifier.

NOName

Defines a generic PTE that can be used by any TCAM terminal not explicitly associated with another PTE.

NONAME is the default when you specify neither NAME nor NONAME in the PTERM statement.

TCAMLIN Usage

z/OS DD Statements for TCAMLIN Lines

For z/OS systems, the DD statement for the input file for an TCAMLIN line must include the following DCB specifications:

```
LRECL=80
```

The DD statement for the output file for an TCAMLIN line must include the following DCB specifications:

```
LRECL=133
```

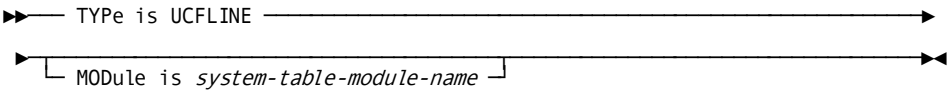
UCFLINE

The UCFLINE statement is used to define the UCF line driver to support UCF terminal communications.

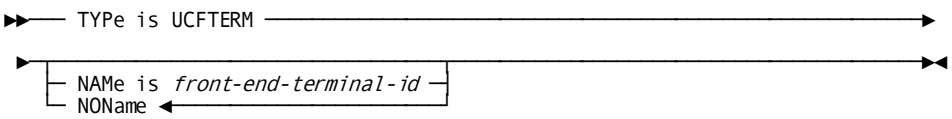
The following syntax for LINE and PTERM parameters is used to define a UCF line. The DC/UCF system definition can contain only one UCF line definition.

UCFLINE Syntax

LINE Syntax



PTERM Syntax



UCFLINE Parameters

LINE Statement Parameters

TYPe is UCFLINE

Specifies the line type.

MODule is *system-table-module-name*

Specifies the name of the UCF system table module created by the assembly and link edit of the #FESTDEF and #FESTENT macros.

The MODULE parameter is required to create an executable system.

PTERM Statement Parameters

TYPe is

Specifies the device type for the physical terminal.

UCFTERM

Specifies a 3270-type for the physical terminal.

NAMe is *front-end-terminal-id*

Specifies, for UCFTERM PTERMS only, the physical terminal is connected with only the specified front-end terminal.

Front-end-terminal-id must be the identifier of a UCF front-end terminal defined in the UCF front-end table.

NOName

Defines the physical terminal as a generic terminal to which any UCF front-end terminal can be connected.

NONAME is the default when you specify neither NAME nor NONAME in the PTERM statement.

Note: For more information about creating the UCF front-end system, see the *CA IDMS System Operations Guide.* For more information about the UCF front-end table, see the *CA IDMS System Operations Guide.* For more information about batch external request units, see External User Sessions (see page 39).

Example: UCFLINE

Reserving Physical Terminals for UCF Front-End Terminals

The following LINE, PTERM, and LTERM statements define a UCF line with two physical terminals, each associated with a UCF front-end terminal:

```
ADD LINE UCF
    TYPE IS UCFLINE
    MODULE RHDCFSTB.

ADD PTERM UCFPT001
    TYPE IS UCFTERM
    NAME = TO15.
ADD LTERM UCFLT001
    PTERM IS UCFPT001.

ADD PTERM UCF002
    TYPE IS UCFTERM
    NAME = TO32.
ADD LTERM UCFLT002
    PTERM IS UCF002.
```

Defining Prototype Terminals and a Printer Terminal

The following statements define a UCF line with three prototype physical terminals (that is, terminals available to any front-end terminal) and one printer terminal:

```
ADD LINE UCF
    TYPE IS UCFLINE
    MODULE RHDCFSTB.

ADD PTERM UCFPT001
    TYPE IS UCFTERM
    NONAME.
ADD LTERM UCFLT001.

ADD PTERM UCFPT002
    TYPE IS UCFTERM
    NONAME.
ADD LTERM UCFLT002.

ADD PTERM UCFPT003
    TYPE IS UCFTERM
    NONAME.
ADD LTERM UCFLT003.

ADD PTERM UPRT001
    TYPE IS UCFTERM
    NAME = PR01.
ADD LTERM ULPRT001
    PRINTER CLASS (10,11).
```

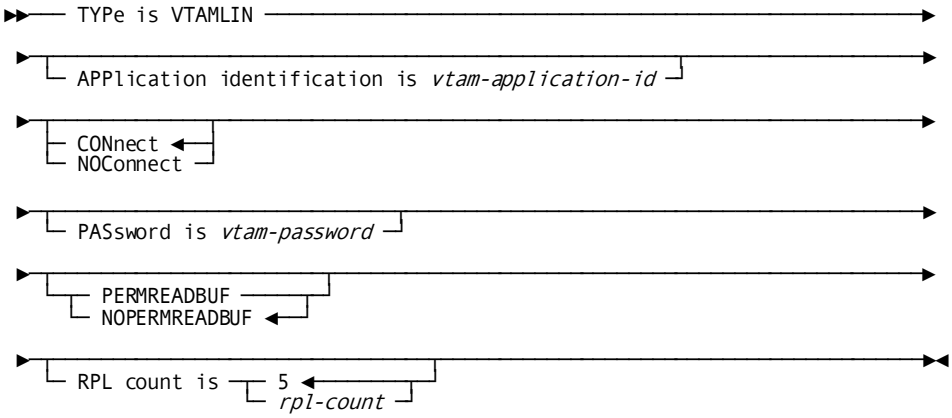
VTAMLIN

The following syntax for LINE and PTERM parameters is used to define 3270 or asynchronous VTAM devices.

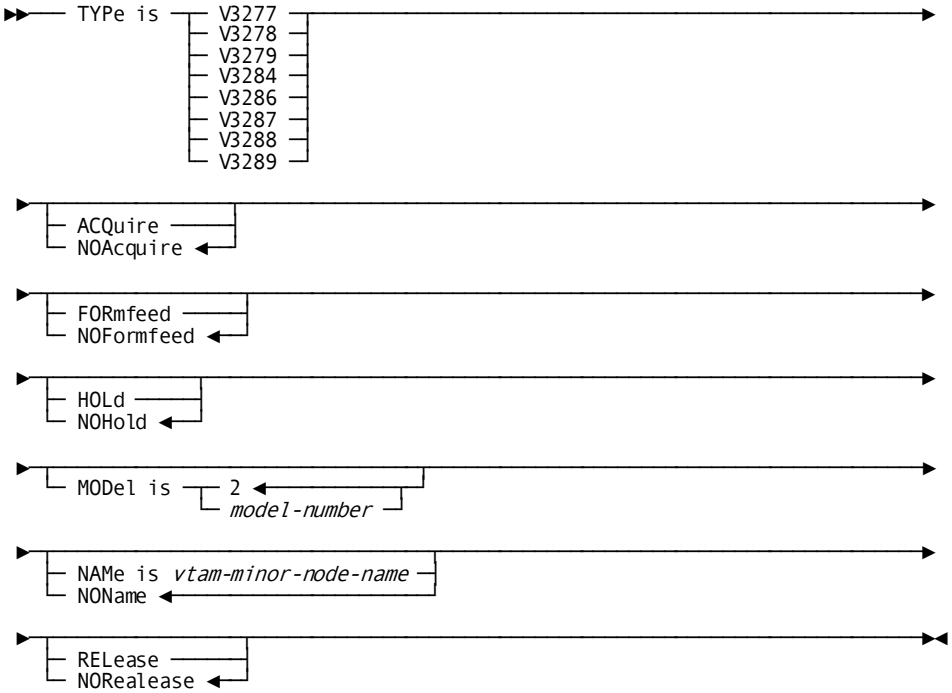
Note: For more information about using VTAM with DC/UCF, see VTAM Considerations (see page 417).

VTAMLIN Syntax

LINE Syntax



PTERM Syntax



VTAMLIN Parameters

LINE Statement Parameters

TYPe is VTAMLIN

Specifies the line type.

APPlication identification is *vtam-application-id*

Specifies the VTAM application identifier used by the DC/UCF system at runtime to sign on to VTAM.

Vtam-application-id must match the system identifier specified for the DC/UCF system in the VTAM system definition.

The APPLICATION IDENTIFICATION parameter is required to create an executable system.

CONnect

Specifies the line is treated as a connect-type line.

CONNECT is the default when you specify neither CONNECT nor NOCONNECT in the LINE statement.

NOConnect

Specifies the line is not treated as a connect-type line.

PASsword is *vtam-password*

Specifies the password used by the system to sign on to VTAM.

Vtam-password must be the password specified for the DC/UCF application in the VTAM system definition.

PERMREADBUF

Specifies that a read buffer is permanently allocated for the duration of a session. The buffer is allocated at connection time and released at session termination.

NOPERMREADBUF

Specifies that a read buffer is dynamically allocated only for the duration of an input operation.

NOPERMREADBUF is the default when neither PERMREADBUF nor NOPERMREADBUF is specified in the LINE statement.

RPL count is *rpl-count*

Specifies the number of entries in the VTAM request parameter list (RPL). This number represents the maximum number of write I/O requests that can be handled concurrently by the VTAM line.

Rpl-count must be an integer in the range 1 through 32,767. The default is 5.

Typically, *rpl-count* should be 20 percent of the number of physical terminals in the line, plus the number of printers. An insufficient RPL count value will result in degraded response time.

PTERM Statement Parameters

TYPe is

Specifies the device type for the physical terminal. Valid values are:

- V3277
- V3278
- V3279
- V3284
- V3286
- V3287
- V3288
- V3289

This parameter is for documentation only. The actual device type is determined from information provided by VTAM when the user logs on.

ACQuire

Specifies the physical terminal is connected to the system automatically. The user does not have to log on through VTAM to access the system.

If you specify ACQUIRE, you must also specify the NAME parameter.

NOAcquire

Specifies the physical terminal is not connected to the system automatically. The user must log on through VTAM, supplying the DC/UCF system identifier.

NOACQUIRE is the default when you specify neither ACQUIRE nor NOACQUIRE in the PTERM statement.

FORmfeed

Specifies the physical terminal has formfeed capabilities.

Note: FORMFEED is invalid for physical terminal types V3277, V3278, and V3279.

NOFormfeed

Specifies the physical terminal does not have formfeed capabilities.

NOFORMFEED is the default when you specify neither FORMFEED nor NOFORMFEED in the PTERM statement.

HOLd

Specifies the device is not released when VTAM notifies DC/UCF that another system is requesting a session with this device.

NOHold

Specifies the device is released when VTAM notifies DC/UCF that another system is requesting a session with this device. If the request specifies a printer, DC/UCF will release the printer when all currently queued reports have been printed.

NOHOLD is the default when you specify neither HOLD nor NOHOLD in the PTERM statement.

MODel is *model-number*

Specifies the model number of the physical terminal. Valid model numbers for each physical terminal type are:

Physical terminal type	Model number
V3277	1 and 2
V3278	1 through 5
V3279	2 and 3
V3284	1 and 2
V3286	1 and 2
V3287	1 and 2
V3288	2
V3289	1 and 2

The default is 2 for all physical terminal types.

NAMe is *vtam-minor-node-name*

Reserves the physical terminal element for the specified VTAM minor node.

Vtam-minor-node-name must be the name of a VTAM minor node (logical unit) specified in the VTAM definition.

You must specify the NAME parameter for printers.

NOName

Defines the physical terminal as a generic terminal to which any VTAM minor node can be connected.

NONAME is the default when you specify neither NAME nor NONAME in the PTERM statement.

RELease

For printer terminals only, specifies the printer is automatically released after each report is printed. If other reports are queued to the printer, DC/UCF will subsequently reacquire the printer.

NORelease

For printer terminals only, specifies the printer is not released automatically after a report is printed. The printer will be held by the DC/UCF system until notified by VTAM that another system is requesting the device. Subsequent action by DC/UCF depends on the HOLD/NOHOLD specification.

NORELEASE is the default when you specify neither RELEASE nor NORELEASE in the PTERM statement.

Note: For more information about sample DC/UCF configuration using VTAM, see DC/UCF System Generation Statements (see page 417). For more information about VTAMLST entries, see VTAMLST Entries (see page 421).

VTAMLIN Usage

Calculating the Size of a Permanent Read Buffer

The size of a permanent read buffer is calculated on the basis of terminal dimensions returned by VTAM in the bind area. Buffers for dynamic logmode usage are eventually resized depending on the terminal dimensions returned by the read partition operation.

Example: VTAMLIN

The following LINE, PTERM, and LTERM statements define a VTAM line with three 3270-type terminals:

```
ADD LINE VTAM90
    TYPE IS VTAMLIN
    APPLICATION ID IS IDMSDC.

ADD PTERM PTVTM001
    IN LINE VTAM90
    TYPE IS V3277.
ADD LTERM LTVTM001
    PTERM IS PTVTM001.

ADD PTERM PTVTM002
    IN LINE VTAM90
    TYPE IS V3284
    NAME IS CUL08
    ACQUIRE.
ADD LTERM LTVTM002
    PTERM IS PTVTM002.

ADD PTERM PTVTM003
    IN LINE VTAM90
    TYPE IS V3277
    NAME = CUL18.
ADD LTERM LTVTM003
    PTERM IS PTVTM003.
```

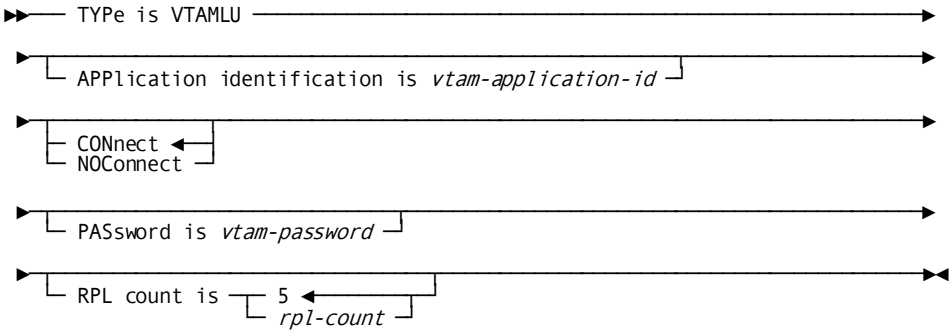
VTAMLU

The following syntax for LINE and PTERM parameters is used to define SNA/VTAM logical unit (LU) types 0 through 4 and 6.2. For a discussion of the DC SNA/VTAM line driver, see SNA and LU 6.2 Considerations (see page 429).

