INTERCOMM

PLANNING GUIDE

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Planning Guide

Publishing History

Publication	Date	Remarks
First Edition	September 1973	This manual corresponds to Intercomm Release 6.0.
Second Edition	March 1976	Corresponding to Intercomm Release 7.0.
Third Edition	September 1978	Corresponding to Intercomm Release 8.0.
Fourth Edition	December 1982	Corresponding to Intercomm Release 9.0.
Fifth Edition	April 1988	Corresponding to Intercomm Release 10.
Sixth Edition	January 1995	Additions for Intercomm Release 10 through SM level 2300.
Seventh Edition	May 1998	Corresponding to Intercomm Release 11.

PREFACE

Intercomm is a state-of-the-art teleprocessing monitor system executing on the IBM System/390 family of computers and operating under the control of IBM Operating Systems (ESA and OS/390). Intercomm monitors the transmission of messages to and from terminals, concurrent message processing, centralized access to I/O files, and the routine utility operations of editing input messages and formatting output messages, as required.

The Intercomm product is under continual development designed to keep the system at the forefront of computer technology. This document describes the incremental enhancements that have been added to our latest release, Release 11. This release represents a major technology upgrade, incorporating many new features that improve system reliability, ease on-line programming requirements, and facilitate maintenance and installation.

This manual provides a synopsis of each of the Release 11 features. While every attempt has been made to ensure the technical accuracy of data in this document, the reader should refer to the various system technical documents for feature implementation specifics.

It is assumed the reader has a basic familiarity with the Intercomm Teleprocessing Monitor System, its features and tables.

INTERCOMM PUBLICATIONS

GENERAL INFORMATION MANUALS

- Concepts and Facilities
- Planning Guide

APPLICATION PROGRAMMERS MANUALS

- Assembler Language Programmers Guide
- COBOL Programmers Guide
- PL/1 Programmers Guide

SYSTEM PROGRAMMERS MANUALS

- Basic System Macros
- BTAM Terminal Support Guide
- Installation Guide
- Messages and Codes
- Operating Reference Manual
- System Control Commands

CUSTOMER INFORMATION MANUALS

- Customer Education Course Catalog
- Technical Information Bulletins
- User Contributed Program Description

FEATURE IMPLEMENTATION MANUALS

- Autogen Facility
- ASMF Users Guide
- DBMS Users Guide
- Data Entry Installation Guide
- Data Entry Terminal Operators Guide
- Dynamic Data Queuing Facility
- Dynamic File Allocation
- Extended Security System
- File Recovery Users Guide
- Generalized Front End Facility
- Message Mapping Utilities
- Multiregion Support Facility
- Page Facility
- Store/Fetch Facility
- SNA Terminal Support Guide
- Table Facility
- TCAM Support Users Guide
- Utilities Users Guide

EXTERNAL FEATURES MANUALS

- SNA LU6.2 Support Guide

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Chapter 1

INTRODUCTION

Release 11 of Intercomm contains extensive and significant improvements, affecting many areas of the Intercomm teleprocessing monitor. Among the Release 11 features are:

- Incorporation of Release 10 Experimental SM's developed post SM Level 2300
- Addition of written and telephoned requests from users
- Incorporation of funded development enhancements
- New options and features
- Statistics gathering/reporting enhancements
- Performance and reliability improvements
- Debugging aids
- Eased restrictions
- On-line system maintenance and display command upgrades
- Virtual storage constraint relief

Testing procedures for Release 11 included both extensive in-house testing and field Beta testing at several user sites which were chosen for the variety of options to be tested and representative operating systems in use. As a result of this procedure, users are assured of a stable release, and that upgrading to Release 11 can be accomplished smoothly.

In the following chapter, the Release 11 enhancements are described in detail, along with the accompanying documentation upgrades, and conversion considerations for current users of Intercomm.

Many of the enhancements are in production at one or more Release 10 sites. All of the enhancements are in production at one of the Release 11 Beta test sites.

The lowest IBM Operating System configuration level supported by this release of Intercomm is ESA 4.3 with the new version of the TIME macro (having the LINKAGE and DATETYPE parameters), DFSMS 1.2, and VTAM 3.4. HLASM (High-Level Assembler) and the DFSMS Binder are also required for assemblies and linkedits of Intercomm modules.

Chapter 2

RELEASE 11 FEATURES

2.1 FEATURE CATEGORIES

For convenience and planning purposes, the Release 11 enhancements and new features have been grouped into the following categories:

- General system enhancements
- General system improvements
- User Exit changes
- Desupported facilities
- User program processing optimizations
- Virtual Storage constraint relief
- Statistics gathering and system display/report upgrades
- VTAM Front End changes
- System control command changes and additions.
- ESS (Extended Security System) enhancements

For each of these categories, the individual items will be described together with the impact, if any, on system externals. Some of these improvements were originally available and tested as Experimental SMs. However, the interrelationship with other enhancements necessitated incorporation and modification of such code into official Release 11.

2.2 GENERAL SYSTEM ENHANCEMENTS

System enhancements described in detail in the following subsections are:

- Year 2000 compliance
- OS/390 compatibility
- Storage Management reliability checking and recovery
- 31-Amode dynamic storage and pools support
- Dynamic LU support
- Procs using Assembler H upgraded to Hi-Level Assembler (HLASM)
- Procs using the Linkage Editor revised to use the Binder
- High thread count warning of system slowdown
- BMN back-off (to Release 9 2-byte field) automatic installation generation, if desired
- Multiregion now supports multiple MRS systems in one CPU (LPAR)

2.2.1 Year 2000 Compliance

The following changes were made to provide Intercomm Year 2000 compliance:

- Modify INTTIME, GETDATE macros for 4-digit year: return date as ccyyddds packed field. Both macros are downward compatible to R10, except that the date in R1 is yyyyddds, not 00yyddds. Note that GETDATE uses the value in CVTDATE and modifies the high-byte, and has been replaced in on-line modules with INTTIME.

- In the INTTIME-generated TIMESECT Csect, simulate the ESA TIME macro with LINKAGE=SYSTEM and DATETYPE=YYYYDDD, and DEC (default time) or BIN or MIC to get the date and then convert it to a packed field to return in R1, and load the time to R0 if DEC (default) or BIN option used on the INTTIME macro, or pass back MIC time, if requested. **This will allow date/time simulation software** (such as Isogon's TICTOC) **to be used for testing**. Also in TIMESECT, use STCK to get the TU time if requested (only used by Dispatcher and modules looking at Dispatcher WQE's) and return the result in R0 (LINKAGE=SYSTEM version of ESA TIME macro does not support the TU parameter), and return the 4-digit year in R1. Note that STCK as a parameter for the INTTIME macro is not supported (not needed).

- Replace TIME (LINKAGE=SVC) with INTTIME in on-line modules where date needed: BTAMSIM, DDQMOD, LOGINPUT, PMIOUTPT, PMISIGN, SIM3270.

- Revise PMIDATER to put 5-byte packed 0mmddyyyys in new SPADATEC field in SPA: (replaces old V(PMIDATER) - not needed) and to correct leap-year recognition, change STARTUP3 to use V(PMIDATER) and move the call earlier so SPADATE (0mmddyys) and SPADATEC are set earlier in startup.

- Revise the Dispatcher (IJKDSP01) to immediately recognize that midnight has passed, and then to immediately call (not dispatch) PMIDATER to update SPADATE and SPADATEC.

- Change modules now using SPADATE to use SPADATEC: SSRPT, SUBRPT, USRSTART, USRCLOSE (do not change INTDE030 - Data Entry feature no longer used).