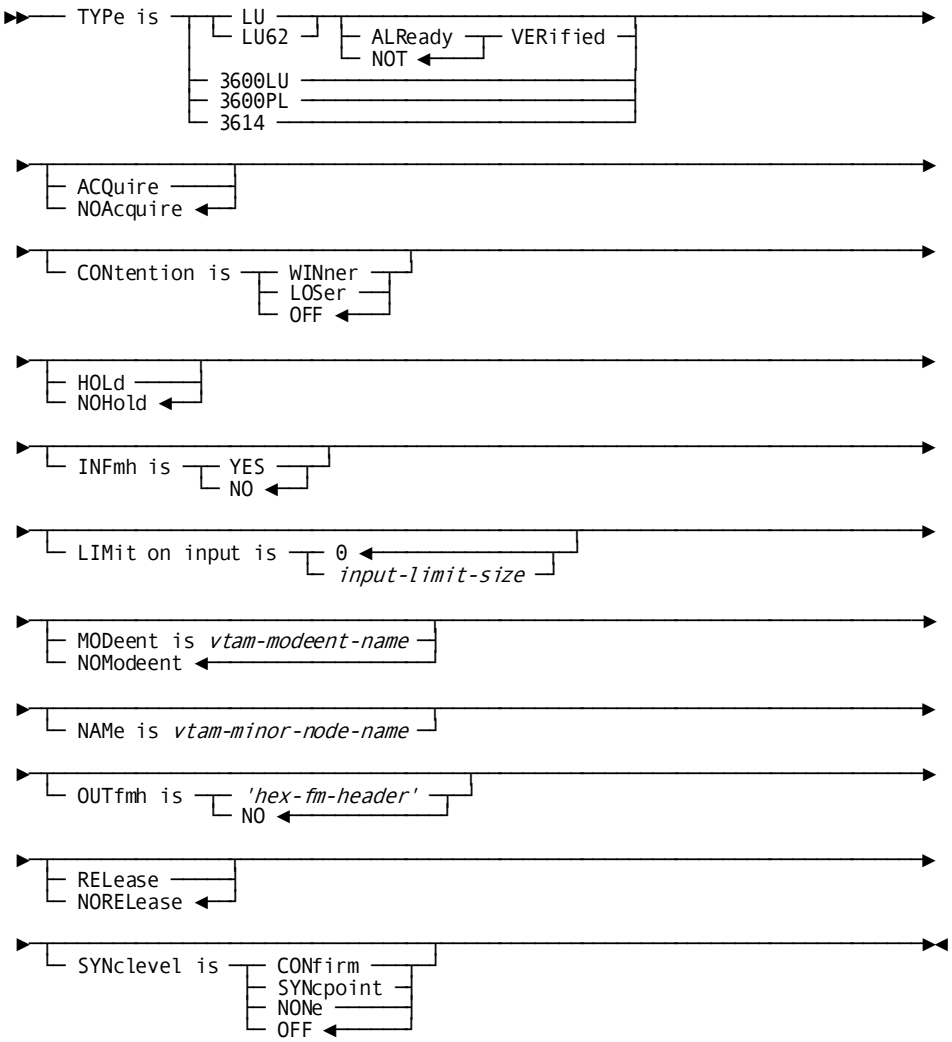
Note: You should define only one VTAMLU line, regardless of the number of LUs to be supported. You must define a single physical terminal for each logical unit. No pool of physical terminals is used.

VTAMLU Syntax

LINE Syntax



PTERM Syntax



VTAMLU Parameters

LINE Statement Parameters

TYPe is VTAMLU

Specifies the line type.

APPlication identification is *vtam-application-id*

Specifies the VTAM application identifier used by DC/UCF at runtime to open a VTAM access method control block (ACB) and prepare for communication with logical units.

Vtam-application-id must match the system identifier specified for the DC/UCF system in the VTAM system definition.

The APPLICATION IDENTIFICATION parameter is required to create an executable system.

CONnect

Specifies the line is treated as a connect-type line.

CONNECT is the default when you specify neither CONNECT nor NOCONNECT in the LINE statement.

NOConnect

Specifies the line is not treated as a connect-type line.

PASsword is *vtam-password*

Specifies the password used by DC/UCF to open a VTAM ACB.

Vtam-password must be the password specified for the DC/UCF application in the VTAM system definition.

RPL count is *rpl-count*

Specifies the number of request parameter list (RPL) storage areas to be used by the SNA/VTAM line driver to support all logged-on logical units. This number represents the maximum number of write I/O requests that can be handled concurrently by the SNA/VTAM line.

Rpl-count must be an integer in the range 1 through 32,767. The default is 5.

Typically, *rpl-count* should be lower than the expected number of logical units in the line. An insufficient RPL count value will result in degraded response time.

PTERM Statement Parameters

TYPe is

Specifies the device type for the physical terminal. Valid values are:

Value	Meaning
LU	General category; any logical unit, including non-pipeline LUs
LU62	LU 6.2 support
3600LU	3600 full-function LU support
3600PL	3600 pipeline LU support
3614	3614 devices

Note: For more information about SNA and LU 6.2 system generation considerations, see SNA and LU 6.2 Considerations (see page 429).

ALReady VERified/NOT

For VTAMLU types LU and LU62, determines whether the requesting system has verified the user ID. The default is NOT.

ACQuire

Specifies the physical terminal is connected to the system automatically. The user does not have to log on through VTAM to access the system.

NOAcquire

Specifies the physical terminal is not connected to the system automatically. The user must log on through VTAM, supplying the DC/UCF system identifier.

NOACQUIRE is the default when you specify neither ACQUIRE nor NOACQUIRE in the PTERM statement.

CONtention is

Specifies whether a session bound using the physical terminal will be a bracket contention winner or loser.

Note: For LU 6.2 sessions, the multiple session service manager negotiates the numbers of contention winners and losers to be allowed with the remote LU. The CONTENTION parameter specification is used only for the initial count.

WINner

Specifies the session is a bracket contention winner. If a remote LU and the DC/UCF system attempt to allocate a conversation on the session at the same time, the DC/UCF system will have priority.

LOSer

Specifies the session is a bracket contention loser. If a remote LU and the DC/UCF system attempt to allocate a conversation on the session at the same time, the remote LU will have priority.

OFF

Specifies the session is either a bracket contention winner or a bracket contention loser.

OFF is the default when you omit the CONTENTION parameter from the PTERM statement.

HOLd

Specifies the physical terminal is not released when VTAM sends notification that another system is requesting a session with the logical unit.

NOHold

Specifies the physical terminal is released when VTAM sends notification that another system is requesting a session with the logical unit only if a conversation is not currently allocated to the session. If a conversion is allocated, the physical terminal is released after the conversation terminates.

NOHOLD is the default when you specify neither HOLD nor NOHOLD in the PTERM statement.

INFmh is

Specifies whether an input function management header (FMH) is expected as a prefix to a request/response unit (RU).

YES

Indicates that an FMH is expected. The FMH is not removed.

NO

Indicates the FMH is not expected. The FMH is automatically removed.

NO is the default when you omit the INFMH parameter from the PTERM statement.

LIMit on input is *input-limit-size*

Specifies the maximum amount of data, in bytes, the DC/UCF system is to buffer before the user requests that data.

Input-limit-size must be an integer in the range 0 through 32,767. The default, 0, directs the DC/UCF system not to limit the amount of data buffered.

MODeent is *vtam-modeent-name*

Identifies the mode table entry that contains the bind parameters to be used when initiating a session with the physical terminal.

Vtam-modeent-name must match the name specified by the LOGMODE parameter of the appropriate VTAM mode table entry.

Note: For real APPC support, *vtam-modeent-name* must match the name specified in the MODEENT parameter of a PTERM statement used to define a physical terminal for APPC.

You must name a mode table entry for logical unit type 6.2.

For more information about real APPC support, see Real APPC Support Considerations (see page 427).

NOModeent

Specifies that VTAM is to use the default mode table entry for the logical unit.

NOMODEENT is the default when you specify neither MODEENT nor NOMODEENT in the PTERM statement.

NAMe is *vtam-minor-node-name*

Specifies the name of the VTAM node that will be associated with the terminal.

Vtam-minor-node-name must be the name of a VTAM minor node (logical unit) specified in the VTAM definition.

This parameter is required to create an executable system.

OUTfmh is

Specifies a default function management header (FMH) to be sent with all outbound transmissions for this logical unit.

'*hex-fm-header-q*'

Identifies the default FMH to be sent with all outbound transmissions.

Hex-fm-header-q is a 4- through 8-character hexadecimal literal enclosed in site-standard quotation marks that is included in every transmission.

NO

Indicates that no default FMH exists.

NO is the default when you omit the OUTFMH parameter from the PTERM statement.

RELease

Specifies the physical terminal is disconnected automatically whenever a conversation on the session terminates.

NORelease

Specifies the physical terminal is not disconnected automatically whenever a conversation on the session terminates; that is, the session will remain available for subsequent conversations. NORELEASE is recommended for greater efficiency.

NORELEASE is the default when you specify neither RELEASE nor NORELEASE in the PTERM statement.

NORELEASE should be specified for logical unit type 6.2.

SYNclevel is

For LU 6.2 sessions only, specifies the maximum level of synchronization to be allowed for a session that uses the physical terminal.

CONfirm

Directs the DC/UCF system to accept a bind with a synchronization level of CONFIRM or NONE.

SYNcpoint

Directs the DC/UCF system to accept a bind with a synchronization level of SYNCPOINT, CONFIRM, or NONE.

NONe

Directs the DC/UCF system *not* to accept a bind with a synchronization level of SYNCPOINT or CONFIRM.

OFF

Directs the DC/UCF system to accept the synchronization level specified in the bind parameters.

OFF is the default when you omit the SYNCLEVEL parameter from the PTERM statement.

VTAMLU Usage

Real APPC Support

DC uses the VTAMLU line type to support real APPC.

To provide support for real APPC in a DC/UCF system:

- Add the appropriate physical and logical terminal definitions to the VTAMLU line definition in the DC/UCF system definition
- Have your VTAM system programmer code a VTAM mode table entry to define the SNA protocols (that is, the bind parameters) to be used for sessions with other type 6.2 logical units

The PTERM statement used to define a physical terminal for real APPC must specify:

- TYPE IS LU
- NOACQUIRE (default)
- NAME IS *vtam-node-name*
- INFMH IS NO (default)
- OUTFMH IS NO (default)
- CONTENTION IS WINNER
- NOHOLD (default)
- LIMIT ON INPUT IS 0 (default)
- MODEENT IS *vtam-modeent-name*
- NORELEASE (default)
- SYNCLEVEL IS OFF (default)

Example: VTAMLU

Sample Statements for a VTAM Line with Three Terminals

The following LINE, PTERM, and LTERM statements define a VTAM line with three terminals:

```
ADD LINE VTAM91
    TYPE IS VTAMLU
    APPLICATION ID IS IDMSDC.

ADD PTERM PTVTM001
    IN LINE VTAM91
    TYPE IS LU.
ADD LTERM LTVTM001
    PTERM IS PTVTM001.

ADD PTERM PTVTM002
    IN LINE VTAM91
    TYPE IS 3600LU
    NAME IS CUL09
    ACQUIRE.
ADD LTERM LTVTM002
    PTERM IS PTVTM002.

ADD PTERM PTVTM003
    IN LINE VTAM91
    TYPE IS 3614
    NAME = CUL18.
ADD LTERM LTVTM003
    PTERM IS PTVTM003.
```

Sample Statements for Real APPC Support

The following system generation statements define two terminals to be used for real APPC:

```
ADD LINE SNALU1
    TYPE IS VTAMLU
    APPLICATION IDENTIFICATION IS IDMSSNA
    ENABLED.

ADD PTERM LU001
    TYPE IS LU
    NAME IS LU620001
    CONTENTION IS WINNER
    MODEENT IS SNAAPPC1
    ENABLED.

ADD LTERM LU001
    ENABLED.

ADD PTERM LU002
    TYPE IS LU
    NAME IS LU620001
    CONTENTION IS WINNER
    MODEENT IS SNAAPPC1
    ENABLED.

ADD LTERM LU002
    ENABLED.
```

Teleprocessing Network Example

The following statements, define a teleprocessing network consisting of four lines: an operator's console, a local 3270 BTAM line, a local 3280 BTAM printer line, and a SYSIN/SYSOUT line. The following example lists the required LINE statements and their associated PTERM and LTERM statements:

```
ADD LINE CONSOLE
    TYPE IS CONSOLE.

ADD PTERM OPERATOR
    TYPE IS OPERATOR.
ADD LTERM CONSOLE
    PRIORITY IS 220.


ADD LINE BTAMLINE
    TYPE IS L3270B
    DDNAME IS BTAM3271.

ADD PTERM BTAMPT1
    TYPE IS L3277
    MODEL IS 2.
ADD LTERM BTAMLT1.

ADD PTERM BTAMPT2
    TYPE IS L3277
    MODEL IS 2.
ADD LTERM BTAMLT2.

ADD PTERM BTAMPT3
    TYPE IS L3277
    MODEL IS 2.
ADD LTERM BTAMLT3.


ADD LINE PRTLINE
    TYPE IS L3280B
    DDNAME IS BTAM3280.

ADD PTERM PRTPT1
    TYPE IS L3287
    FORMFEED.
ADD LTERM PRTLT1
    PRINTER CLASS (2,11,13,42).

ADD LINE IOLINE
    TYPE IS INOUTL
    INPUT DDNAME IS SYSINA
```

```
    OUTPUT DDNAME IS SYSOUTA.

ADD PTERM IOPT1
    TYPE IS INOUTT.
ADD LTERM IOLT1.

ADD PTERM IOPT2
    TYPE IS INOUTT.
ADD LTERM IOLT2.
```

Appendix A: System Generation Data Dictionary Structure

This appendix outlines the data dictionary structure created and maintained by the system generation compiler.

System Generation Dictionary Records

The following table lists the data dictionary records associated with each system generation statement. The statements are listed alphabetically.