- Fix on-line system report/statistics modules to use SPADATEC: TDUMP, IJKTRACE, INTSTS, IXFRPT01, RMTRACE.

- Fix SYSCNTL: SCTL$TDUMP$nnn$TID display - change yy.ddd to yyyy.ddd in header.

- Fix POOLDUMP: add time/date stamp to header, process a line count (60 per page).

- Add date to TALY command TIME and REGION trailer line (fix TALLY and RPT00043).

- Modify utility/report programs to use TIME macro with LINKAGE=SYSTEM to get time and date for report header - LOGPRINT, DDQPRT, PMILOAD, SFDMPRST (add header).

- Modify ESS modules for 4-digit years, provide update utility - see Section 2.11 - ESS (Extended Security System) Enhancements.

- Do not change size of MSGHYR in message header (LOGPUT), do not change text of PMIWTO message FR999I (RECREATION START POINT .....).

- Check programs referencing MSGHYR: IXFCREAT, IXFSNAPL, LOGMERGE - no change needed.

- Ensure no problem with Checkpoint/Message Restart across millenium: CHECKPT3, LOGPROC, RESTORE3(change TIME macro to INTTIME).

- Ensure batch programs referencing Log fixed for date comparisons over millenium wrap from '99 to '00: LOGPRINT, LOGMERGE, IXFCREAT, ICOMFEOF.

- Fix Log Analysis programs for report date, leap years, and millenium wrap: JULIAND, LOGANAL, LOGANE15, LOGRESP, LOGOPTNS (internal macro).

- For SPINOFF and FASTSNAP - do not change date field in snap data set name (now yyddd) as it may affect user data set scan programs (to delete expired snaps), and/or user data set name modifications.

- For MMUC$DATE command: note that the date is taken from &SYSDATE generated at Assembly time. Because generating a 4-digit year would require reassembly, link, then load of all map groups for all systems (regions), the date is modified in the subsystem (MMUCOMM) to display a 4-digit year.

- Update ASMF (IAIM...) Cross-reference modules for 4-digit year in reports. (To be supplied with first SM tape.)

NOTE: starting and ending date parameters for LOGPRINT and LOGANAL are in the form yyddd, as previously.

Documentation Changes:	Basic System Macros Operating Reference Manual System Control Commands File Recovery Users Guide ASMF Users Guide
New External Options:	None. Review all user programs issuing INTTIME or GETDATE macro for impact of 4-digit year.
Installation:	Automatic (ensure new Intercomm version of internal TIMESECT Csect is in the linkedit before user programs issuing INTTIME macro which were not reassembled).

2.2.2 OS/390 Compatibility

The following changes and enhancements have been made to provide OS/390 compliance and compatibility:

- Supplied JCL procs have been changed, as applicable, to execute the HLASM (High-Level) Assembler called ASMA90, as described in Section 2.2.6.

- Supplied JCL procs have been changed to execute the DFSMS Binder (LINKEDIT), as applicable. Also, AM and RM parameters have been added to specify execution AMODE and RMODE of the load module, if needed. See Section 2.2.6.1

- Modules have been corrected, where possible, to provide a return code of 0 under ASMA90. Exceptions (which have a return code of 4 but execute correctly) include IXFDYNAM, IXFHND01, READBACK, INTSEC02, and several Log Analysis modules.

- **The requirement during installation to modify the IBM SPLEVEL macro** (to generate the MVS/370 version of some IBM macros during assembly of certain Intercomm modules) **has been removed**. Job 06, (formerly generated by the ICOMGEN macro for the installation job stream to copy the SPLEVEL macro to SYMLIB) has been replaced to produce the BMN back-off JCL stream (if desired) - see Section 2.2.8.

- When using DFSMS with file access method modules moved above the 16M line, a SOC4 can occur if the caller's save area address in register 13 does not have X'00' in the high-order byte. Intercomm modules which used R13 as a base register and local save area address (via a BAL instruction) have been corrected to prevent this problem.

- Under ESA V5.2.2 and OS/390, subtasks can execute synchronously with main tasks, therefore, the interrelationship between the Dispatcher (IJKDSP01), Snap Processing (PMISNAP1), and the system execution timeout/loop-detection subtask (IJKTLOOP) has been corrected to prevent potential problems in this area of the system.

- Because subtasks can now execute concurrently with main tasks, ICOMCESD has been modified to be able to directly call INTSORT when linked with ICOMCESD. This link is required (generated by ICOMGEN installation macro) to prevent an abend at startup if the INTSORT in the main Intercomm task is called by the subtask. INTSORT is serially reusable, but not reentrant. ICOMCESD is attached as a subtask at startup by ICOMDYNL (which must be in the Intercomm link) to build the name/address location table above the 16M line which is used by the LOC[ATE] parameter of the SCTL command, and by dynamic linkedit processing (if needed).

- IBM's Language Environment is not supported. Therefore, when upgrading to/within OS/390, ensure the pre-LE MVS high-level system language libraries are kept for compiles and link-edits, and that the associated system run-time library is in the STEPLIB concatenation for Intercomm execution.

Documentation Changes: Operating Reference Manual
Installation Guide

New External Options: None

Installation: Automatic (ensure ICOMCESD linked with INTSORT).

2.2.3 Storage Management Reliability Checking and Recovery

MANAGER has been substantially rewritten to provide pool header integrity checking and overlay recovery. This enhancement is designed to prevent unexpected program checks in MANAGER and to provide easier debugging of a core (pool header) overlay problem. In addition, RMINTEG processing has been redesigned to substantially reduce processing overhead and to recover an overlaid header if possible, without abending the system.

For both 24 and 31-Amode pools, MANAGER validates the 8-byte pool header for STORAGE (first free block header) and STORFREE requests. If an invalid header is found, revised message RM012A giving the bad header address and a snap is issued. On a STORAGE, the pointer in ICOMCHN to the free block chain is zeroed (free blocks for that pool size are lost) and a GETMAIN is done. On a STORFREE, the header is corrected if only the first word is overlaid, so that freeing of the pool block can be attempted. Otherwise, the block is not returned to the free chain, only the RCB is freed. Before return to the caller, a Thread Dump is produced (current owner of previous pool block may have caused the overlay).

RMINTEG processing has been completely redesigned to only validate the header of the next pool block on each STORFREE from the 24-Amode pools. If that header is invalid, it is probable that the STORFREE issuer has caused the overlay. RMINTEG is not called if the header of the block being freed is overlaid and cannot be recovered. When an invalid neighbor pool block header is found, a message (revised RM022A) and debugging snap and Thread Dump is issued. RMINTEG then resets the overlaid header for future use, and returns to STORFREE processing.

TRAP processing has been optimized for header and chain checking of each pool size group of blocks in the 24-Amode pools. TRAP has also been modified to allow the user to easily insert code to test for a specific overlay string and/or to make a simple change to only test the headers of a specific pool size. See the comments at the beginning of the module for implementation directions. TRAP also now uses standard abend processing after disabling itself.

Documentation Changes:	Basic System Macros Installation Guide Operating Reference Manual Messages and Codes Assembler Language Programmers Guide
New External Options:	RMINTEG processing code is generated in MANAGER if its global is set to 1 in SETGLOBE (recommended). The processing must then be activated via the STRT command in each region where it is desired (add to user startup processing for each test region).
Installation:	Reassembly of the Intercomm 24-Amode pools is required: ensure that the only Csect statement is for the COREACCT Csect and is placed before the COREACCT macro (before the ICOMPOOL macros). If linkedit ordering is used, ensure the ICOMCHN, ICOMPOOL, POOLEND Csects are together in exactly that order (if pools in Intercomm linkedit). Relink dynamically loaded user Assembler programs with Release 11 INTLOAD.