System Generation Statement	Data Dictionary Record Type	Description
ADSO	CVGDEFS-142	Logical extension of the SYS-041 record type; one record type for both source and object
AUTOTASK	CVGDEFS-142	Logical extension of the SYS-041 record type; one record type for both source and object
DEFAULT PERMANENT PROGRAM	PROG-051	Prototype program definition; record name is 0DEFAULT, where 0 is hexadecimal 00
DESTINATION	DEST-028	Destination source record
	SENDLST-021	Logical extension of the DEST-028 record; source record defining the users, logical terminals, or printers that constitute the destination
	DESTLST-027	Destination object record
	USERDST-150	Logical extension of the DESTLST-027 record for destinations composed of users
	DESTLTRM-117	Logical extension of the DESTLST-027 record for destinations composed of logical terminals or printers
IDD	CVGDEFS-142	Logical extension of the SYS-041 record type; one record type for both source and object

System Generation Statement	Data Dictionary Record Type	Description
KEYS	CVGDEFS-142	Logical extension of the SYS-041 record type; one record type for both source and object
LINE	LINE-109	Line source record
	LINELST-103	Line object record
LOADLIST	CVGDEFS-142	Logical extension of the SYS-041 record type; one record type for both source and object
LTERM	LTRM-106	Logical terminal source record
	LTRMLST-105	Logical terminal object record
MAPTYPE	CVGDEFS-142	Logical extension of the SYS-041 record type; one record type for both source and object
NODE	CVGDEFS-142	Logical extension of the SYS-041 record type; one record type for both source and object
OLM	CVGDEFS-142	Logical extension of the SYS-041 record type; one record type for both source and object
OLQ	CVGDEFS-142	Logical extension of the SYS-041 record type; one record type for both source and object
PROGRAM	PROG-051	Program source record
	PROGLST-049	Program object record
PTERM	PTRM-074	Physical terminal source record
	PTRMLST-104	Physical terminal object record
QUEUE	QUEUE-030	Queue source record
	QUEUELST-029	Queue object record
RESOURCE TABLE	CVGDEFS-142	Logical extension of the SYS-041 record type; one record type for both source and object

System Generation Statement	Data Dictionary Record Type	Description
RUNUNITS	CVGDEFS-142	Logical extension of the SYS-041 record type; one record type for both source and object
SQL CACHE	CVGDEFS-142	Logical extension of the SYS-041 record type; one record type for both source and object
STORAGE POOL	CVGDEFS-142	Logical extension of the SYS-041 record type; one record type for both source and object
SYSTEM	SYS-041	System source record; all occurrences are named DCSYSTEM
	SYSMO-170	System object record
TASK	TASK-025	Task source record
	TASKLST-023	Task object record
TCP/IP	CVGDEFS-142	Logical extension of the SYS-041 record type; one record type for both source and object. One different sub-type record for each occurrence of an INCLUDE STACK, EXCLUDE STACK or EXCEPT clause in the TCP/IP entity statement.
XA STORAGE POOL	CVGDEFS-142	Logical extension of the SYS-041 record type; one record type for both source and object

Note: For more information about the system generation data dictionary structure, see the *CA IDMS Dictionary Structure Reference Guide*.

Appendix B: System Programs and Tasks

This section contains the following topics:

CA IDMS System Programs

Product	Source Member	IDD Module Name(s)
CA ADS	D**x**ODADSA	ADSA-COMPILER
		ADSA-COMPILER-DYN **1**
	D**x**ODADSC	ADSC-COMPILER
		ADSC-COMPILER-DYN **1**
	D**x**ODADSO	ADSO
		ADSO-DYN **1**
		ADSO-STATEMENT
CA ADS OPTION	D**x**ASFIDB	ASFIDB
		ASFIDB-DYN **1**
	D**x**ODASF	ASF
		ASF-DYN **1**
	D**x**ODMAPB	MAPB-COMPILER
		MAPB-COMPILER-DYN **1**
CA ADS Batch	D**x**ODMAPB	MAPB-COMPILER
		MAPB-COMPILER-DYN **1**
CA ICMS	D**x**ASFIDB	ASFIDB
		ASFIDB-DYN **1**
	D**x**ODIDB	IDB
		IDB-SYN

Product	Source Member	IDD Module Name(s)
CA IDMS	D**x**ODDB	IDMS-DB
	D**x**ODCVM	CV-MONITOR
	D**x**ODFACM	IDMS-FACOM (MSP CLIENTS ONLY)
	D**x**ODIDDO	ONLINE-IDD
	D**x**ODMAPC	ONLINE-IDD-DYN **1**
		MAPC-COMPILER
	D**x**ODOCF	MAPC-COMPILER-DYN **1**
	D**x**ODOLM	ONLINE-COMMAND-FACILITY
		ONLINE-MAPPING-STATEMENT
CA ADS APPC	D**x**ODDNSS	SEND-RECEIVE
CA IDMS DBCS Option	D**x**ODDBCS	DBCS-OPTION
CA IDMS Performance Monitor	D**x**ODPERF	PERFORMANCE-MONITOR
		PERFORMANCE-MONITOR-DYN **1**
CA IDMS Presspack	D**x**ODPRES	PRESSPACK
CA IDMS Server	D**x**ODSERV	IDMS-SERVER
CA IDMS VSAM Transparency	D**x**ODEVSM	ESCAPE-VSAM
CA OLQ	D**x**ODOLQ	ONLINE-QUERY
		ONLINE-QUERY-DYN **1**
		ONLINE-QUERY-STATEMENT

Note: Two sets of source modules for the system programs are supplied with CA IDMS Release 15.0. One set of modules specifies the system programs are installed with storage protect on when they are defined to the system; the other set specifies the system programs are installed with storage protect off. The second character of the module name designates the storage protect option, **x** is either:

L—the programs are installed with storage protect on

N—the programs are installed with storage protect off

For your operating system for the source module's location and additional information about this installation option, see the *CA IDMS Installation Guide*.

1— Some members may contain definitions for programs that are eligible to use null PDEs and therefore are not pre-defined to the system. These members are designated by the '-DYN' suffix and can be added to the system if your site requires all programs be defined.

CA IDMS Tools System Programs

Product	Source Member	IDD Module Name(s)
CA ADS Alive	USGSYSGN	ADS-ALIVE
CA ADS Trace	UATSYS**x**N	ADS-TRACE ADS-TRACE-DYN **1**
CA IDMS Extractor	USVSYS**x**N	DBX DBX-DYN **1**
CA IDMS/DC Sort	TPSSYSGN	DC-SORT DC-SORT-DYN **1**
CA IDMS Dictionary Migrator Assistant	XDMSYS**x**N	DMA DMA-DYN **1**
CA IDMS DME	USESYS**x**N	DME
CA IDMS DQF	DADSYSGN	DQF-DYN **1** DQF
CA IDMS DMLO	USDSYS**x**N	DMLO DMLO-DYN **1**
CA IDMS Enforcer	ESXSYS**x**N	ENFORCER ENFORCER-DYN **1**
CA IDMS Masterkey	SSKSYS**x**N	MASTERKEY MASTERKEY-DYN **1**
CA IDMS Online Log Display	USKSYSGN	LOG-DISPLAY LOG-DISPLAY-DYN **1**
CA IDMS SASO	ESSSYS**x**N	SASO SASO-DYN **1**
CA IDMS Task Analyzer	USFSYSGN	TASKA
GENERAL EDITOR	USXSYS**x**N	GEN-EDITOR GEN-EDITOR-DYN **1**
GENERAL IDMS	GSISYS**x**N	GEN-IDMS GEN-IDMS-DYN **1**
GENERAL MAPPER	GSMSYS**x**N	GEN-MAPPER
GENERAL SERVICES	GSSSYSGN	GEN-SERVICES

Product	Source Member	IDD Module Name(s)
GENERAL SORT	TPRSYSGN	GEN-SORT

Note: Two sets of source modules for the system programs are supplied with CA IDMS Tools Release 15.0. One set of modules specifies the system programs are installed with storage protect on when they are defined to the system; the other set specifies the system programs are installed with storage protect off. The seventh character of the module name designates the storage protect option, **x** is either:

G—the programs are installed with storage protect on

N—the programs are installed with storage protect off

For your operating system for the source module's location and additional information about the installation options, see the *CA IDMS Installation Guide*.

1 — Some members may contain definitions for programs that are eligible to use null PDEs and therefore are not pre-defined to the system. These members are designated by the '-DYN' suffix and can be added to the system if your site requires all programs be defined.

CA Endevor/DB System Programs

Product	Source Member	IDD Module Name(s)
CA Endevor/DB	N**x**VRTASK	CA-ENDEVOR-DB-SYSGEN
		CA-ENDEVOR-DB-SYSGEN-DYN **1**

Note: Two sets of source modules for the system programs are supplied with CA Endevor/DB Release 15.0. One set of modules specifies the system programs are installed with storage protect on when they are defined to the system; the other set specifies the system programs are installed with storage protect off. The second character of the module name designates the storage protect option, **x** is either:

D—the programs are installed with storage protect on

N—the programs are installed with storage protect off

For the source module's location and additional information about the installation options, see the *CA IDMS Installation* and *Maintenance Guide—z/OS*.

1— Some members may contain definitions for programs that are eligible to use null PDEs and therefore are not pre-defined to the system. These members are designated by the '-DYN' suffix and can be added to the system if your site requires all programs be defined.

Appendix C: VTAM Considerations

This section contains the following topics:

DC/UCF System Generation Statements

The following statements must be included in the DC/UCF system definition to establish communication between DC/UCF and VTAM:

- One **LINE statement** that specifies TYPE IS VTAMLIN. The LINE statement does not define an actual teleprocessing line but rather a control block (PLE). Actual line definitions and addressing are managed by the Network Control Program (NCP) and VTAM.

  In the LINE statement, you specify the application identifier (and, optionally, the password) that the DC/UCF system uses to sign on to VTAM. DC/UCF stores the application identifier and the password in the access method control block (ACB) used for communication with VTAM. When the DC/UCF system opens the ACB, VTAM searches the VTAMLST data set for a matching identifier and password.

- One **PTERM statement** for each physical terminal to be associated with the VTAM line.

- One **LTERM statement** for each PTERM statement.

Syntax for the LINE, PTERM, and LTERM statements is presented in Teleprocessing Network Statements (see page 317).

The sample DC/UCF configuration shown in the previous diagram consists of two systems, SYSTEM01 and SYSTEM02, running on a single machine. The DC/UCF system definitions include the following statements:

SYSTEM01

```
ADD SYSTEM 01
      .
      .
      .
ADD LINE VTAM01
    ENABLED
    TYPE IS VTAMLIN
    APPLICATION ID IS DCSYS01
    .
ADD PTERM PV01001
    ENABLED
    IN LINE VTAM01
    PRINTER CLASS IS 1
    TYPE IS V3277
    .
ADD PTERM PV01002
    ENABLED
    IN LINE VTAM01
    PRINTER CLASS IS 1
    TYPE IS V3277
    .
      .
      .
      .
ADD PTERM PV01017
    ENABLED
    IN LINE VTAM01
    PRINTER CLASS IS 1
    TYPE IS V3277
    .
ADD PTERM PR01001
    ENABLED
    TYPE IS V3286
    LINE VTAM01
    FORMFEED
    NAME=DEMO001
    ACQUIRE
    .
ADD PTERM PR01002
```

```
    ENABLED
    TYPE IS V3286
    LINE VTAM01
    FORMFEED
    NAME=DEMO002
    ACQUIRE
    .

ADD PTERM PR01003
    ENABLED
    TYPE IS V3286
    LINE VTAM01
    FORMFEED
    NAME=DEMO003
    ACQUIRE
    .
ADD PTERM PR01004
    ENABLED
    TYPE IS V3286
    LINE VTAM01
    FORMFEED
    NAME=DEMO004
    ACQUIRE
ADD LTERM LV01001 ENABLED NOPRINTER PTERM IS PV01001.
ADD LTERM LV01002 ENABLED NOPRINTER PTERM IS PV01002.
ADD LTERM LV01003 ENABLED NOPRINTER PTERM IS PV01003.
      .
      .
      .
ADD LTERM LV01017 ENABLED NOPRINTER PTERM IS PV01017.
ADD LTERM PR01001 PTERM IS PR01001 ENABLED PRINTER CLASS=(1).
ADD LTERM PR01002 PTERM IS PR01002 ENABLED PRINTER CLASS=(2).
ADD LTERM PR01003 PTERM IS PR01003 ENABLED PRINTER CLASS=(3).
ADD LTERM PR01004 PTERM IS PR01004 ENABLED PRINTER CLASS=(4).
```

SYSTEM02

```
ADD SYSTEM 02
      .
      .
      .
ADD LINE VTAM02
    ENABLED
    TYPE IS VTAMLIN
    APPLICATION ID IS DCSYS02 PASSWORD IS YOURPASS
    .
ADD PTERM PV02001
    ENABLED
    IN LINE VTAM02
    PRINTER CLASS IS 1
    TYPE IS V3277
    .

ADD PTERM PV02002
    ENABLED
    IN LINE VTAM02
    PRINTER CLASS IS 1
    TYPE IS V3277
    .
      .
      .
      .
ADD PTERM PV02017
    ENABLED
    IN LINE VTAM02
    PRINTER CLASS IS 1
    TYPE IS V3277
    .
ADD PTERM PR02001
    ENABLED
    TYPE IS V3286
    LINE VTAM02
    FORMFEED
    NAME=DEMO001
    ACQUIRE
    .
ADD PTERM PR02002
    ENABLED
    TYPE IS V3286
    LINE VTAM02
    FORMFEED
    NAME=DEMO002
    ACQUIRE
```

```
    .
ADD PTERM PR02003
    ENABLED
    TYPE IS V3286
    LINE VTAM01
    FORMFEED
    NAME=DEMO003
    ACQUIRE
    .
ADD PTERM PR02004
    ENABLED
    TYPE IS V3286
    LINE VTAM01
    FORMFEED
    NAME=DEMO004
    ACQUIRE
    .

ADD LTERM LV02001 ENABLED NOPRINTER PTERM IS PV02001.
ADD LTERM LV02002 ENABLED NOPRINTER PTERM IS PV02002.
ADD LTERM LV02003 ENABLED NOPRINTER PTERM IS PV02003.
      .
      .
      .
ADD LTERM LV02017 ENABLED NOPRINTER PTERM IS PV02017.
ADD LTERM PR02001 PTERM IS PR02001 ENABLED PRINTER CLASS=(1).
ADD LTERM PR02002 PTERM IS PR02002 ENABLED PRINTER CLASS=(2).
ADD LTERM PR02003 PTERM IS PR02003 ENABLED PRINTER CLASS=(3).
ADD LTERM PR02004 PTERM IS PR02004 ENABLED PRINTER CLASS=(4).
```

VTAMLST Entries

The VTAMLST data set contains information about the network configuration and network resources. The two members of the VTAMLST data set that contain relevant information are the APPL type major node and the LOCAL type major node.

APPL Type Major Node Definition

```
                VBUILD TYPE=APPL
DCSYS01   APPL  AUTH=(ACQ,NOPASS,NVPACE,NOTSO,NOPO)
DCSYS02   APPL  AUTH=(ACQ,NOPASS,NVPACE,NOTSO,NOPO),PRTCT=YOURPASS
TESTDC1   APPL  AUTH=(ACQ,NOPASS,NVPACE,NOTSO,NOPO)
TESTDC2   APPL  AUTH=(ACQ,NOPASS,NVPACE,NOTSO,NOPO)
INTERACT  APPL  AUTH=(NOACQ,NOPASS,NVPACE,NOTSO,NOPO)
INTERTST  APPL  AUTH=(NOACQ,NOPASS,NVPACE,NOTSO,NOPO)
```

Sample LOCAL Type Major Node

The following description shows a LOCAL type major node used to define local (that is, channel-attached) terminals.

```
LOCGRP1  LBUILD
CUL0A2   LOCAL TERM=3277,CUADDR=0A2,ISTATUS=INACTIVE,                  -
               FEATUR2=(ANKEY,MODEL2,PFK,NOSELPEN),                    -
               USSTAB=CULUSS,MODETAB=CULLMODE,DLOGMOD=N3277M2
CUL0A3   LOCAL TERM=3277,CUADDR=0A3,ISTATUS=ACTIVE,                    -
               FEATUR2=(ANKEY,MODEL2,PFK,NOSELPEN),                    -
               USSTAB=CULUSS,MODETAB=CULLMODE,DLOGMOD=N3277M2
CUL0A4   LOCAL TERM=3277,CUADDR=0A4,ISTATUS=ACTIVE,                    -
               FEATUR2=(ANKEY,MODEL2,PFK,NOSELPEN),                    -
               USSTAB=CULUSS,MODETAB=CULLMODE,DLOGMOD=N3277M2
CUL0A5   LOCAL TERM=3277,CUADDR=0A5,ISTATUS=ACTIVE,                    -
               FEATUR2=(ANKEY,MODEL2,PFK,NOSELPEN),                    -
               USSTAB=CULUSS,MODETAB=CULLMODE,DLOGMOD=N3277M2
CUL0A6   LOCAL TERM=3277,CUADDR=0A6,ISTATUS=ACTIVE,                    -
               FEATUR2=(ANKEY,MODEL2,PFK,NOSELPEN),                    -
               USSTAB=CULUSS,MODETAB=CULLMODE,DLOGMOD=N3277M2
DEMO001 LOCAL TERM=3284,CUADDR=0BD,ISTATUS=ACTIVE,                     -
               FEATUR2=(MODEL2),DLOGMOD=N3280T3,MODETAB=CULLMODE
```

Mode Table

The LOCAL type major node references a mode table that describes different 3270-type devices.