2.2.4 31-Amode Dynamic Storage and Pools Support

To provide for Intercomm and user program requests for dynamic storage above the 16M line, and to have those requests tracked via RCBs, the LOC=ANY/BELOW parameter for the STORAGE macro has been provided. Coding LOC=ANY will cause a 31-Amode (31-bit) storage address to be returned. To address the returned storage, the calling program must then execute in 31-Amode (use XASWITCH macro to flip modes if residing in (or loaded into) 24-Amode memory, and be sure to flip back to 24-Amode before issuing other macros or calling other programs/service routines). If LOC=ANY, the LIST parameter may be used, but it must point to 24-Amode storage. The ADDR parameter (if used) may point to 24-Amode (hi-byte must be zero) or 31-Amode storage.

The STORFREE, PASS, and CATCH macro entry-points, to the Resource Management module MANAGER, have also been modified to process 31-Amode addresses. The issuing user must ensure that the high-order byte of a 24-bit address passed to these entry-points is zero. The entry-points will first search RCBs for 31-bit core addresses if the high-order byte of the address is non-zero. PASS and CATCH entry-points will then do standard 24-bit address processing (after first clearing the high-order byte of the passed address). STORFREE will issue a message (RM013A) and force a program check if no RCB match for the address with a non-zero high-order byte is found - it will not revert to standard 24-bit processing. The SPA parameter may now be used on STORAGE and STORFREE issued in 31-Amode, and the SPAEXT parameter may be used on PASS and CATCH issued in 31-Amode. MANAGER returns to the caller in the caller's Amode.

This support requires RCBs to ensure correct processing of 31-bit addresses, therefore the &RM global has been removed from INTGLOBE and SETGLOBE (RCB Table always acquired). The &RMPOOLS global has also been removed (not needed).

LOC=ANY (for 31-bit dynamic storage addresses via GETMAIN) and entry in 31-Amode for STORAGE and STORFREE requests is also supported in batch mode processing for calling programs linked with the Intercomm BATCHPAK interface routine.

MANAGER has also been revised to support a 31-Amode pools module (as for 24-Amode pools) to satisfy STORAGE requests with LOC=ANY for which a GETMAIN is not forced (via a SP (non-zero) or BOUND=PAGE or POOLS=NO parameter). If used, the pools module is coded the same as for 24-Amode pools (see provided sample IC31PL00 on SYMREL), and must have the name IC31PLxx, because it is dynamically loaded at startup. The xx suffix is defined on the SPALIST macro via new parameter IC31PL=xx (default is NO indicating no 31-Amode pools to be used for the region). IC31PLxx must be linked with AMODE=31 and RMODE=ANY so it is loaded above the 16M line by POOLSTRT which must be included in the Intercomm linkedit to load pools.

POOLDUMP has been optimized to reduce the number of printed lines, and revised to process 31-Amode pools (if defined). RMTRACE has been rewritten to also provide core use statistics for 31-Amode pools (if defined) in the same manner as for 24-Amode pools. To reduce the number of printed lines, concurrency lines are omitted for COREACCT size ranges for which no STORAGE requests have been issued. TDUMP (Thread Resource Dump report) and SCTL$TDUMP display processing have been modified to report 31-Amode pool storage requests as for 24-Amode pools.

INTTABLE has been revised to use the 31-Amode pools, if present, for Table (and Page) Facility processing, except if the TABSP parameter is coded on the SPALIST macro.

A TRAP31 version of the revised TRAP (see Section 2.2.3) for the 31-Amode pools has also been created (both modules may not be used in the same link).

Documentation Changes:

Basic System Macros
Operating Reference Manual
Messages and Codes
Installation Guide
Assembler Language Programmers Guide
Table Facility

New External Options:

SPALIST macro, IC31PL=xx/NO.
ICOMGEN macro, DYNPOOL=P31, and ICOMLINK macro, DYNPOOL=P31 to indicate only 31-Amode pools to be loaded (code YES to load both 24-Amode and 31-Amode (if defined) pools modules).
When executing in 31-Amode, the SPA parameter may be used on the STORAGE and STORFREE macros, and the SPAEXT parameter on PASS and CATCH macros (even if executed by a dynamically loaded 31-Amode program linked with INTLOAD).

Installation:

If desired, modify the supplied IC31PL00 module (put it in SYMUSR) to define 31-Amode pools, then reassemble and link it with AMODE=31 and RMODE=ANY (see Section 2.2.6) to a library in the STEPLIB concatenation for Intercomm execution. Code additional IC31PLxx modules for other regions, as desired.
Code the IC31PL parameter on the corresponding SPALIST macro for each region to have 31-Amode pools, and add POOLSTRT to each linkedit.
Link batch program with BATCHPAK to use the STORAGE macro with LOC=ANY.

2.2.5 Dynamic LU Support

In order to reduce the size of the VTAM Network Table, this major enhancement allows for a pool of 'dynamic' LUNIT's to be used for random Logons of input/output LU's (CRT's) defined only in the Network VTIDTAB Table (LSB and CSB parameters have been added to the VTIDTAB macro for 'dynamic' LU-ids). LUNIT's from the pool can also be acquired for sporadically used 'shared' printers (output-only devices) defined only via VTIDTAB macros. An optional 'printer' timeout (VTLSB macro, TIMEOUT parameter) provides for flushing queued messages and freeing the 'dynamic' LUNIT (after the defined timeout elapses without an intervening successful logon) when the printer cannot be acquired or is SPLU'd (internally or dynamically) due to transmission errors. Code a reasonable timeout value to allow the user time to discover that output is not being printed and to then correct the problem with the printer, if possible. Thus, attrition of available 'dynamic' LUNIT's is prevented. If no messages are queued for a 'dynamic' logged-on printer when it is SPLU'd, it is immediately freed from the 'dynamic' LUNIT. The 'dynamic' LUNIT for a CRT is freed when the LU logs off (any queued messages are flushed automatically), therefore a STLU command cannot be used for a 'dynamic' CRT. **Using a 'dynamic' LUNIT pool permits a Network Table size reduction of 50% to 75%, especially if more than 1000 LUNIT's are currently defined**. All 'dynamic' VTAM LU's which may log on to, or be acquired by, Intercomm, must be defined via VTIDTAB macros, therefore, the security feature of not allowing 'foreign' logons (VTAM-id not in VTIDTABL) is preserved.

The control terminal (and its alternate), the CPU Console, LUNIT's which require ACQ=YES, LUNIT's requiring autoup processing (UPINTV parameter coded), LU's which are logged on most of the day, and printers receiving a lot of output (or for which output is critical), must remain as static LUNIT's. Alternate terminal definitions are not supported for 'dynamic' LU's, and if required, such LUNIT's must also remain static. Static LUNIT's must be coded in the Network Table before the LUNIT macro defining the 'dynamic' pool The 'dynamic pool' LUNIT must be coded last (before the PMISTOP macro), and may only have message queuing parameters (which must be large enough to handle a 'dynamic' printer queue), and must have the DYN=(nnnn,x) parameter, where nnnn defines the number (up to 9999) of 'dynamic' LU's in the pool, and x defines the alphabetic prefix (first character) of the internally-generated LUNIT's 5-character Intercomm names (in the range x0001 to xnnnn). Choose a 'prefix' value for x that will not conflict with existing Intercomm 'terminal-id' names. The size of the 'dynamic' LUNIT pool (value of nnnn) should be from one/sixth to one/half the current number of defined LUNIT's, or be the current value for SNMAX on the VCT macro (if at least one/half less than the total defined LUNIT's). See also the paragraphs on the SNMAX parameter, in relation to internal VTAM control block tables in Section 2.7, and in relation to the modified VTST$TOT command (VTST display total lines) response in Section 2.8.

To indicate that a 'dynamic' LUNIT pool and 'dynamic' VTIDTAB entries are present, a new parameter DYNLUS=YES must be coded on the VCT macro preceding LUNIT definitions. For formerly static LUNIT's to be converted to 'dynamic' VTIDTAB entries, move the LSB and CSB parameters to the associated VTIDTAB macro. Code all VTCSB-eligible parameters (such as CRT=YES, CONV=YES, the MRPASSW parameter, etc.) on the associated VTCSB macro only. This may require adding more VTCSB macros to handle different AIDGRP, LOCK, and/or MRPASSW parameter combinations. Printers which use the pool must be defined as 'shared' via the associated VTLSB macro (see SNA Terminal Support Guide) so that they are assigned to a 'dynamic' LUNIT, and a SIMLOGON is attempted to acquire the LU, when the first message is queued. Also add the TIMEOUT parameter on the associated VTLSB for those printers.

Because the LSB and CSB parameters must be coded on the VTIDTAB macros for 'dynamic' LU's, the VTIDTAB table must be in the Network Table (after the PMISTOP macro delimiting the LUNIT entries). If DYNLUS=YES is coded on the VCT macro, then all VTIDTAB entries are internally expanded from 16 bytes to 32 bytes (vs. 208 bytes if an LU is defined as a static LUNIT with NUMCL=2). VTIDTAB entries for 'dynamic' LU's contain offsets to the associated VTLSB and VTCSB macro definitions, requiring that the VTIDTAB macros be in the Network Table. For static LUNIT's, the VTID parameter may still be coded. If VTID is not coded on the static LUNIT's, then VTIDTAB entries for static LUNIT's must precede those for 'dynamic' entries in the Network Table. To indicate the start of 'dynamic' VTIDTAB entries, a special VTIDTAB macro with only the new parameter DYN=YES must be coded. As before, the last 'dynamic' VTIDTAB macro entry must be followed by a VTIDTAB macro with only the parameter LAST=YES (to generate the internal indices for all static and dynamic VTIDTAB entries). To allow for coding the new LSB and CSB parameters on the same line, the ICOMIDS and VTAMIDS parameters have been shortened to ICID and VTID, respectively. The short versions can also be used for static LU VTIDTAB entries (except for the CPU Console, for which no VTIDTAB macro may be coded), if desired.

A sample VTAM Network Table called DYNSAMP has been provided on the Release 11 SYMREL, to illustrate new parameters for defining 'dynamic' LU's, and coding of all associated macros.

This enhancement has been carefully designed to make the use of 'dynamic' LU's transparent to the terminal user and to programmers. The MSGHTID field in input messages will have the ICID associated with a VTID at logon, as for static LU's, and the name in MSGHTID in output messages will be used to find the associated 'dynamic' LUNIT for output message queuing. Command processing has been upgraded to account for 'dynamic' LU's, but will not display unassigned 'dynamic' LUNIT's, unless one of them is specifically requested. Assigned 'dynamic' LUNIT's will have the name, status, and characteristics of the associated 'dynamic' VTIDTAB entry. All commands which apply to static LUNIT's can also be used for 'dynamic' LU's. For example, a SPLU$...$DEACT for an LU will be flagged in the 'dynamic' VTIDTAB entry (if the entry is not currently assigned to a dynamic LUNIT) or will be flagged in the assigned dynamic LUNIT entry (and transferred to the 'dynamic' VTIDTAB entry when the LUNIT is unassigned), as applicable.

The major difference is that messages cannot be queued for an unassigned CRT, nor for any unassigned 'dynamic' VTIDTAB entry which has been deactivated. There is no LUNIT with queuing control blocks available while the entry is unassigned, therefore the messages will be rejected (flushed). However, the requirement to define 'dynamic' printers as 'shared' allows for assigning a 'dynamic' LUNIT when the first message is queued, as long as the VTIDTAB entry for MSGHTID remains active (Logons allowed). As before, messages to be queued for an unknown LU (not found in either static LUNIT nor VTIDTAB entries) will be rejected. A STLU command for a down unassigned 'dynamic' VTIDTAB entry will reactivate it (ACQ parameter ignored if entered). The new DEACT option for the VTST command will display down 'dynamic' VTIDTAB entries, as well as down static LUNIT's and down assigned 'dynamic' LUNIT's.

The supplied user exit LUCUR for VTAM HALT (SPLU$...$HALT) processing has been modified to also process 'dynamic' LUNIT's (flush all CRT queues at logoff, initiate timeout (if any) for non-CRT 'dynamic' devices), even if ESS (Extended Security System) is not used in the region. The advantage of the timeout for 'dynamic' printers is that operator intervention (to flush queued messages after SPLU/logon failure) is no longer needed, and messages which will never be sent will eventually be flushed automatically.

Broadcast message processing will skip a terminal-id in the group which is not logged on if the 'terminal' is a 'dynamic' VTIDTAB entry. Fast message switch to a 'dynamic' CRT terminal which is not logged on will be discarded. Do not code Station Table entries for the dynamic LUNIT pool names (never needed). Generic entries for static LUNIT's, and for 'dynamic' VTIDTAB entries, may be used in the Station Table - see Section 2.4.3.

See also Section 2.8 on new 'dynamic' LUNIT pool usage statistics (via VTST$TOT command) for tuning the size of the pool, Section 2.9 on general VTAM Front End enhancements, and Section 2.10 for TALY and Front End command enhancements.

A new Dsect (VTIDTABD) has been created to describe the expanded VTIDTAB entries, including new fields and flag settings.

Documentation Changes:

SNA Terminal Support Guide
Messages and Codes
System Control Commands

New External Options:

VCT macro, DYNLUS=YES/NO.
LUNIT macro, revised DYN=(nnnn,x) parameter.
VTLSB macro, TIMEOUT=nnnn (seconds) parameter to define when messages for a down DLU printer should be flushed so the 'dynamic' LUNIT can be released.
VTIDTAB macro: ICID, VTID, CSB and LSB parameters to define dynamic VTIDTAB entries to use the DLU pool.
VTIDTAB macro, DYN=YES to indicate start of dynamic VTIDTAB entries for the VTIDTABL (insert them before VTIDTAB macro with LAST=YES to delimit the table).
A VTLVB macro with HALT=LUCUR added is required for all dynamic VTIDTAB entries - add to existing VTLVB pointed to by associated VTLSB, or if none, code a VTLVB and point to it via ULVB parameter on the VCT or VTLSB's.

Installation:

Code DYNLUS=YES on the VCT macro.
Revise the VTAM Network Table to define the dynamic LUNIT pool and dynamic VTIDTAB macros for static LUNITs to be changed in order to use the dynamic LU pool.
Modify/add VTCSB and VTLSB parameters, as needed, and code/modify VTLVB macros to add the HALT=LUCUR parameter, where needed. See the sample DYNSAMP VTAM Network Table on SYMREL.
Ensure LUCUR is included in the Intercomm linkedit.

2.2.6 Procs Revised to Use Hi-Level Assembler (HLASM)

The following Intercomm-supplied JCL procedures which execute the Assembler have been revised for executing the Hi-Level Assembler (ASMA90) instead of Assembler H (IEV90):

ASMPC, ASMOC, ASMPCL, ASMPCM, LIBEASM, LIBELINK, DEFSYM, SYMGEN.