The following table shows a mode table that defines both non-SNA and SNA devices. The mode table contains recommended values for each device; however, other values can be used when appropriate.

```
MODE     TITLE 'MODE TABLE FOR CA'
         AIF   (&SNASW).LBL1
*
         MNOTE *,'THIS MODE TABLE IS FOR NON-SNA DEVICES'
*
* CULNMODE
CULNMODE MODETAB
*
* NON-SNA DEFINITIONS -- TERMINALS
*
* N3278M2
         MODEENT LOGMODE=N3278M2,FMPROF=X'02',TSPROF=X'02',            -
               PRIPROT=X'71',SECPROT=X'40',COMPROT=X'2000',            -
               RUSIZES=X'8989',                                        -
               PSERVIC=X'000000000000185018500200'
* N3277M1
         MODEENT LOGMODE=N3277M1,FMPROF=X'02',TSPROF=X'02',            -
               PRIPROT=X'71',SECPROT=X'40',COMPROT=X'2000',            -
               RUSIZES=X'8787',                                        -
               PSERVIC=X'0000000000000C280C280100'
* N3277M2
         MODEENT LOGMODE=N3277M2,FMPROF=X'02',TSPROF=X'02',            -
               PRIPROT=X'71',SECPROT=X'40',COMPROT=X'2000',            -
               RUSIZES=X'8989',                                        -
               PSERVIC=X'000000000000000000000200'
* N3278M1
         MODEENT LOGMODE=N3278M1,FMPROF=X'02',TSPROF=X'02',            -
               PRIPROT=X'71',SECPROT=X'40',COMPROT=X'2000',            -
               RUSIZES=X'8787',                                        -
               PSERVIC=X'0000000000000C280C507F00'
* N3278M3
         MODEENT LOGMODE=N3278M3,FMPROF=X'02',TSPROF=X'02',            -
               PRIPROT=X'71',SECPROT=X'40',COMPROT=X'2000',            -
               RUSIZES=X'8989',                                        -
               PSERVIC=X'000000000000185020507F00'
* N3278M4
         MODEENT LOGMODE=N3278M4,FMPROF=X'02',TSPROF=X'02',            -
               PRIPROT=X'71',SECPROT=X'40',COMPROT=X'2000',            -
```

```
              RUSIZES=X'8989',                                          -
              PSERVIC=X'000000000000018502B507F00'
* N3278M5
        MODEENT LOGMODE=N3278M5,FMPROF=X'02',TSPROF=X'02',              -
              PRIPROT=X'71',SECPROT=X'40',COMPROT=X'2000',              -
              RUSIZES=X'8989',                                          -
              PSERVIC=X'00000000000018501B847F00'

 * N3279M2
         MODEENT LOGMODE=N3279M2,FMPROF=X'02',TSPROF=X'02',             -
               PRIPROT=X'71',SECPROT=X'40',COMPROT=X'2000',             -
               RUSIZES=X'8989',                                         -
               PSERVIC=X'00800000000018501850020 0'
 * N3279M3
         MODEENT LOGMODE=N3279M3,FMPROF=X'02',TSPROF=X'02',             -
               PRIPROT=X'71',SECPROT=X'40',COMPROT=X'2000',             -
               RUSIZES=X'8989',                                         -
               PSERVIC=X'00800000000018502050 7F00'
 * DSILGMOD
         MODEENT LOGMODE=DSILGMOD,FMPROF=X'02',TSPROF=X'02',            -
               PRIPROT=X'71',SECPROT=X'40',COMPROT=X'2000',             -
               RUSIZES=X'8787',                                         -
               PSERVIC=X'000000000000000000000200'
 * D4B32782
         MODEENT LOGMODE=D4B32782,FMPROF=X'02',TSPROF=X'02',            -
               PRIPROT=X'71',SECPROT=X'40',COMPROT=X'2000',             -
               RUSIZES=X'0000',                                         -
               PSERVIC=X'00000000000018500000 7E00'
 *
 * NON-SNA DEFINITIONS -- PRINTERS
 *
 * N3280T1
         MODEENT LOGMODE=N3280T1,FMPROF=X'02',TSPROF=X'02',             -
               PRIPROT=X'71',SECPROT=X'40',COMPROT=X'2000',             -
               RUSIZES=X'8089',                                         -
               PSERVIC=X'01000000000000000000000 0'
 * N3280T3
         MODEENT LOGMODE=N3280T3,FMPROF=X'02',TSPROF=X'02',             -
               PRIPROT=X'71',SECPROT=X'40',COMPROT=X'2000',             -
               RUSIZES=X'8989',                                         -
               PSERVIC=X'03000000000018501850020 0'
 * N32804K
         MODEENT LOGMODE=N32804K,FMPROF=X'02',TSPROF=X'02',             -
               PRIPROT=X'71',SECPROT=X'40',COMPROT=X'2000',             -
               RUSIZES=X'8787',                                         -
               PSERVIC=X'03000000000018502B507F00'
 .LBL1    ANOP
         AIF   (NOT &SNASW).LBL2
 *
```

```
         MNOTE *,'THIS MODE TABLE IS FOR SNA DEVICES'
*
* CULSMODE
CULSMODE MODETAB

*
* SNA DEFINITIONS -- TERMINALS
*
* S3278M1
         MODEENT LOGMODE=S3278M1,FMPROF=X'03',TSPROF=X'03',            -
               PRIPROT=X'B1',SECPROT=X'90',COMPROT=X'3080',            -
               RUSIZES=X'8785',                                        -
               PSERVIC=X'0200000000000C280C507F00'
* S3278M2
         MODEENT LOGMODE=S3278M2,FMPROF=X'03',TSPROF=X'03',            -
               PRIPROT=X'B1',SECPROT=X'90',COMPROT=X'3080',            -
               RUSIZES=X'88C7',                                        -
               PSERVIC=X'020000000000185018507F00'
* S3278M3
         MODEENT LOGMODE=S3278M3,FMPROF=X'03',TSPROF=X'03',            -
               PRIPROT=X'B1',SECPROT=X'90',COMPROT=X'3080',            -
               RUSIZES=X'88C7',                                        -
               PSERVIC=X'020000000000185020507F00'
* S3278M4
         MODEENT LOGMODE=S3278M4,FMPROF=X'03',TSPROF=X'03',            -
               PRIPROT=X'B1',SECPROT=X'90',COMPROT=X'3080',            -
               RUSIZES=X'88C7',                                        -
               PSERVIC=X'0200000000018502B507F00'
* S3278M5
         MODEENT LOGMODE=S3278M5,FMPROF=X'03',TSPROF=X'03',            -
               PRIPROT=X'B1',SECPROT=X'90',COMPROT=X'3080',            -
               RUSIZES=X'88C7',                                        -
               PSERVIC=X'0200000000018501B847F00'
* S3279M2
         MODEENT LOGMODE=S3279M2,FMPROF=X'03',TSPROF=X'03',            -
               PRIPROT=X'B1',SECPROT=X'90',COMPROT=X'3080',            -
               RUSIZES=X'88C7',                                        -
               PSERVIC=X'028000000000185018500200'
* S3279M3
         MODEENT LOGMODE=S3279M3,FMPROF=X'03',TSPROF=X'03',            -
               PRIPROT=X'B1',SECPROT=X'90',COMPROT=X'3080',            -
               RUSIZES=X'88C7',                                        -
               PSERVIC=X'028000000000185020507F00'
*
* SNA DEFINITIONS -- PRINTERS
*
* S3280256
         MODEENT LOGMODE=S3280256,FMPROF=X'03',TSPROF=X'03',           -
               PRIPROT=X'B1',SECPROT=X'90',COMPROT=X'3080',            -
```

```
                RUSIZES=X'8585',                                        -
                PSERVIC=X'010000000000185018500200'

* S3280T3
        MODEENT LOGMODE=S3280T3,FMPROF=X'03',TSPROF=X'03',              -
                PRIPROT=X'B1',SECPROT=X'90',COMPROT=X'3080',            -
                RUSIZES=X'8785',                                        -
                PSERVIC=X'030000000000185018500200'
* S3280T1A
        MODEENT LOGMODE=S3280T1A,FMPROF=X'03',TSPROF=X'03',             -
                PRIPROT=X'B1',SECPROT=X'90',COMPROT=X'3080',            -
                RUSIZES=X'8787',                                        -
                PSERVIC=X'010000000000185018500200'
* S3280SCS
        MODEENT LOGMODE=S3280SCS,FMPROF=X'03',TSPROF=X'03',             -
                PRIPROT=X'B1',SECPROT=X'90',COMPROT=X'3080',            -
                RUSIZES=X'87C6',PSNDPAC=01,SRCVPAC=01,                  -
                PSERVIC=X'01000000E100000000000000'
* S3280512
        MODEENT LOGMODE=S3280512,FMPROF=X'03',TSPROF=X'03',             -
                PRIPROT=X'B1',SECPROT=X'90',COMPROT=X'3080',            -
                RUSIZES=X'8686',                                        -
                PSERVIC=X'010000000000185018500200'
.LBL2   ANOP
        MODEEND
        END
```

Runtime Considerations

If VTAM fails or is taken down during DC/UCF system execution, you do *not* have to take the system down. To resume processing, the VTAM ACB must be closed, then reopened after VTAM has been restarted.

The following example illustrates the above procedure:

- The VTAM line XYZ is varied offline after failure with the following command:

  ```
  DCMT VARY LINE XYZ OFFLINE
  ```

- VTAM is started up (if not done previously).
- The VTAM line XYZ is varied online with the following command:

  ```
  DCMT VARY LINE XYZ ONLINE
  ```

DCMT commands are described in the *CA IDMS System Tasks and Operator Commands Guide*.

Real APPC Support Considerations

The VTAM mode table entry for the logical unit used for APPC must specify:

- LOGMODE=*vtam-modeent-name*
- TYPE=0
- PSNDPAC=X'03'
- SSNDPAC=X'03'
- SRCVPAC=X'03'
- FMPROF=X'13'
- TSPROF=X'07'
- PRIPROT=X'B0'
- SECPROT=X'B0'
- COMPROT=X'50B1'
- RUSIZE=X'8585'
- PSERVIC=X'060200000000000000102F00'

In the parameters listed above, **vtam-modeent-name** must match the name specified in the MODEENT parameter of a PTERM statement used to define a physical terminal for APPC.

Mode Table Entry

The following VTAM mode table entry defines the bind parameters for APPC:

```
MODEENT  LOGMODE=SNAAPPC1,                                    -
         TYPE=0,                                              -
         PSNDPAC=X'03',                                       -
         SSNDPAC=X'03',                                       -
         SRCVPAC=X'03',                                       -
         FMPROF=X'13',                                        -
         TSPROF=X'07',                                        -
         PRIPROT=X'B0',                                       -
         SECPROT=X'B0',                                       -
         COMPROT=X'50B1',                                     -
         RUSIZE=X'8585',                                      -
         PSERVIC=X'060200000000000000102F00'
```

Appendix D: SNA and LU 6.2 Considerations

This section contains the following topics:

SNA Terminology

The following SNA terms appear in the descriptions of the LINE and PTERM statement parameters used to implement SNA support:

- A **logical unit (LU)** is a port through which users access the SNA network. For example, an LU can be a CRT terminal, a device such as a displaywriter, or a program such as CICS or the DC/UCF system. Each LU is a single network addressable unit (NAU) to VTAM.
- A **session** is a logical connection between two LUs. Multiple sessions can exist between two LUs that share a single physical connection. Each session is represented in the DC/UCF environment by a physical terminal element (PTE)/logical terminal element (LTE) pair. DC/UCF treats each session as a local resource.
- A **conversation** is a complete transaction between LUs. A conversation is delineated on a session by a begin bracket and an end bracket. Only one conversation can be allocated to a session at a time.

Bind Parameters for LU 6.2 Sessions

The mode table entry for an LU 6.2 should include the following parameter specifications:

```
LOGMODE=vtam-modeent-name
COS=class-of-service-name
TYPE=0
FMPROF=X'13'
TSPROF=X'07'
PRIPROT=X'B0'
SECPROT=X'B0'
COMPROT=X'50B1'
RUSIZES=X'meme'
PSERVIC=X'060200000000000000002F00'
```

In the parameter specifications listed above:

- **Vtam-modeent-name** must match the mode table entry identified by the MODEENT parameter of a PTERM statement.
- **Class-of-service-name** must match a name in the VTAM class-of-service table.
- **Meme** specifies the maximum amount of data that the DC/UCF system passes to VTAM. Meme represents two pairs of numbers, each of which consists of a mantissa and an exponent.

LU 6.2 Restrictions

The DC SNA/VTAM driver does not provide support for the following LU 6.2 functions:

- **MAP_NAME on read and write verbs**. This function is not yet supported by IBM.
- **SYNCPOINT and ROLLBACK support for LU 6.2**.
- **FLUSH verb**. The DC/UCF system buffers read data but does not buffer write data.
- **Program initialization parameters (PIP) on allocate requests**.
- **COBOL and PL/I support for LU 6.2 verbs**.

Multiple Session Support

DC SNA Line Driver Functions as SNA Logical Unit

The DC SNA/VTAM line driver functions as an SNA logical unit. As such, the driver can maintain multiple sessions with one or more other LUs to facilitate program-to-program communication (that is, distributed processing). For example, if twenty sessions exist between a DC/UCF system and CICS, up to twenty tasks executing under DC/UCF can communicate concurrently with twenty tasks executing under CICS.

How to Define Multiple Sessions

To define multiple sessions, you include multiple physical terminals with the same VTAM node name in the DC/UCF system definition. You specify the VTAM node name in the NAME parameter of the system generation PTERM statement. The maximum number of sessions that can exist between two LUs is limited by the number of physical terminals you define. The number of sessions available at any given time is limited by the number of physical terminals that are in service.

Multiple sessions between two LUs can use different classes of service or different protocols. The protocols for a session are established by the mode table entry containing the parameters used to bind the session. You use the MODEENT parameter of the system generation PTERM statement to associate a physical terminal with a mode table entry.

Multiple Session Service Manager

To support multiple LU 6.2 sessions, the DC/UCF system must include the multiple session service manager. The service manager negotiates the number of sessions to be allowed with the remote LU.

You define the multiple session service manager with system generation PROGRAM and TASK statements:

- Code an ADD PROGRAM statement for program RHDCCNOS that specifies ASSEMBLER, NOPROTECT, and REENTRANT.
- Code an ADD TASK statement for task 06F1 that specifies INVOKES PROGRAM RHDCCNOS. Set the task priority as high as possible.

To ensure that a session is always available to the LU 6.2 service manager, you must reserve two physical terminals:

- The system generation PTERM statement for each physical terminal must specify MODEENT IS SNASVCMG.
- The CONTENTION parameter of the system generation PTERM statement must specify WINNER for one physical terminal and LOSER for the other physical terminal.

Sample Definitions for SNA Support

The following example shows sample system generation statements and VTAM definitions that implement SNA support for LU 6.2 sessions in a DC/UCF system. The example creates two LUs, each with four sessions. For each LU, two sessions are reserved for the multiple session service manager (mode table entry SNASVCMG).

The system generation statements consist of:

- **One LINE statement** with line type VTAMLU. You need only one LINE statement to support all LUs regardless of LU type.
- **Eight PTERM statements** with physical terminal type LU. All but one of the physical terminals are defined as ACQUIRE. The sessions that use these physical terminals are automatically connected at DC/UCF system startup.
- **One PROGRAM statement** for the multiple session service manager.
- **One TASK statement** for the multiple session service manager.

The VTAM definitions consist of:

- **The VTAMLST entry** for the APPL type major node
- **The mode table entries** with bind parameters for LU 6.2 sessions

System Generation Statements

```
ADD LINE SNALU1
    TYPE VTAMLU
    APPL ID IDMSSNA
    RPL 8
    ENABLED.

ADD PTERM LU10
    TYPE LU
    ENABLED
    ACQUIRE
    NAME IS LU620001
    MODEENT IS SNASVCMG
    CONTENTION IS WINNER.

ADD LTERM LU10
    ENABLED
    PRIORITY IS 240.

ADD PTERM LU11
    TYPE LU
    ENABLED
    ACQUIRE
    NAME IS LU620001
    MODEENT IS SNASVCMG
    CONTENTION IS LOSER.

ADD LTERM LU11
    ENABLED
    PRIORITY IS 240.

ADD PTERM LU12
    TYPE LU
    ENABLED
    ACQUIRE
    NAME IS LU620001
    MODEENT IS APPC01
    CONTENTION IS WINNER.

ADD LTERM LU12
    ENABLED.

ADD PTERM LU13
    TYPE LU
    ENABLED
    ACQUIRE
    NAME IS LU620001
    MODEENT IS APPC01
    CONTENTION IS LOSER.
```

```
ADD LTERM LU13
    ENABLED.
ADD PTERM LU20
    TYPE LU
    ENABLED
    ACQUIRE
    NAME IS LU620002
    MODEENT IS SNASVCMG
    CONTENTION IS WINNER.

ADD LTERM LU20
    ENABLED
    PRIORITY IS 240.

ADD PTERM LU21
    TYPE LU
    ENABLED
    ACQUIRE
    NAME IS LU620002
    MODEENT IS SNASVCMG
    CONTENTION IS LOS .

ADD LTERM LU21
    ENABLED
    PRIORITY IS 240.

ADD PTERM LU22
    TYPE LU
    ENABLED
    ACQUIRE
    NAME IS LU620002
    MODEENT IS APPC01
    CONTENTION IS WINNER.

ADD LTERM LU22
    ENABLED.

ADD PTERM LU23
    TYPE LU
    ENABLED
    NAME IS LU620002
    MODEENT IS APPC01
    CONTENTION IS OFF.

ADD LTERM LU23
    ENABLED.

ADD PROGRAM RHDCCNOS
```

```
    LANGUAGE IS ASSEMBLER
    REENTRANT
    NOPROTECT.

ADD TASK 06F1
    INVOKES PROGRAM RHDCCNOS
    PRIORITY IS 240
    NOINPUT
    INACTIVE INTERVAL IS OFF.
```

VTAMLST Entry

```
         VBUILD TYPE=APPL

IDMSSNA  APPL  ACBNAME=IDMSSNA,                                  -
               AUTH=(ACQ,NOPASS,NVPACE,NOTSO,NOPO),              -
               EAS=20,PARSESS=YES,                               -
               MODETAB=LU62TAB
```

Important! Do not specify APPC=YES on the VTAM Application Definition.

Mode Table Entries

```
MODEENT  LOGMODE=APPC01,             (Parallel sessions)             -
         TYPE=0,                                                     -
         FMPROF=X'13',                                               -
         TSPROF=X'07',                                               -
         PRIPROT=X'B0',                                              -
         SECPROT=X'B0',                                              -
         COMPROT=X'50B1',                                            -
         RUSIZES=X'8787',                                            -
         PSERVIC=X'060200000000000000002F00'

MODEENT  LOGMODE=APPC02,             (Single sessions)               -
         TYPE=0,                                                     -
         FMPROF=X'13',                                               -
         TSPROF=X'07',                                               -
         PRIPROT=X'B0',                                              -
         SECPROT=X'B0',                                              -
         COMPROT=X'50B1',                                            -
         RUSIZES=X'8787',                                            -
         PSERVIC=X'060200000000000000002C00'

MODEENT  LOGMODE=SNASVCMG,                                           -
         TYPE=0,                                                     -
         FMPROF=X'13',                                               -
         TSPROF=X'07',                                               -
         PRIPROT=X'B0',                                              -
         SECPROT=X'B0',                                              -
         COMPROT=X'50B1',                                            -
         RUSIZES=X'8787',                                            -
         PSERVIC=X'060200000000000000002F00'
```

Appendix E: Sample System Definition

This appendix provides a sample of a complete system definition for a DC/UCF system.

System Definitions Provided at Installation

During installation, definitions of the following DC/UCF systems can be added to the system dictionary:

- **System 90**—A demonstration system
- **System 99**—A base system from which definitions can be copied into other systems

Copying Sample System Definitions

You can use the system generation compiler to display the definitions of the systems listed above once they have been added to the data dictionary. Using the COPY statement, you can copy all or part of the base system definition to the site-specific system that you are defining. The COPY statement is described in COPY Statement.

Sample System Definition for SYSTEM 12

The following definition of a DC/UCF system is provided as an example of a complete system definition. The definition is shown as entered by the user rather than as displayed by the compiler. As a result, defaults accepted by the user are not listed.

The sample system is assigned version number 12 and is defined to run under z/OS.