This is required for ESA and OS/390. See the COPYPROX job in Chapter 2 of the Installation Guide for unloading these procs from SYMREL to the Intercomm or system PROCLIB. The REGION size for assembly steps has been increased to 1M. The above procs which executed Assembler H have been renamed on SYMREL to ASMHPC, ASMHPCL, ASMHOC, ASMHPCM, LIBEHASM, LIBHLINK, DEFHSYM, SYMHGEN.

Documentation Changes: Installation Guide
Operating Reference Manual

New External Options: AM and RM parameters for the EXEC statement to define AMODE and RMODE (default is 24) for the linkedit steps on ASMPCL and LIBELINK.

Installation: See Installation Guide.

2.2.6.1 Procs Revised to use the DFSMS Binder instead of the Linkage Editor

The following Intercomm-supplied JCL procedures which execute the Linkage Editor have been revised to use the DFSMS Binder (execute LINKEDIT - alias name for IEWBLINK), and have a revised region size of 2M:

ASMPCL, LIBELINK, LKEDP, LKEDT, LKEDE, LKEDO, COB2PCL,PLIXPCL.

The link edit parameters are XREF, LIST, LET, MAP, NCAL. In addition, the LKEDE and LKEDO procs have the OVLY parameter - remove if not desired and either of these procs are used. Note that program objects on PDSE data sets are not supported. Because the input libraries from which modules are included are PDS data sets containing object or load modules, the Binder internally executes the linkage editor. However, the Binder produces more information in the SYSPRINT listing such as indicating from which library each module was copied. Use this data to verify the correct version of a module was included. To reduce the printed output, change the LIST parameter to LIST=STMT.

The above procs may be internally changed on the user proc library to execute the linkage editor directly by changing the LKED EXEC statement to execute HEWLKED instead of LINKEDIT (do not change the LIST parameter).

Documentation Changes: Operating Reference Manual
Installation Guide

New External Options: AM and RM parameters for EXEC statement to define AMODE and RMODE (default is 24) for the linkedit in ASMPCL, LIBELINK, and LKEDP.

Installation: Copy procs to user proc library.

2.2.7 High Thread Count Warning

SYCT400 has been enhanced to provide an ALERT message MS333A to warn of a potential processing slowdown. The new message text is:

*** ALERT *** - CONCURRENT THREAD COUNT IS NOW nnn.

This message is issued when the concurrent thread count reaches a predefined threshold (default is 70) above the normal peak processing count. The threshold is defined via a new SPALIST macro parameter WARNHIT=nnn/70. The ALERT message will be reissued as the concurrent thread count continues to increase, and stops when the concurrent thread count starts to decrease. The time stamp on the message can be used to determine if external factors are affecting Intercomm throughput and then to correct the problem. The predefined threshold value in the SPA can be dynamically changed via a new option on the SCTL$SPA command called WARNHIT which is entered as SCTLSPAWARNHIT=nnn. The maximum value for the WARNHIT SPALIST parameter, and for the command option, is 255 (maximum allowed concurrent subsystem threads).

Note that this ALERT message may be issued (and repeated) if ESS or Basic sign-on Security is used when the system is brought up, or the VTAM Front End is restarted, during peak processing hours when many users are reconnecting to the system. Do not modify the WARNHIT value to account for this occurrence, as the message cause is known in this case, and this is a rare situation.

Other causes for an unusually high thread count include: the resumption of subsystem processing after a full region snap is taken; when an IBM RESERVE is issued by/for a batch program against a disk pack containing online files; unscheduled batch processing against online files or data bases.

Documentation Changes:	System Control Commands Operating Reference Manual
New External Options:	SPALIST macro, WARNHIT=nnn/70 parameter. SCTLSPAWARNHIT=nnn command.
Installation:	Automatic. Change WARNHIT parameter on SPALIST macro as desired.

2.2.8 Automated BMN Back-off Installation

For existing users who reference the low-order 3 bytes of the old MSGHPID field, which is used for a 3-byte BMN number field under Releases 10 and 11, a BMN back-off option has been implemented. The backoff entails removing the label of the new BMN number field and restoring the label of the old Release 9 2-byte BMN number field (in Message Header COPY members), and reassembling modules which reference the BMN number field.

This back-off installation is implemented via setting the new global &BMNOLD to 1 in SETGLOBE (on SYMLIB) before assembly of the ICOMGEN macro for Release 11 installation. A new Job 6 will be generated, which applies the Message Header change deck (CMSGHBMN on SYMREL) to the Message Header copy members and saves them on SYMLIB, and then reassembles affected modules which are not automatically reassembled in other installation jobs.

The affected COPY members are MSGHDRC (can be copied directly, or copied when the MSGHDR macro is issued in Assembler code), ICOMDWS and ICOMINMG (for COBOL programs), and PLMSGHD and PL1HDR (for PL/1 programs).

The modules reassembled in Job 6 are CONVERSE, FINTUNER, FORMGEN, LOGANE15, LOGPRINT, LOGPROC, MAPOUT (if MMU used), PAGEMSG (if Page Facility used), and QUEUEMOD (if BTAM terminal support used).

Documentation Changes:	Installation Guide Operating Reference Manual
New External Options:	&BMNOLD global in INTGLOBE/SETGLOBE.
Installation:	Automatic via ICOMGEN macro (if &BMNOLD global preset to 1 in SETGLOBE).

2.2.9 Multiregion Optimization and Multiple MRS Systems Support

This enhancement optimizes Multiregion startup and provides for executing more than one Multiregion system in the same CPU (LPAR). Obsolete/unused code has been deleted from MRINTER (Multiregion startup/closedown), MRPURGE, and MRBATCH. The internal MRFIND macro (to find the MRMCT table in the Link Pack Area) used by STARTUP3, MRINTER, and MRBATCH has been modified to force a program check (via ISK 15,15) if the loaded MRMCT table does not look valid. This ISK will abend startup with a SOC1. Note that STARTUP3 does not issue the MRFIND macro if MRINTER is not in the linkedit (even if the SPA module was assembled with the MULTREG global set to 1 in SETGLOBE) and Multiregion processing is disabled. If the MRMCT is successfully loaded by MRSTART, then MRPURGE uses its saved address (MRMCT does not have to be reloaded). If an MRMCT table cannot be loaded by MRBATCH, an ISK 1,1 is issued to force an abend of the batch region.

MRINTER has also been changed for the Control Region to automatically load PMIRDT00 (commonly used name of the Multiregion Region Descriptor Table) without issuing message RC006R. If it cannot be loaded, then revised message RC007I giving the tried RDT table name is issued, followed by existing message RC006R to request the name (PMIRDTnn suffix) of the RDT table to be loaded. Therefore, if the default name of PMIRDT00 is not used, ensure that no RDT table with that name exists in any library in the Intercomm execution STEPLIB libraries. If an alternate PMIRDTnn is successfully loaded, new message RC003I 'THE RDT USED BY THIS REGION IS NAMED PMIRDTnn' is issued to indicate that the default PMIRDT00 is not being used. Otherwise, messages RC007I and RC006R are reissued for trying a different suffix, if any.