Note: Parameter values in the systems you define will differ from the values shown for the sample system based on site-specific requirements.

```
************************************************************************
*                                                                      *
*     SYSTEM STATEMENT FOR SAMPLE SYSTEM 12                            *
*                                                                      *
************************************************************************
*
ADD SYSTEM 12
    ABEND STORAGE IS 200
    ABRU SNAP
    CHKUSER TASKS IS 4
    CUSHION IS 20
    CVNUMBER IS 12
    CWA SIZE IS 504
    DPE COUNT IS DEFAULT
    DUMP
    ECB LIST IS DEFAULT
    GENERATION ID IS SYS12
    INACTIVE INTERVAL IS 300
    NOJOURNAL RETRIEVAL
    CALL LIMIT FOR ONLINE TASKS IS 1000
    DBIO LIMIT FOR ONLINE TASKS IS 500
    LIMITS FOR ONLINE ARE ENABLED
    LOADLIST IS SYSLOAD
    LOG DATABASE
    MAXIMUM ERUS IS 4
    MAXIMUM TASKS IS 22
    NEW COPY IS AUTOMATIC
    OPERATING SYSTEM IS MVS
    PAGE RELEASE IS YES
    PRINT KEY IS PF12
    PRINTER CHECKPOINT IS 50
    PROGRAM POOL IS 100
    NOPROTECT
    QUEUE JOURNAL BEFORE
    RCE COUNT IS DEFAULT
    REENTRANT POOL IS 2200
    RELOCATABLE THRESHOLD IS 85
    REPORT RETENTION IS 5
    RESOURCE TIMEOUT INTERVAL IS 1800 PROGRAM IS RHDCBYE VERSION 1
    RETRIEVAL NOLOCK
    RLE COUNT IS DEFAULT
    RUNAWAY INTERVAL IS 45
    RUNUNITS FOR LOADER = 1
    RUNUNITS FOR MSGDICT = 1
    RUNUNITS FOR QUEUE = 1
    RUNUNITS FOR SECURITY = 1
    RUNUNITS FOR SIGNON = 1
    RUNUNITS FOR SYSTEM/DEST = 1
    STACKSIZE IS 1200
```

```
    STATISTICS INTERVAL OFF LINE TASK WRITE NOUSER TRANSACTION
    STORAGE KEY IS 9
    STORAGE POOL IS 1500
    SVC IS 173
    SYSCTL IS SYSCTL
    SYSLOCKS IS 1200
    SYSTRACE ON ENTRIES = 250
    TICKER INTERVAL IS 5
    UNDEFINED PROGRAM COUNT IS (23 23) FOR (ALL)
    UPDATE NOLOCK
    USERTRACE ON ENTRIES = 250
    .
*************************************************************************
*                                                                       *
*     SECONDARY STORAGE POOLS FOR SYSTEM 12                             *
*                                                                       *
*************************************************************************
*
ADD STORAGE POOL 127
    SIZE IS 1000
    CUSHION IS 12
    CONTAINS TYPES (USER USER-KEPT)
    RELOCATABLE THRESHOLD IS 85
    .
ADD STORAGE POOL 126
    SIZE IS 500
    CUSHION IS 10
    CONTAINS TYPES (SHARED SHARED-KEPT)
    RELOCATABLE THRESHOLD IS 85
    .
*************************************************************************
*                                                                       *
*     PRODUCT STATEMENTS FOR SYSTEM 12                                  *
*                                                                       *
*************************************************************************
*
ADD ADSO
    MAXIMUM LINKS IS 4
    PRIMARY POOL IS 4084
    SECONDARY POOL IS 4084
    RESOURCES ARE RELOCATABLE
    DIALOG STATISTICS ON SELECTED
    .
ADD OLM
    NEW COPY IS YES
    PAGING STORAGE IS 50
    QUEUE RETENTION IS 60
    .
ADD OLQ
```

```
    REPORT RETENTION IS 7
    MAXIMUM REPORT RETENTION IS 60
    MAXIMUM REPORT PAGES IS 8
    MAXIMUM REPORT COUNT IS 15
    MAXIMUM INTERRUPT COUNT IS 500
    REPORT DICTNAME IS ASF1DICT
    MAXIMUM SORT STORAGE IS 500
    BATCH CLASS IS 9.
    .
*************************************************************************
*                                                                       *
*     KEYS TABLE FOR SYSTEM 12                                          *
*                                                                       *
*************************************************************************
*
INCLUDE MODULE DC-PFKEY-DEF
    .
*************************************************************************
*                                                                       *
*     TASK AND PROGRAM STATEMENTS FOR ONLINE COMPONENTS                 *
*     (EXCEPT THE SYSTEM GENERATION COMPILER)                           *
*                                                                       *
*************************************************************************
*
*
*     CA ADS
*
INCLUDE MODULE ADSO
    .
*
*     AUTOMATIC SYSTEM FACILITY
*
INCLUDE MODULE ASFIDB
    .
INCLUDE MODULE ASF
    .
*
*     ONLINE COMPILERS (EXCEPT SYSGEN)
*
INCLUDE MODULE IDD
    .
MODIFY TASK SSC

    .
MODIFY TASK SSCT

    .
*
*     ONLINE MAPPING
```

```
*
INCLUDE MODULE ONLINE-MAPPING
    .
*
*     CA OLQ
*
INCLUDE MODULE ONLINE-QUERY
    .

*************************************************************************
*     TASK AND PROGRAM STATEMENTS FOR SYSTEM TASKS                      *
*     AND THE SYSTEM GENERATION COMPILER                                *
*                                                                       *
*************************************************************************
*
COPY TASKS FROM SYSTEM 99
    .
COPY PROGRAMS FROM SYSTEM 99
    .

*************************************************************************
*     SUBSCHEMA PROGRAM STATEMENTS                                      *
*                                                                       *
*************************************************************************
*
DEFAULT TEMPORARY PROGRAM
    SUBSCHEMA
    NOPROTECT
    NODYNAMIC
    .
*
*     SUBSCHEMAS FOR CORPDATA
*
ADD PROGRAM PERSS001
    .
ADD PROGRAM PERSS002
    .
ADD PROGRAM ACCSS001
    .
ADD PROGRAM ACCSS002
    .
ADD PROGRAM ACCSS003
    .
ADD PROGRAM ADVSS001
    .
ADD PROGRAM SALSS001
    .
*
*     SUBSCHEMAS FOR CUSTDATA
*
```

```
ADD PROGRAM ADVSSC01
    .
ADD PROGRAM SALSSC01
    .
ADD PROGRAM SALSSC02
    .
DEFAULT TEMPORARY PROGRAM
    PROGRAM
    PROTECT
    DYNAMIC
    .

************************************************************************
*     TASK AND PROGRAM STATEMENTS FOR CORPORATE APPLICATIONS           *
*     -- PERSONNEL DEPARTMENT                                          *
*                                                                      *
************************************************************************
*
*
*     EMPLOYEE TRACKING
*
ADD TASK EMPTRK
    INVOKES PROGRAM PERP001
    .
ADD PROGRAM PERP001
    .
ADD PROGRAM PERP002
    .
ADD PROGRAM PERP003
    .
ADD PROGRAM PERP004
    .
ADD PROGRAM PERMP01
    MAP
    .
ADD PROGRAM PERMP02
    MAP
    .
ADD PROGRAM PERMP03
    MAP
    .
*
*     SALARY TRACKING
*
ADD TASK EMPSAL
    INVOKES PROGRAM PERP030
    NOINPUT
    .
ADD PROGRAM PERP030
    .
```

```
ADD PROGRAM PERP031
    .
ADD PROGRAM PERMP30
    MAP
    .
ADD PROGRAM PERMP31
    MAP
    .
ADD PROGRAM PERMP32
    MAP
    .
*************************************************************************
*                                                                       *
*     TASK AND PROGRAM STATEMENTS FOR CORPORATE APPLICATIONS            *
*     -- ACCOUNTING DEPARTMENT                                          *
*                                                                       *
*************************************************************************
*
*
*     BUDGET PLANNING AND IMPLEMENTATION
*
ADD TASK BUDGET
    INVOKES PROGRAM ACCP001
    .
ADD PROGRAM ACCP001
    .
ADD PROGRAM ACCP002
    .
ADD PROGRAM ACCP003
    .
ADD PROGRAM ACCMP01
    MAP
    .
ADD PROGRAM ACCMP02
    MAP
    .
*************************************************************************
*                                                                       *
*     TASK AND PROGRAM STATEMENTS FOR CORPORATE APPLICATIONS            *
*     -- ADVERTISING DEPARTMENT                                         *
*                                                                       *
*************************************************************************
*
*
*     CAMPAIGN TRACKING
*
ADD TASK ADVTRK
    INVOKES PROGRAM ADVP001
    .
```

```
ADD PROGRAM ADVP001
    .
ADD PROGRAM ADVP002
    .
ADD PROGRAM ADVP003
    .
ADD PROGRAM ADVMP01
    MAP
    .
ADD PROGRAM ADVMP02
    MAP
    .
*****************************************************************************
*                                                                           *
*     TASK AND PROGRAM STATEMENTS FOR CORPORATE APPLICATIONS                *
*     -- SALES AND MARKETING DEPARTMENT                                     *
*                                                                           *
*****************************************************************************
*
*
*     CUSTOMER TRACKING
*
ADD TASK CUSTRK
    INVOKES PROGRAM SALP001
    .
ADD PROGRAM SALP021
    .
ADD PROGRAM SALP022
    .
ADD PROGRAM SALP023
    .
ADD PROGRAM SALMP21
    MAP
    .
*****************************************************************************
*                                                                           *
*     UTILITY PROGRAMS FOR CORPORATE APPLICATIONS                           *
*                                                                           *
*****************************************************************************
*
ADD PROGRAM COMPQTR
    .
ADD PROGRAM CHEKCUST
    .
ADD PROGRAM CUSTLOC
    TABLE
    .
ADD PROGRAM EXP001
    LANGUAGE ASSEMBLER
```

```
    REENTRANT
    .
ADD PROGRAM EXP002
    LANGUAGE ASSEMBLER
    REENTRANT
    .
ADD PROGRAM EXP003
    LANGUAGE ASSEMBLER
    REENTRANT
    .
*************************************************************************
*                                                                       *
*     TELEPROCESSING NETWORK FOR SYSTEM 12                              *
*                                                                       *
*************************************************************************
*
*
*     OPERATOR'S CONSOLE
*
ADD LINE CONSOLE
    TYPE IS CONSOLE
    .
ADD PTERM OPERATOR
    TYPE IS OPERATOR
    .
ADD LTERM CONSOLE
    PRIORITY IS 240
    PTERM IS OPERATOR
    .
*
*     VTAM LINE
*
ADD LINE VTAM12
    COMPACT
    TYPE IS VTAMLIN
    APPLICATION ID IS SYSTEM12
    RPL COUNT IS 10
    .
ADD PTERM PV12001
    TYPE IS V3277
    .
ADD LTERM LT12001
    .
ADD PTERM PV12002
    TYPE IS V3277
    .
ADD LTERM LT12002
    .
ADD PTERM PV12003
```

```
    TYPE IS V3277
    .
ADD LTERM LT12003
    .
ADD PTERM PV12004
    TYPE IS V3277
    .
ADD LTERM LT12004
    .
ADD PTERM PV12005
    TYPE IS V3277
    .
ADD LTERM LT12005
    .
ADD PTERM PV12006
    TYPE IS V3277
    .
ADD LTERM LT12006
    .
ADD PTERM PV12007
    TYPE IS V3277
    .
ADD LTERM LT12007
    .
ADD PTERM PV12008
    TYPE IS V3277
    .
ADD LTERM LT12008
    .
ADD PTERM PV12009
    TYPE IS V3277
    .
ADD LTERM LT12009
    .
ADD PTERM PV12010
    TYPE IS V3277
    .
ADD LTERM LT12010
    .
ADD PTERM PV12011
    TYPE IS V3277
    .
ADD LTERM LT12011
    .
ADD PTERM PV12012
    TYPE IS V3277
    .
ADD LTERM LT12012
    .
```

```
ADD PTERM PV12013
    TYPE IS V3277
    .
ADD LTERM LT12013
    .
ADD PTERM PV12014
    TYPE IS V3277
    .
ADD LTERM LT12014
    .
ADD PTERM PV12015
    TYPE IS V3277
    .
ADD LTERM LT12015
    .
ADD PTERM PV12016
    TYPE IS V3277
    .
ADD LTERM LT12016
    .
ADD PTERM PV12017
    TYPE IS V3277
    .
ADD LTERM LT12017
    .
ADD PTERM PV12018
    TYPE IS V3277
    .
ADD LTERM LT12018
    .
ADD PTERM PV12019
    TYPE IS V3277
    .
ADD LTERM LT12019
    .
ADD PTERM PV12020
    TYPE IS V3277
    .
ADD LTERM LT12020
    .
ADD PTERM PV12021
    TYPE IS V3277
    NAME IS CT112001
    .
ADD LTERM LT12021
    .
ADD PTERM PV12022
    TYPE IS V3277
    NAME IS CT084020
```

```
    .
ADD LTERM LT12022
    .
ADD PTERM PV12023
    TYPE IS V3277
    NAME IS CT084122
    .
ADD LTERM LT12023
    .
ADD PTERM PV12024
    TYPE IS V3277
    NAME IS CT064100
    .
ADD LTERM LT12024
    .
ADD PTERM PV12025
    TYPE IS V3277
    NAME IS CT112124
    .
ADD LTERM LT12025
    .
ADD PTERM PV12026
    TYPE IS V3277
    NAME IS CT084102
    .
ADD LTERM LT12026
    .
ADD PTERM PRT12001
    TYPE IS V3286
    ACQUIRE
    NAME IS FT064007
    FORMFEED
    .
ADD LTERM PRT12001
    PRINTER NOBANNER CLASS IS (8)
    .
ADD PTERM PRT12002
    TYPE IS V3286
    ACQUIRE
    NAME IS CT116015
    FORMFEED
    .
ADD LTERM PRT12002
    PRINTER NOBANNER CLASS IS (10)
    .
ADD PTERM PRT12003
    TYPE IS V3286
    ACQUIRE
    NAME IS FT068007
```

```
    FORMFEED
    .
ADD LTERM PRT12003
    PRINTER CLASS IS (25)
    .
*
*     UCF LINE
*
ADD LINE UCFLINE
    TYPE IS UCFLINE
    MODULE IS RHDCFSTB
    .
ADD PTERM UCFPT01
    TYPE IS UCFTERM
    .
ADD LTERM UCFLT01
    .
ADD PTERM UCFPT02
    TYPE IS UCFTERM
    .
ADD LTERM UCFLT02
    .
ADD PTERM UCFPT03
    TYPE IS UCFTERM
    .
ADD LTERM UCFLT03
    .
ADD PTERM UCFPT04
    TYPE IS UCFTERM
    .
ADD LTERM UCFLT04
    .
ADD PTERM UCFPT05
    TYPE IS UCFTERM
    NAME IS CLASS33
    .
ADD LTERM UCFLT05
    PRINTER CLASS IS (33 35)
    .
*
*     DIAL UP CONNECTIONS
*
ADD LINE DIALUP
    TYPE IS ASYNC
    DDNAME IS DIALUP
    .
ADD PTERM TP1262A
    SCREEN TYPE IS ADM
    TYPE IS ASR33
```

```
    UNIT IS 037
    .
ADD LTERM TL1262A
    .
*
*     BATCH SIMULATOR LINE
*
ADD LINE S3270Q1
    TYPE IS S3270Q
    INPUT DDNAME IS SIMIN1
    OUTPUT DDNAME IS SIMOUT1
    .
ADD PTERM PS3270Q1
    PRINTER CLASS IS 10
    TYPE IS S3277
    .
ADD LTERM LS3270Q1
    .
*
*     LASER PRINTER
*
ADD LINE LASER
    TYPE IS SYSOUTL
    DDNAME IS LASERDD
    .
ADD PTERM PLASER
    TYPE IS SYSOUTT
    PAGE LENGTH IS 66
    PAGE WIDTH IS 80
    .
ADD LTERM LLASER
    PRINTER NOBANNER CLASS IS (63)

  .
```

Appendix F: Tailoring the Banner Page

This appendix describes how to tailor the banner page on CA IDMS reports.

Specifying a Banner Page

Reports printed by CA IDMS optionally can begin with a banner page. You use the BANNER/NOBANNER parameter of the system generation LTERM statement to specify whether reports printed on a given printer have a banner page. The LTERM statement is described in LTERM Statement.

RHDCBANR Module

The text of the banner page is determined by the RHDCBANR module. The print program calls RHDCBANR repeatedly to obtain each line of the banner page.

You can tailor the banner page to meet site-specific needs. To do this, you modify the RHDCBANR source module. Then you assemble the source module and link edit the resulting module into the load (core-image) library.

To assemble and link-edit RHDCBANR, you must use SMP/E (z/OS) or MSHP (z/VSE). For instructions on using SMP/E and MSHP, see the *CA IDMS Installation and Maintenance Guide—z/OS* or the *CA IDMS Installation and Maintenance Guide—z/VSE*.

How the Banner Page is Built

When the print program calls RHDCBANR:

- **Register 1** points to the logical terminal element (LTE) of the printer on which the report is to be printed.
- **LTEQBUFA** contains the address of a 180-byte buffer.
- **LTERPEA** contains the address of the report element (RPE) for the report being printed.
- **RPEBCTR** contains the number of the banner page line that RHDCBANR is to supply. For each report, the print program sets RPEBCTR to zero before the first call to RHDCBANR.

RHDCBANR must build the next line of the banner page in the buffer identified by LTEQBUFA. Each banner page line should contain only the data to be printed. RHDCBANR should not place device-dependent line control characters in the buffer.

Additionally, RHDCBANR must set:

- **LTEPRLEN** to the length of the banner page line.
- **LTEPROPT** to X'00' for normal line spacing or to X'01' to cause a page eject before the line is printed.

RPEBCTR to the number of the banner page line to be built the next time the print program calls RHDCBANR. If no more banner page lines are to be printed, RPEBCTR should be set to 255.

Appendix G: TCAM Considerations

This appendix describes considerations that apply to DC sessions initiated from terminals on TCAM lines (that is, lines defined as TYPE IS TCAMLIN).

Initial Task Execution

You can define a DC/UCF task to be executed whenever a user initiates a DC/UCF session on a TCAM line. You can use the task to invoke a program such as the signon program (RHDCSNON), CA ADS runtime system (ADSORUN1), or a user defined map.

The DC/UCF task code must match the TCAM Message Control Program (MCP) application id that the user enters to initiate the DC/UCF session. Additionally, the DC/UCF task must be defined with the INPUT parameter.

For example, assume the TCAM MCP application id used to initiate a DC/UCF session is IDMS. If you include the following TASK statement in the DC/UCF system definition, the signon program is invoked automatically whenever a user initiates a session on a TCAM line:

```
ADD TASK IDMS
    INVOKES PROGRAM RHDCSNON
    INPUT
```

Disconnect Messages

DC/UCF issues either of two messages when it wants to terminate a session on a TCAM line:

- DC080101 LOGOFF - DISCONNECTED FROM IDMS-DC

  IDMS-DC/UCF issues this message when:

  - The terminal operator executes the BYE task.
  - The resource timeout interval for the terminal expires.
  - A user at another terminal issues a DCMT VARY PTERM DISCONNECT or VARY PTERM OFFLINE command for the terminal.

- DC080102 LOGOFF - NO AVAILABLE IDMS-DC PTERMS

  DC/UCF issues this message when a user attempts to initiate a session but all of the TCAM physical terminals are either in use, reserved for other terminals, or offline.

DC/UCF sends the message to the terminal from which the session was initiated. In the case of message DC080101, DC/UCF also disconnects the terminal from the physical terminal element (PTE).

You should write the TCAM MCP to scan for messages DC080101 and DC080102 in the output message handler. The TCAM MCP should terminate the DC/UCF session when the message handler detects either message.

Appendix H: IDMSLBLS Procedure for z/VSE JCL

This appendix lists the IDMSLBLS procedure referenced in z/VSE JCL in this document.

What is the IDMSLBLS Procedure

IDMSLBLS is a procedure provided during a CA IDMS z/VSE installation. It contains file definitions for the CA IDMS components listed below. These components are provided during installation:

- Dictionaries
- Sample databases
- Disk journal files
- SYSIDMS file

Tailor the IDMSLBLS procedure to reflect the file names and definitions in use at your site and include this procedure in z/VSE JCL job streams.

The sample z/VSE JCL provided in this document includes the IDMS.LBLS procedure. Therefore, individual file definitions for CA IDMS dictionaries, sample databases, disk journal files, and SYSIDMS. file are not included in the sample JCL.