To provide for multiple Multiregion systems in the same LPAR, the internal MRFIND macro conditionally calls (via the CALLIF macro) a new user exit to provide a numeric suffix for the name of the MRMCTxx[x] table to be used by the calling system. To be called, the new user exit must be called UFINDMCT, and must be linked with each region (Control and all Satellites) in the alternate Multiregion system. If the user exit is not present, the default name "MRMCT " is used for loading, and enqueuing on, the table by the primary system. If MRBATCH is used with the alternate system, then UFINDMCT must also be linked with it. If the exit routine is present, and it adds a 2- or 3-digit suffix to the MRMCT table name, then that new name is used for loading, and enqueuing on, the alternate MRMCT table, which must be pre-coded and linked to the Link Pack Area with the new suffix added to the name. If the MRMCT name is modified, then new message RC003I is issued by MRINTER (see above) giving the MCT name loaded by the region. In the Control Region, the Job name is used (instead of CONTROL) for all Intercomm messages having a region name. If an alternate MRMCT table is loaded by the Control Region, then the last 2 non-blank numbers of the name are used, by default, for loading the PMIRDTxx table to be used by the alternate Control Region. If PMIRDTxx cannot be loaded, then message RC007I is issued with the tried RDT table name, and is followed by message RC006R to request the numeric suffix of the RDT table to be loaded. When successfully loaded, message RC003I is issued giving the loaded RDT table name. At startup of each alternate region, the user should verify the MCT and RDT (if Control Region) names used via the issued message(s) RC003I. See Section 2.4.1 on coding the UFINDMCT user exit and alternate tables, if desired.

Documentation Changes: Multiregion Support Facility

New External Options UFINDMCT user exit, if coded (see Section 2.4.1).

Installation: Automatic via ICOMGEN.

2.3 GENERAL SYSTEM IMPROVEMENTS

Miscellaneous system improvements include:

- Closedown processing has been modified to ensure all messages currently in progress (except IMCD, but including those waiting on subsystem load) are finished for IMCD, and all messages in progress (except NRCD) and queued for processing are finished for NRCD. If closedown times out, no new messages are started. Also, if closedown is in progress, dynamically loaded subsystems which have been loaded below the 16M line are not put on the delete queue when no more messages are in progress except if space is needed. In addition, after closedown times out, loaded 24-Amode subsystems on the delete queue are immediately deleted if no messages are in progress and subsystems on the load queue are removed from the queue. To prevent closedown from hanging after a timeout because a subsystem or subroutine load or delete is in progress, closedown goes into a wait loop for such loads or deletes to complete. This allows the ASYNCLDR subtask to be detached and exit cleanly back to CLOSDWN3.

- Subsystem Controller (SYCT400) processing has been changed to add the following improvements: for subsystem load/delete processing during closedown (see above); to add an internal counter for the current thread count of started messages (also used for statistics reporting); to eliminate an ISK 4,0 if the current thread count is 255 (wait, and retry instead); to decrement the number of messages queued count (SPANMIP in the SPA) when a message is dequeued for processing (used by statistics reporting) rather than after it has completed; to delete obsolete MVS page preload processing (not needed); to prevent a SOC9 in SAM (System Accounting and Measurement) processing when HIGHSTOR (high storage byte total) is being tracked, by starting tracking for a new thread before transferring ownership of the message to be processed to that thread; and to issue a high thread warning (see Section 2.2.7).

- CONVERSE has also been modified to prevent a SOC9 in SAM processing as for SYCT400 (see above).

- Processing of log buffer waits (when all log buffers full and being written to the Intercomm log) has been modified to ensure a thread timeout is disabled from purging until a call to queue a message (via COBPUT, MSGCOL, or FESEND) and/or a call to LOGPUT is completed. Processing in LOGPUT (to log a message) has also been optimized to reduce the chance of an ISK 5,5 in PMINQDEQ due to more than 255 INTENQ waits (on 'LOGTAPE') for a free log buffer. This improvement also reduces the chance of lost messages for queues and on the log when a backup in logging occurs.

- The number of messages per second that can be sent to the CPU Console (because the internal timed wait interval has decreased), has been increased to 25 in CNT01MOD and VT01MOD.

- A new parameter TLOOPTM=nnn/30 has been added to the SPALIST macro to define the maximum long duration code loop (or file OPEN wait) timeout (of the current thread) in seconds (default is 30) for IJKTLOOP processing. Thus, the timeout value can be different for each region, if desired. The minimum value is 2 (seconds), and the maximum is 300 (5 minutes). In addition, the timeout message MP020A has been modified to use the message-id prefix (SPALIST macro, WTOPFX parameter) and to give the name of the source region where issued.

- Recovery for a program check in PMISNAP1 or SPINOFF has been modified to ensure Timer Queue WQE's are updated and dispatched when they expire. STIMER processing has been optimized in PMISNAP1 and the Dispatcher (IJKDSP01), and their interface with IXFDYALC (dynamic file allocation/deallocation command processing) and IJKTLOOP.

- Return and status codes have been added to the 'RENAME FAILED' error message MP018I from SPINOFF for easier debugging of the problem.

- For Multiregion users, the default on the SUBSYS macro for the IFDOWN parameter has been changed from QUEUE to FLUSH, and for the RESTART parameter from YES to NO. Also, LOG=NO (if coded) for the MROTPUT subsystem will now be recognized by LOGPUT.

- Log Analysis processing has been modified to increase the maximum terminal-ids to be processed on Intercomm log(s) from 5000 to 10,000 (to prevent message LA010A and User Abend 10).

- Message Collection (BLMSGCOL) processing has been modified to force a 'queue full' return code of 4, if the number of INTENQ waits on a subsystem or terminal disk queue reaches 255. This will prevent an unwanted ISK 5,5 (forced program check) in PMINQDEQ.

- STAEEXIT can be used in batch mode if linked with BATCHPAK (and user programs).

- The default for the NUMWQES global in SETGLOBE (to give the number of WQE entries to generate for assembly of IJKDSP01) has been increased to 1000. However, the SCTLDCWQES$FREE command will only display the last 105 WQES on the free WQE queue.

- ICOMLINK macro has been corrected to also generate includes for Multiregion modules (if requested) if the IISVC SVC instead of the MRSVC SVC is used.

- The INTASMF supplied JCL procedure has been changed to specify INT.MODASMF as the only library for STEPLIB, because the ASMF load modules must be relinked to a library which is MVS-authorized (recommended name is MODASMF). Also, the TAPE parameter has been changed to specify 3480 as the default (future SM's will be supplied on tape cartridges, not mini-reels).

Documentation Changes:	Basic System Macros Messages and Codes Operating Reference Manual Multiregion Support Facility
New External Options:	SPALIST macro, TLOOPTM=nnn/30 parameter. SUBSYS macro parameter default changes: IFDOWN=QUEUE/FLUSH and RESTART=YES/NO LOG=NO may be coded for the MROTPUT subsystem (subsystem code Z).
Installation:	Automatic. Modify TLOOPTM and SUBSYS macro parameters, as desired.

2.4 USER EXIT CHANGES

The following lists user exits for which calls (via CALLIF macro) have been added, or for which sample exit routines are supplied or processing changed:

- UFINDMCT - new exit called by MRFIND macro in MRINTER (MRSTART), MRBATCH, and STARTUP3 to set the suffix (default is blanks) of the name of the MRMCT to be loaded by the region (if Multiregion Facility in use).

- USTAEXIT - new exit called by STAEEXIT for user cleanup processing.

- USRSTSCH - provided sample can be used to process generic Station Table CRT entries when EXTERM for a terminal-id fails to find a specific entry.

- LUCUR - supplied HALT exit routine for VTAM Front End SPLU processing has been modified for dynamic LU support and if implemented, LUCUR must be included in the Intercomm linkedit. See Section 2.2.5.