IDMSLBLS Procedure Listing

```
* ———————— LIBDEFS ————————
// LIBDEF  *,SEARCH=idmslib.sublib
// LIBDEF  *,CATALOG=user.sublib
/*  ———————————————————— LABELS ————————————————————
// DLBL    idmslib,'idms.library',2099/365
// EXTENT  ,nnnnnn,,,ssss,1500
// DLBL    dccat,'idms.system.dccat',2099/365,DA
// EXTENT  SYSnnn,nnnnnn,,,ssss,31
// ASSGN   SYSnnn,DISK,VOL=nnnnnn,SHR
// DLBL    dccatl,'idms.system.dccatlod',2099/365,DA
// EXTENT  SYSnnn,nnnnnn,,,ssss,6
// ASSGN   SYSnnn,DISK,VOL=nnnnnn,SHR
// DLBL    dccatx,'idms.system.dccatx',2099/365,DA
// EXTENT  SYSnnn,nnnnnn,,,ssss,11
// ASSGN   SYSnnn,DISK,VOL=nnnnnn,SHR
// DLBL    dcdml,'idms.system.ddldml',2099/365,DA
// EXTENT  SYSnnn,nnnnnn,,,ssss,101
// ASSGN   SYSnnn,DISK,VOL=nnnnnn,SHR
// DLBL    dclod,'idms.system.ddldclod',2099/365,DA
// EXTENT  SYSnnn,nnnnnn,,,ssss,21
// ASSGN   SYSnnn,DISK,VOL=nnnnnn,SHR
// DLBL    dclog,'idms.system.ddldclog',2099/365,DA
// EXTENT  SYSnnn,nnnnnn,,,ssss,401
// ASSGN   SYSnnn,DISK,VOL=nnnnnn,SHR
// DLBL    dcrun,'idms.system.ddldcrun',2099/365,DA
// EXTENT  SYSnnn,nnnnnn,,,ssss,68
// ASSGN   SYSnnn,DISK,VOL=nnnnnn,SHR
// DLBL    dcscr,'idms.system.ddldcscr',2099/365,DA
// EXTENT  SYSnnn,nnnnnn,,,ssss,135
// ASSGN   SYSnnn,DISK,VOL=nnnnnn,SHR
// DLBL    dcmsg,'idms.sysmsg.ddldcmsg',2099/365,DA
// EXTENT  SYSnnn,nnnnnn,,,ssss,201
// ASSGN   SYSnnn,DISK,VOL=nnnnnn,SHR
// DLBL    dclscr,'idms.sysloc.ddlocscr',2099/365,DA
// EXTENT  SYSnnn,nnnnnn,,,ssss,6
// ASSGN   SYSnnn,DISK,VOL=nnnnnn,SHR
// DLBL    dirldb,'idms.sysdirl.ddldml',2099/365,DA
// EXTENT  SYSnnn,nnnnnn,,,ssss,201
// ASSGN   SYSnnn,DISK,VOL=nnnnnn,SHR
// DLBL    dirllod,'idms.sysdirl.ddldclod',2099/365,DA
// EXTENT  SYSnnn,nnnnnn,,,ssss,2
// ASSGN   SYSnnn,DISK,VOL=nnnnnn,SHR
// DLBL    empdemo,'idms.empdemo1',2099/365,DA
// EXTENT  SYSnnn,nnnnnn,,,ssss,11
// ASSGN   SYSnnn,DISK,VOL=nnnnnn,SHR
// DLBL    insdemo,'idms.insdemo1',2099/365,DA
// EXTENT  SYSnnn,nnnnnn,,,ssss,6
// ASSGN   SYSnnn,DISK,VOL=nnnnnn,SHR
```

```
// DLBL    orgdemo,'idms.orgdemo1',2099/365,DA
// EXTENT  SYSnnn,nnnnnn,,,ssss,6
// ASSGN   SYSnnn,DISK,VOL=nnnnnn,SHR
// DLBL    empldem,'idms.sqldemo.empldemo',2099/365,DA
// EXTENT  SYSnnn,nnnnnn,,,ssss,11
// ASSGN   SYSnnn,DISK,VOL=nnnnnn,SHR
// DLBL    infodem,'idms.sqldemo.infodemo',2099/365,DA

// EXTENT  SYSnnn,nnnnnn,,,ssss,6
// ASSGN   SYSnnn,DISK,VOL=nnnnnn,SHR
// DLBL    projdem,'idms.projseg.projdemo',2099/365,DA
// EXTENT  SYSnnn,nnnnnn,,,ssss,6
// ASSGN   SYSnnn,DISK,VOL=nnnnnn,SHR
// DLBL    indxdem,'idms.sqldemo.indxdemo',2099/365,DA
// EXTENT  SYSnnn,nnnnnn,,,ssss,6
// ASSGN   SYSnnn,DISK,VOL=nnnnnn,SHR
// DLBL    sysctl,'idms.sysctl',2099/365,SD
// EXTENT  SYSnnn,nnnnnn,,,ssss,2
// ASSGN   SYSnnn,DISK,VOL=nnnnnn,SHR
// DLBL    secdd,'idms.sysuser.ddlsec',2099/365,DA
// EXTENT  SYSnnn,nnnnnn,,,ssss,26
// ASSGN   SYSnnn,DISK,VOL=nnnnnn,SHR
// DLBL    dictdb,'idms.appldict.ddldml',2099/365,DA
// EXTENT  SYSnnn,nnnnnn,,,ssss,51
// ASSGN   SYSnnn,DISK,VOL=nnnnnn,SHR
// DLBL    dloddb,'idms.appldict.ddldclod',2099/365,DA
// EXTENT  SYSnnn,nnnnnn,,,ssss,51
// ASSGN   SYSnnn,DISK,VOL=nnnnnn,SHR
// DLBL    sqldd,'idms.syssql.ddlcat',2099/365,DA
// EXTENT  SYSnnn,nnnnnn,,,ssss,101
// ASSGN   SYSnnn,DISK,VOL=nnnnnn,SHR
// DLBL    sqllod,'idms.syssql.ddlcatl',2099/365,DA
// EXTENT  SYSnnn,nnnnnn,,,ssss,51
// ASSGN   SYSnnn,DISK,VOL=nnnnnn,SHR
// DLBL    sqlxdd,'idms.syssql.ddlcatx',2099/365,DA
// EXTENT  SYSnnn,nnnnnn,,,ssss,26
// ASSGN   SYSnnn,DISK,VOL=nnnnnn,SHR
// DLBL    asfdml,'idms.asfdict.ddldml',2099/365,DA
// EXTENT  SYSnnn,nnnnnn,,,ssss,201
// ASSGN   SYSnnn,DISK,VOL=nnnnnn,SHR
// DLBL    asflod,'idms.asfdict.asflod',2099/365,DA
// EXTENT  SYSnnn,nnnnnn,,,ssss,401
// ASSGN   SYSnnn,DISK,VOL=nnnnnn,SHR
// DLBL    asfdata,'idms.asfdict.asfdata',2099/365,DA
// EXTENT  SYSnnn,nnnnnn,,,ssss,201
// ASSGN   SYSnnn,DISK,VOL=nnnnnn,SHR
// DLBL    ASFDEFN,'idms.asfdict.asfdefn',2099/365,DA
// EXTENT  SYSnnn,nnnnnn,,,ssss,101
// ASSGN   SYSnnn,DISK,VOL=nnnnnn,SHR
// DLBL    j1jrnl,'idms.j1jrnl',2099/365,DA
```

```
// EXTENT   SYSnnn,nnnnnn,,,ssss,54
// ASSGN    SYSnnn,DISK,VOL=nnnnnn,SHR
// DLBL     j2jrnl,'idms.j2jrnl',2099/365,DA
// EXTENT   SYSnnn,nnnnnn,,,ssss,54
// ASSGN    SYSnnn,DISK,VOL=nnnnnn,SHR
// DLBL     j3jrnl,'idms.j3jrnl',2099/365,DA
// EXTENT   SYSnnn,nnnnnn,,,ssss,54
// ASSGN    SYSnnn,DISK,VOL=nnnnnn,SHR
// DLBL     SYSIDMS,'#SYSIPT',0,SD
/+
/*
```

idmslib.sublib	Name of the sublibrary within the library containing CA IDMS modules
user.sublib	Name of the sublibrary within the library containing user modules
idmslib	Filename of the file containing CA IDMS modules
idms.library	File-ID associated with the file containing CA IDMS modules
SYSnnn	Logical unit of the volume for which the extent is effective
nnnnnn	Volume serial identifier of appropriate disk volume
ssss	Starting track (CKD) or block (FBA) of disk extent
dccat	Filename of the system dictionary catalog (DDLCAT) area
idms.system.dccat	File-ID of the system dictionary catalog (DDLCAT) area
dccatl	Filename of the system dictionary catalog load (DDLCATLOD) area
idms.system.dccatlod	File-ID of the system dictionary catalog load (DDLCATLOD) area
dccatx	Filename of the system dictionary catalog index (DDLCATX) area
idms.system.dccatx	File-ID of the system dictionary catalog index (DDLCATX) area
dcdml	Filename of the system dictionary definition (DDLDML) area
idms.system.ddldml	File-ID of the system dictionary definition (DDLDML) area

dclod	Filename of the system dictionary definition load (DDLDCLOD) area
idms.system.ddldclod	File-ID of the system dictionary definition load (DDLDCLOD) area
dclog	Filename of the system log area (DDLDCLOG) area
idms.system.ddldclog	File-ID of the system log (DDLDCLOG) area
dcrun	Filename of the system queue (DDLDCRUN) area
idms.system.ddldcrun	File-ID of the system queue (DDLDCRUN) area
dcscr	Filename of the system scratch (DDLDCSCR) area
idms.system.ddldcscr	File-ID of the system scratch (DDLDCSCR) area
dcmsg	Filename of the system message (DDLDCMSG) area
idms.sysmsg.ddldcmsg	File-ID of the system message (DDLDCMSG) area
dclscr	Filename of the local mode system scratch (DDLOCSCR) area
idms.sysloc.ddlocscr	File-ID of the local mode system scratch (DDLOCSCR) area
dirldb	Filename of the IDMSDIRL definition (DDLDML) area
idms.sysdirl.ddldml	File-ID of the IDMSDIRL definition (DDLDML) area
dirllod	Filename of the IDMSDIRL definition load (DDLDCLOD) area
idms.sysdirl.dirllod	File-ID of the IDMSDIRL definition load (DDLDCLOD) area
empdemo	Filename of the EMPDEMO area
idms.empdemo1	File-ID of the EMPDEMO area
insdemo	Filename of the INSDEMO area
idms.insdemo1	File-ID of the INSDEMO area
orgdemo	Filename of the ORGDEMO area
idms.orgdemo1	File-ID of the ORDDEMO area
empldem	Filename of the EMPLDEMO area
idms.sqldemo.empldemo	File-ID of the EMPLDEMO area
infodem	Filename of the INFODEMO area
idms.sqldemo.infodemo	File-ID of the INFODEMO area
projdem	Filename of the PROJDEMO area

idms.projseg.projdemo	File-ID of the PROJDEMO area
indxdem	Filename of the INDXDEMO area
idms.sqldemo.indxdemo	File-ID of the INDXDEMO area
sysctl	Filename of the SYSCTL file
idms.sysctl	File-ID of the SYSCTL file
secdd	Filename of the system user catalog (DDLSEC) area
idms.sysuser.ddlsec	File-ID of the system user catalog (DDLSEC) area
dictdb	Filename of the application dictionary definition area
idms.appldict.ddldml	File-ID of the application dictionary definition (DDLDML) area
dloddb	Filename of the application dictionary definition load area
idms.appldict.ddldclod	File-ID of the application dictionary definition load (DDLDCLOD) area
sqldd	Filename of the SQL catalog (DDLCAT) area
idms.syssql.ddlcat	File-ID of the SQL catalog (DDLCAT) area
sqllod	Filename of the SQL catalog load (DDLCATL) area
idms.syssql.ddlcatl	File-ID of SQL catalog load (DDLCATL) area
sqlxdd	Filename of the SQL catalog index (DDLCATX) area
idms.syssql.ddlcatx	File-ID of the SQL catalog index (DDLCATX) area
asfdml	Filename of the ASF dictionary definition (DDLDML) area
idms.asfdict.ddldml	File-ID of the ASF dictionary definition (DDLDML) area
asflod	Filename of the ASF dictionary definition load (ASFLOD) area
idms.asfdict.asflod	File-ID of the ASF dictionary definition load (ASFLOD) area
asfdata	Filename of the ASF data (ASFDATA) area
idms.asfdict.asfdata	File-ID of the ASF data area (ASFDATA) area
ASFDEFN	Filename of the ASF data definition (ASFDEFN) area
idms.asfdict.asfdefn	File-ID of the ASF data definition area (ASFDEFN) area
j1jrnl	Filename of the first disk journal file
idms.j1jrnl	File-ID of the first disk journal file

j2jrnl	Filename of the second disk journal file
idms.j2jrnl	File-ID of the second disk journal file
j3jrnl	Filename of the third disk journal file
idms.j3jrnl	File-ID of the third disk journal file
SYSIDMS	Filename of the SYSIDMS parameter file

Appendix I: SYSGEN User-Exit Program

This section contains the following topics:

When a User Exit is Called

The SYSGEN user-exit module is called by the system generation compiler when it encounters any of these four points:

- **SIGNON/SIGNOFF/COMMIT**

  After the signon procedure is complete and the compiler's security checks have been passed, or immediately after signoff or COMMIT processing.

- **Major command**

  After an ADD, MODIFY, DELETE, DISPLAY or PUNCH request has been issued. The program is invoked just after the system generation compiler has identified the entity that is the object of the request and has successfully checked authorization requirements. Object entities can be any standard system generation entity type.

- **Card image**

  After each input statement (card image) is passed to the user-exit control block after the statement has been:

  - Scanned and printed on the SYSGEN Compiler Activity List
  - Displayed at the terminal
  - Written to the print file (online SYSGEN compiler interface only)

  The administrator can build an audit trail of accesses and updates to the dictionary.

- **End of converse**

  When one of the following occurs, the user can perform a termination activity, such as a write-to-log:

  - The user presses ENTER during an online SYSGEN compiler session
  - A batch run of the SYSGEN compiler processes a SIGNOFF statement
  - A batch run of the SYSGEN compiler detects an end-of-file condition.

Rules for Writing the User-exit Program

This section describes the rules that apply to writing the user-exit program.

Language

You can write the user-exit module in any language that supports OS calling conventions. However, it is recommended that you write user-exit modules in Assembler to allow the online SYSGEN compiler to remain reentrant.

Note: User-exit modules cannot be CA ADS dialogs.

Versions

You can code and maintain separate versions of user-exit modules for the batch and online SYSGEN compilers, or you can code modules that can be executed both in batch mode and online.

Macros

The user-exit facility supports all CA IDMS/DB macros for exits to be used with the online SYSGEN compiler. For exits to be used with the batch SYSGEN compiler, the only CA IDMS/DB macros supported are: #WTL, #ABEND, #GETSTG, #FREESTG, #LOAD, and #DELETE; under DOS/VS(E), the only valid form of #DELETE is EPADDR=.

Run units

You can start a run unit within an exit, however you should ensure that the run unit does not deadlock with the SYSGEN compiler run unit. If a user-exit run unit accesses a dictionary area, the run unit should ready the object area in a retrieval usage mode.

Entry point

The entry point of the user exit invoked by the batch and online compilers differ.

Compiler Name	Description	User Exit Entry Point
RHDCSGEN	Batch system generation compiler	SGNEXITB
RHDCSGDC	Online system generation compiler	SGNEXITO

Although each exit has a unique entry point name, you can use the same exit code for more than one compiler by assigning multiple entry point names to the same set of code.

Enabling a compiler exit

To enable a user exit for the system generation compiler, link your exit module with IDMSUXIT.

Note: For more information on how to enable user exits by linking them with IDMSUXIT, refer to the "User Exits" section in the CA IDMS Systems Operations Guide.

Interface

User exits written in COBOL to run under the online SYSGEN compiler require a user-exit interface, written in Assembler with an entry point of SGNEXITO, to be link edited with IDMSUXIT. This interface should issue a #LINK to the COBOL program (with an entry point other than RHDCSGDC) to isolate it from RHDCSGDC, which is storage protected.

Register conventions

User-exit modules are called using the following OS register conventions:

```
R15       Entry point of user exit module
R14       Return address

R13       18 fullword SAVEAREA

R1        Fullword parameter list
```

Parameters 3 and 4

For all four types of user exits, parameter 1 points to a user-exit control block and parameter 2 points to a SIGNON element block. The information addressed in parameters 3 and 4 varies based on the type of user exit, as follows:

- For the **SIGNON/SIGNOFF/COMMIT** and **end-of-conversation** exits, parameter 3 points to a SIGNON block.
- For the **major command user exit**, parameter 3 points to an entity control block.
- For the **card-image** user exit, parameter 3 points to a card-image control block.
- For **all user exits except the card-image user exit**, parameter 4 is reserved for use by the SYSGEN compiler and should be defined as a PIC X(80) field in the user-exit module.
- For the **card-image user exit**, parameter 4 points to the input card image, which is defined as a PIC X(80) field.