2.4.1 UFINDMCT Multiregion Exit

As described in Section 2.2.9, the Multiregion Support Facility has been enhanced to support more than one Multiregion system in one CPU (LPAR). The second (alternate) system will function independently of the primary (production) system. To install one (or more) alternate system(s), the three coding requirements are:

1. Code the alternate MRMCT table (may be a copy of the primary MRMCT) containing an entry for the CONTROL region (must be first), and as many Satellite regions as desired, plus an entry at the end for a BATCH region (if it may be used). Assemble and link this new table to the system LPALIB (see Installation Guide) with the name MRMCTxx or MRMCTxxx, where xxx is a 2- or 3-digit number. The satellite region names should not be exactly the same as for the primary system, to distinguish the source of Intercomm Console messages with a region name from that of the primary system (also change the SPALIST macro, MRID parameter, in each Satellite Region to match). Or, the SPALIST parameter WTOPFX can be used in all alternate regions to distinguish their messages from those of the primary system.

2. Code the alternate PMIRDTxx table (where xx matches the last 2 non-blank digits of the MRMCTxxx table name), and assemble and link it to a STEPLIB library for the alternate Control Region execution. If it is desired to use the primary system PMIRDTnn table, it is not necessary to make a copy (unless the STEPLIB libraries are different), but it is necessary to match the xx suffix of the alternate MRMCTxx table name to the nn suffix of the primary PMIRDT. That is, if using PMIRDT00, name the alternate MCT table MRMCT00.

3. Code, assemble and link the user exit UFINDMCT to tell Intercomm startup the suffix of the alternate MCT table name. This user exit must be serially reusable (called by both STARTUP3 and MRINTER (MRSTART)), and have a local save area for saving and restoring the caller's registers. At entry, Register 1 contains the address of the 8-byte MRMCT default name (5-character MRMCT, followed by 3 blanks (X'404040')). The user exit must modify the blank suffix to that of the MRMCT table name to be used for the alternate system, and return to the caller. This altered name will then be used by startup to LOAD the alternate MCT table (obtain it's address in the LPA), and for MVS system-wide enqueues.

ESS (Extended Security System) users must also code, assemble and link an alternate SECVECT table to the LPALIB (give it a 1-digit suffix to correspond to the alternate MRMCT name suffix). Then, modify STARTUP3 (if the IISVC is used) and INTSEC00 to LOAD the alternate SECVECTx table.

The installed IISVC or MRSVC can be used by each MRS system.

Documentation Changes: Operating Reference Manual
Multiregion Support Facility

New External Options: None.

Installation: Code and include UFINDMCT with MRINTER in each region of the alternate MRS system, and with an alternate MRBATCH if used with the alternate system. Link alternate MRMCTxx[x] to system LPALIB. Add alternate PMIRDTxx, if desired, to an execution STEPLIB library.

2.4.2 USTAEXIT Exit for Abend Cleanup

This new exit routine (must be user coded) is called by STAEEXIT for all non-recoverable system and user abends. It is called just before return to ESA (via SETRP macro) if the abend code is x22 (system cancel), or just before File Handler closedown if not an x22 abend. The exit routine must save and restore STAEEXIT's registers, use a local save area, and may not directly (nor indirectly) give up control to the Dispatcher.

At entry, register 2 contains the abend code (in hex). The low-order byte contains X'22' if the abend is due to a system cancel.

Documentation Changes Operating Reference Manual

New External Options: None.

Installation: Code user exit if desired, and include with STAEEXIT.

2.4.3 USRSTSCH User Exit

If Basic Security is not implemented, generic entries for input/output (CRT) terminals in the Station Table (PMISTATB) may be used in conjunction with this exit which is called by PMIEXTRM if an EXTERM fails to find a Station Table entry for the specified terminal name. As of Release 11, generic entries for CRT's may be defined even if ESS (the Extended Security System) is used, as ESS processing no longer references the Station Table. Even if Basic Security is installed, generic names can be used for all, or groups of, printers (output-only devices). A supplied version of this exit processes for both CRT's and printers, and can be modified for installation naming conventions.

Documentation Changes: SNA Terminal Support Guide
Operating Reference Manual
Extended Security System

New External Options: Modify supplied USRSTSCH for site, if desired.

Installation: Include user-modified USRSTSCH in Intercomm linkedit.

2.5 DESUPPORTED FACILITIES

The following are desupported because they are no longer applicable or are obsolete (see also list of deleted modules in Appendix A):

- MVS/370 and MVS/XA operating system support
- MVS/ESA support below level 4.3.
- MVS Page preloading (PRELOAD parameter on RTNLINK macro ignored, LOADP macro, PMIPGLD and LOADPAGE modules deleted)
- Model System Generator special feature (modules and macros deleted).

2.6 USER PROGRAM PROCESSING OPTIMIZATIONS

The following enhancements represent processing optimization, and ease coding and maintenance, for user subsystems, subroutines, and batch mode routines:

- Time Controlled Message Processing (see Operating Reference Manual) has been enhanced to provide for repetitive message generation (and queuing for the associated subsystem code) at the interval defined by the (previously unused) PRIN=nnn/0 parameter on the TMZONE macro. The value coded for PRIN may be in the range of 1 to 255 minutes. If PRIN is coded, the SCHT parameter must be omitted. The first message is queued PRIN minutes after startup completes and is regenerated every PRIN minutes until closedown.

- On the RTNLINK macro, the PRELOAD parameter is ignored, if coded. MVS Page preloading is no longer needed and not supported.

- For Indicative Dump processing (see Operating Reference Manual), to reduce the size of the associated Snap ID=126, the INDUMP size coded on the SPALIST macro will be used for dynamically loaded reentrant COBOL subsystems if the load module size is greater, otherwise the load module size is used rather than the INDUMP size. For all user subroutines, use the load module size if dynamically loaded, else use the INDUMP size if resident. A called subroutine is snapped only if it is a resource (defined via the REENTSBS Table) in use by the application thread at the time of the snap.

- For easier debugging (in MVS Save Area Trace in a snap), the down-chain word in the save/work area acquired by a SUBLINK macro is cleared so that an invalid save area is not snapped. Thus, no lower subroutine has been called if the down-chain field is zero at snap time.

- For the SUBLINK macro, the save area size restriction of 4088 for the LEN parameter has been increased to 32760 (if coded as an EQUate or numeric value). Also, a value larger than 4088 does not have to be preloaded to a register on the RTNLINK macro if the same save/work area size is to be freed as was acquired by a previous LINKAGE or SUBLINK macro, that is, the LEN parameter is coded with the same value on each macro.

- For Batch Mode processing, where an Assembler user program is linked with BATCHPAK, a PMIWTO macro with RENT=NO may be used (this support incorrectly deleted in Release 10), PMINQDEQ (for INTENQ/INTDEQ macro requests with the SYSTEM parameter) may now be linked before BATCHPAK (does not use the Dispatcher in Batch Mode), STORAGE macro issuers may use the LOC=ANY parameter to acquire 31-Amode (31-bit) storage and may enter BATCHPAK (which converts STORAGE to a GETMAIN) in 31-Amode, and STORFREE macro issuers must ensure the high-order byte of the address of 24-bit storage to be freed is zero but may also enter BATCHPAK in 31-Amode (which converts a STORFREE to a FREEMAIN). For the STORAGE and STORFREE entries in BATCHPAK, BATCHPAK returns in the Amode of the caller.

Documentation Changes: Basic System Macros
Operating Reference Manual

2.7 VIRTUAL STORAGE CONSTRAINT RELIEF

To provide further virtual storage constraint relief for Intercomm systems, the following changes have been implemented:

- Dynamic LU support to reduce the size of the VTAM Network Table by 50-75% (see Section 2.2.5).

- The VTAM Front End internal VXQCB control block pool area (for VTAM System Exit routine request processing), which is acquired during VTAM startup, is now in GETMAINed 31-Amode storage. The SNMAX value on the VCT macro (or the number of LUNIT's in the VTAM Network Table if SNMAX is 0) is used to define the number of VXQCB pool blocks for acquiring the area (see also below).