The user-exit control blocks are described later in this appendix.

Information modification

With the exception of the fields identified within the user-exit control block described below, a user-exit module should not modify any of the information passed.

Return codes

On return from a user-exit module, the user must set a return code and, optionally, specify a message ID and message text to be issued by the system generation compiler, as follows:

Code	SYSGEN action
0	No message is issued; SYSGEN continues with normal processing.
1	An informational message is issued; SYSGEN continues with normal processing.
4	An error message is issued; SYSGEN initiates error processing.

Control Blocks and Sample User-exit Programs

This section presents the formats of these five control blocks:

- User-exit control block
- SIGNON element block
- SIGNON block
- Entity control block
- Card-image control block

User-exit Control Block

The following table shows how to define the user-exit control block:

Field	Usage	Size	Picture	Description
1	Char	8	X(8)	Compiler name: RHDCSGEN
2	Char	8	X(8)	Compiler start date: mm/dd/yy
3	Char	8	X(8)	Compiler start time: hhmmssmm
4	Binary	4	S9(8) COMP	User field initialized to 0 (for use by reentrant modules as a pointer to their work area)
5	Binary	4	S9(8) COMP	User return code (described below)

Field	Usage	Size	Picture	Description
6	Char	8	X(8)	Message ID returned by user, in the range DC900000 through DC999999, or any 6-digit number; blank if no message is returned
7	Char	80	X(80)	Message text returned by user

SIGNON Element Block

The following table shows how to define the SIGNON element block:

Field	Usage	Size	Picture	Description
1	Binary	1	X	Length of user ID for #WTLs (not addressable by COBOL)
2	Char	32	X(32)	SIGNON user ID

SIGNON Block

The following table shows how to define the SIGNON block:

Field	Usage	Size	Picture	Description
1	Char	16	X(16)	SIGNON, SIGNOFF, COMMIT or END-OF-CONVERSE statement
2	Char	8	X(8)	SIGNON dictionary name
3	Char	8	X(8)	SIGNON node name
4A	CHAR	32	X(32)	User ID
5	Binary	2	S9(4)	DDLDML area usage mode: 36=UPDATE; 38=PROTECTED UPDATE;37=RETRIEVAL
6	Binary	2	S9(4)	DDLDCLOD area usage mode
7	Binary	2	S9(4)	DDLDCMSG area usage mode
8	Binary	10	X(10)	Reserved

Note: Each bit in flag 0 and flag 1 must be tested separately. More than one bit may be on at any one time.

Entity Control Block

The following table shows how to define the entity control block:

Field	Usage	Size	Picture	Description
1	Char	16	X(16)	Major command (ADD, MODIFY, DELETE, DISPLAY, or PUNCH).
2	Char	32	X(32)	Entity type
3	Char	40	X(40)	Entity occurrence
4	Binary	2	S9(4)	Entity version number or number of records requested
5	Char	64	X(64)	Additional Qualifier (not used)
6	Char	32	X(32)	PREPARED BY user ID
7	Char	32	X(32)	REVISED BY user ID

Card-image Control Block

The following table shows how to define the card-image control block:

Field	Usage	Size	Picture	Description
1	Char	16	X(16)	'CARD IMAGE' command
2	Binary	2	S9(8)	Input low-card column
3	Binary	2	S9(8)	Input high-card column

Sample User-exit Program

The following sample user-exit program can be used to enforce naming conventions for elements in the batch and online versions of the system generation compiler. The source code for this program can be found in the installation source library under member name IDDSUXIT.

```
*********************************************************************
IDDUXIT  TITLE 'NAMING CONVENTION CHECKER'
*********************************************************************
*
*
*  PROGRAM NAME : IDDUXIT
*
*  DATE         : mm/dd/yy
*
*
*  DESCRIPTION  : THIS IS AN EXAMPLE OF A USER EXIT.  THIS PROGRAM
*                 SHOWS HOW A SHOP COULD CHECK THE ENTITY NAMES FOR
*                 A SHOP STANDARD.  ANY VIOLATIONS OF THE NAMING
*                 CONVENTION ARE TREATED AS AN ERROR AND THE ACTION
*                 (ADD, MOD, DEL) IS NOT ALLOWED.
*********************************************************************
IDDUXIT  CSECT
         #REGEQU
         ENTRY SGNEXITO
SGNEXITO DS    0H                    Online SYSGEN compiler entry
         ENTRY SGNEXITB
SGNEXITB DS    0H                    Batch SYSGEN compiler entry
*********************************************************************
*        SET UP ADDRESSABILITY                                      *
*********************************************************************
         STM   R14,R12,12(R13)      SAVE CALLERS REGISTERS
         LR    R12,R15
         USING IDDUXIT,R12
         L     R4,12(R1)             GET THE
         L     R3,8(R1)                 CORRECT
         L     R2,4(R1)                    PARAMETER
         L     R1,0(R1)                       ADDRESSES
*
IDDUXITR DS    0H                    BASE THE CONTROL BLOCKS
*
         USING UXITCB,R1             USER EXIT CONTROL BLOCK
         MVC   UXITRCDE,F0           ZERO OUT THE RETURN CODE
         MVC   UXITMID(8),BLANKS     BLANK OUT THE MESSAGE ID
         MVC   UXITMTXT(80),BLANKS   BLANK OUT THE MESSAGE
*
*********************************************************************
*        INTERROGATE THE MAJOR COMMAND                              *
```

```
*********************************************************************
*
         SPACE
UXIENTY  EQU   *
         USING UXITECB,R3           ENTITY CONTROL BLOCK
*
         CLC   UXITEVRB,UXICSON       IS IT AN SIGNON?
         BE    USIGNON                  YES, CHECK THE USER NAME
*
         CLC   UXITEVRB,UXICARD       IS IT AN CARD IMAGE EXIT?
         BE    UCARD                    YES, CHECK THE CARD
*
         CLC   UXITEVRB,UXICADD       IS IT AN ADD?
         BE    UXIECHK                  YES, CHECK THE ENTITY-NAME
*
         CLC   UXITEVRB,UXICMOD       IS IT A MODIFY?
         BE    UXIECHK                  YES, CHECK THE ENTITY-NAME
*
         CLC   UXITEVRB,UXICDEL       IS IT A DELETE?
         BE    UXIECHK                  YES, CHECK THE ENTITY-NAME
*                                       NO
         MVC   UXITMID(8),ELSEID     MOVE IN 'ELSE' MESSAGE ID
         MVC   UXITMTXT(80),ELSEMSG  MOVE IN 'ELSE' MESSAGE
         B     UXIEBYE
*
*********************************************************************
*        CHECK THE CARD IMAGE                                       *
*********************************************************************
*
         SPACE
UCARD    EQU   *
*
         MVC   UXITMID(8),CARDID     FILL IN THE MESSAGE ID
         MVC   UXITMTXT(80),CARDMSG  FILL IN THE MESSAGE TEXT
         B     UXIEBYE               BACK TO THE COMPILER
*
*********************************************************************
*        CHECK THE USER NAME FOR ME                                 *
*********************************************************************
*
         SPACE
USIGNON  EQU   *
*
         USING UXITSEB,R2           SIGNON ELEMENT BLOCK
         USING UXITSB,R3            SIGNON BLOCK
*
         CLC  UXITUSER(3),WHOME     IS IT ME
         BE   UXIEDC                YES GO CHECK FOR DC NAME
*                                   NO, GO TO JAIL, GO DIRECTLY TO
```

```
*                                   JAIL, DO NOT PASS GO DO NOT
USNAME   EQU   *                    COLLECT $200.
         MVC   UXITRCDE,F8          FILL IN THE RETURN CODE
         MVC   UXITMID(8),NOSNID    FILL IN THE MESSAGE ID
         MVC   UXITMTXT(80),NOSNMSG FILL IN THE MESSAGE TEXT
         B     UXIEBYE              BACK TO THE COMPILER
*
UXIEDC   EQU   *
         TM    UXITFLG1,UXIT1DC     ARE WE RUNNING DC
         BZ    UXIEBYE              NO, SKIP DC ID CHECK
*
         CLC   UXITUSER,UXITIUSR    IS THE USER THE SAME AS DC
         BE    UXIEBYE              YES, OK LET IT PASS
*                                   NO, DON'T LET THEM SIGNON
         MVC   UXITRCDE,F8          FILL IN THE RETURN CODE
         MVC   UXITMID(8),NODCID    FILL IN THE MESSAGE ID
         MVC   UXITMTXT(80),NODCMSG FILL IN THE MESSAGE TEXT
         B     UXIEBYE              BACK TO THE COMPILER
*
*********************************************************************
*        CHECK THE ENTITY-NAME FOR VALID NAMING CONVENTION          *
*********************************************************************
*
         SPACE
UXIECHK  EQU   *
         USING UXITECB,R3           ENTITY CONTROL BLOCK
*
         CLC   UXITENME(3),NAMECHK  DOES THE NAME FOLLOW THE RULES?
         BE    UXIEBYE                YES, LET THIS ONE PASS.
*                                     NO, RETURN AN ERROR
*
         MVC   UXITRCDE,F8          FILL IN THE RETURN CODE
         MVC   UXITMID(8),NONOID    FILL IN THE MESSAGE ID
         MVC   UXITMTXT(80),NONOMSG FILL IN THE MESSAGE TEXT
*
*********************************************************************
*        RETURN BACK TO THE COMPILER                                *
*********************************************************************
*
         SPACE
UXIEBYE  EQU   *
         LM    R14,R12,12(R13)      RELOAD CALLER'S REGISTERS
         BR    R14                  RETURN TO CALLER
         EJECT
*********************************************************************
*        CONSTANTS AND LITERALS                                     *
*********************************************************************
UXICADD  DC    CL16'ADD             '
UXICMOD  DC    CL16'MODIFY          '
```

```
UXICDEL  DC    CL16'DELETE          '
UXICSON  DC    CL16'SIGNON          '
UXICARD  DC    CL16'CARD IMAGE      '
NAMECHK  DC    CL3'XYZ'
WHOME    DC    CL3'XYZ'
WKLEN    DC    F'100'
NONOID   DC    CL8'DC999001'
NONOMSG  DC    CL80'NAMING CONVENTION VIOLATED - ACTION NOT ALLOWED'
NOSNID   DC    CL8'DC999002'
NOSNMSG  DC    CL80'SIGNON ERROR - USER NOT ALLOWED ACCESS'
NODCID   DC    CL8'DC999003'
NODCMSG  DC    CL80'SIGNON ERROR - USER NAME NOT DC USER NAME'
CARDID   DC    CL8'DC999004'
CARDMSG  DC    CL80'MESSAGE PRODUCED BY CARD IMAGE EXIT          '
ELSEID   DC    CL8'DC999005'
ELSEMSG  DC    CL80'MESSAGE PRODUCED BY CARD IMAGE EXIT          '
BLANKS   DC    CL80' '
F0       DC    F'0'              NORMAL RETURN CODE - NO ERRORS
F2       DC    F'1'              INFORMATION MESSAGE
F4       DC    F'4'              WARNING MESSAGE
F8       DC    F'8'              ERROR MESSAGE
*
*********************************************************************
*        USER EXIT CONTROL BLOCK                                    *
*********************************************************************
UXITCB   DSECT
UXITCPLR DS    CL8           COMPILER NAME 'RHDCSGEN'
UXITDATE DS    CL8           COMPILER START DATE MM/DD/YY
UXITTIME DS    CL8           COMPILER START TIME HHMMSSMM
UXITWORK DS    F             USER FULLWORD INITIALIZED TO 0
UXITRCDE DS    0F            RETURN CODE RETURNED BY USER
         DS    XL3           UNUSED
UXITRC   DS    X
UXITRC00 EQU   X'00'              NORMAL RETURN CODE - NO ERRORS
UXITRC01 EQU   X'01'              INFORMATION MESSAGE
UXITRC04 EQU   X'04'              WARNING MESSAGE
UXITRC08 EQU   X'08'              ERROR MESSAGE
UXITMID  DS    CL8           USER MESSAGE ID RETURNED BY USER
UXITMTXT DS    CL80          USER MESSAGE TEXT RETURNED BY USER
UXITCBLN EQU   *-UXITCB      USER EXIT CONTROL BLOCK LENGTH
*
*********************************************************************
*        USER EXIT SIGNON ELEMENT BLOCK                             *
*********************************************************************
UXITSEB  DSECT
UXITIDLN DS    X             LENGTH OF USERID FOR #WTL'S
UXITUSER DS    CL32          USER ID
         DS    0A            ROUND UP TO FULLWORD
UXITSNLN EQU   *-UXITSEB     LENGTH OF SIGNON ELEMENT
```

```
*
*********************************************************************
*        USER EXIT SIGNON BLOCK                                     *
*********************************************************************
UXITSB   DSECT
UXITTYPE DS    CL16          VERB
UXITDICT DS    CL8           DICTIONARY NAME
UXITNODE DS    CL8           NODE NAME
UXITIUSR DS    CL32          USER ID

UXITIPSW DS    CL8           USER'S PASSWORD
UXITFLG0 DS    CL1           ENVIRONMENT FLAG
UXIT0DOS EQU   X'80'           COMPILER RUNNING UNDER DOS
UXIT0MEN EQU   X'40'           RUNNING UNDER 'MENU' MODE
UXITFLG1 DS    CL1           ENVIRONMENT FLAG
UXIT1LCL EQU   X'80'           RUNNING IN INTERNAL SUBROUTINE MODE
UXIT1DC  EQU   X'40'           COMPILER RUNNING UNDER DC
         DS    CL2           RESERVED FOR FUTURE FLAGS
         DS    CL20          RESERVED
UXITDMLM DS    H             DDLDML USAGE MODE
*                                36=UPDATE
*                                37=PROTECTED UPDATE
*                                38=RETRIEVAL
UXITLODM DS    H             DDLDCLOD USAGE MODE
UXITMSGM DS    H             DDLDCMSG USAGE MODE
         DS    CL10          RESERVED
UXITSLEN EQU   *-UXITSB      LENGTH OF USER EXIT SIGNON BLOCK
*
*********************************************************************
*        USER EXIT ENTITY CONTROL BLOCK                             *
*********************************************************************
UXITECB  DSECT
UXITEVRB DS    CL16          VERB
UXITENTY DS    CL32          ENTITY-TYPE
UXITENME DS    CL40          ENTITY NAME
UXITEVER DS    H             VERSION
UXITEADQ DS    CL64          ADDITIONAL QUALIFIER
UXITPREP DS    CL32          PREPARED BY USER NAME
UXITREV  DS    CL32          REVISED BY USER NAME
UXITELEN EQU   *-UXITECB     LENGTH OF USER EXIT ENTITY CONTROL BLK
*
*********************************************************************
*        END OF EXIT                                                *
*********************************************************************
         END
```

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