- The number of VRE (VTAM RPL plus VRE header) areas to acquire in GETMAINed 24-Amode storage for the Intercomm VTAM VREPOOL has been cut in half and is the value coded for the SNMAX parameter on the VCT macro (or the number of LUNIT's if SNMAX is 0), plus the values coded for the RCVNO and RCVRSP parameters on the VCT macro. Therefore, if many of the LU's log on for only a short period or only sporadically, it is advantageous to code the SNMAX value on the VCT macro for only the maximum expected concurrent sessions (successful Logons). See also Section 2.8 on the VTST$TOT display change.

- Generic entries for CRT's may be defined in the Station Table, and managed via the USRSTSCH user exit, even if the Extended Security System (ESS) is used, as ESS no longer uses the Station Table CRT entries to hold the timeout WQE addresses. The address for each terminal has been moved to the ESS control area (in SQA) for the corresponding signed-on user. Therefore, the size of the Station Table may be greatly reduced. (See Section 2.4.3.)

- The Page Facility will use the 31-Amode pools (if implemented), instead of GETMAINed storage, via the Table Facility (INTTABLE), to create the Master Page Table and to save individual CRT terminal responses (groups of 1 or more output messages). See Section 2.2.4. Note that for Release 10 at SM Level 2300, the Page Facility was redesigned to eliminate the user-coded Page Table and BDAM Page Data Sets (terminal responses saved in Page Response Tables via INTTABLE).

2.8 STATISTICS GATHERING AND SYSTEM DISPLAY/REPORT UPGRADES

The following enhancements and changes have been made for system statistics printing and display modules:

- A running current thread count is kept in the Subsystem Controller for easier statistics reporting (counting of assigned thread numbers no longer needed).

- Processing of the backend 'messages queued' counter (SPANMIP in the SPA table) has been modified to just reflect the total messages queued for subsystems, and to not include messages currently dequeued for processing/flushing.

- A thread count (HIGH/NOW) statistic line, a Back End Messages Lost (due to queue full) statistic line, and a Back End Messages Queued statistic line have been added to the System Tuning Statistics report on STSLOG.

- BACK END MSGS LOST (Q FULL) and BACK END MESSAGES CANCELLED counts line has been added to the TALY$SU command display. Note that the counts are cumulative for the run (since startup).

- For Multiregion systems, a Number of Dynamic CSA GETMAIN's statistic line has been added to the Multiregion statistics portion of System Tuning Statistics for each Multiregion region. This statistic indicates whether the MRCSALN parameter on the SPALIST macro for Satellite Regions or the CSALEN parameter on the REGION macros in the PMIRDT table define large enough areas of CSA storage (for cross-region message transfer) for the associated regions. Only one message is transferred at a time, therefore this statistic represents the number of times a larger (than the area acquired for message transfer at startup) message was transferred. If the reported value keeps going up throughout a 24-hour period or during peak processing hours, increase the corresponding startup length request in 4K (MVS page) increments, as needed.

- An ALERT warning message has been added to the Subsystem Controller to indicate a potential system slowdown because the current thread count is higher than normal peak processing (see Section 2.2.7).

- TDUMP (Thread Resource RCB reporting) and SAM (System Accounting and Measurement) statistics gathering processing now support 8-digit numbers for storage acquisition and totals counts and for reporting of those values.

- If HIGHSTOR is specified on the MAPACCT macro defining the desired statistics, SAM statistics gathering has been corrected to prevent a SOC9 due to a negative storage count bucket during the offline report generation. During SAM online total storage processing, an ISK 2,0 is issued if the HIGHSTOR bucket goes negative (indicates storage acquired by the system thread 0 is being freed by an application non-zero thread which did not previously use the CATCH macro to acquire ownership of the storage or use the SYS=YES parameter on the STORFREE macro - see also the description of message RM033I in Messages and Codes). In addition, the STORAGES counter is incremented to account for the input message to a subsystem.

- If SEQNO=BTAM is not coded on the VCT macro for the VTAM Front End, then for BMN number reporting (TALY$SU display and System Tuning Statistics), a running input message total count is internally kept (SEXBMN# field in SPAEXT table) in single-region systems and the Control Region of a Multiregion system. This value is then used for the reports (if SEQNO=BTAM, then the count in the BTSPA control block (incremented by BTAM and VTAM Front Ends) is used. In Multiregion Satellite Regions, the SEXBMN# field is changed to the BMN number of each input message to the region, and used for reporting. If SEQNO=BTAM is not used in the corresponding Control Region, then this number is meaningless, and should be ignored in the Satellite Region reports.

- For the File Handler Statistics report on SYSPRINT, a FILE TYPE column has been added next to the DDNAME column. File types reported are PS (PSAM, SYSIN, and SYSOUT files), ISAM, BDAM (relative record number access), BDAM-K (keyed access), and for VSAM files: KSDS, ESDS, or RRDS (depending on file access type). If the file type is unknown (should not occur), the type is listed as '????'.

- Storage Management Core Use Statistics on SMLOG have been enhanced for 31-Amode storage requests and the 31-Amode storage pools (if implemented). See Section 2.2.4.

- The DISTRIBUTION OF CORE BLOCK SIZES section of the Core Use Statistics (if COREACCT macro coded in the pools modules) report on SMLOG omits lines for size ranges for which no storage requests have been made. Therefore, this section will grow longer as the system run time increases and more different sizes are requested. Use an end of the day, or run, report for tuning the pools modules.

- Thread Dumps (Thread Resource Report) on SMLOG will show ICOM in the S/P NO. column for 31-bit storage addresses acquired from the 31-Amode pools, if implemented (otherwise the GETMAINed storage subpool number - usually 000 - is given).

- The POOLDUMP-generated STATUS OF INTERCOMM ADMINISTERED STORAGE report on SMLOG (if POOLDUMP in the linkedit - see Operating Reference Manual) has been optimized to reduce the number of printed lines (60 per page) and modified to also report on 31-Amode pool blocks (see also Section 2.2.4). POOLDUMP will recognize (does not program check) an invalid pool block header (see Section 2.2.3) and will print the header in Hex if no RCB can be found for the block's area. Date/time stamp has been added to the header.

- The VTST$TOT command display (of VTAM statistics totals) has been modified to also show the HIGH number of concurrent sessions (successful logons) since startup. When displayed late in the day after the daily peak processing time, this statistic can be used for tuning the maximum sessions allowed via the SNMAX parameter on the VCT macro. Allow for about 200 extra sessions for logons at the end of the month, or whenever the monthly or annual peak processing occurs. Note that the current SNMAX parameter value (shown as MAX ALLOWED in the VTST$TOT display) can be dynamically changed for the current run via the VTCN command (see System Control Commands).

- The VTST$TOT command processing has also been modified to display a second line giving statistics for Dynamic LU usage (if implemented), as follows:

  DYNAMIC LUNITS: CONNECTED=n IN USE=n MAX USED=n DEFINED=n.

  Where n is a number from 0 to 9999, as applicable. Note that the MAX USED number of 'in use' dynamic LU's may exceed the HIGH sessions on the VTAM sessions totals line, due to dynamic LU's (for printers) assigned from the pool, but never successfully connected (logged on) because the SIMLOGON failed or was cancelled by VTAM (see Section 2.9 on enhanced NSEXIT processing). The MAX USED (maximum concurrently assigned DLU's) number can be used to tune the maximum number of Dynamic LU's required in the DLU pool (plus a fudge factor of 200-500 LU's for peak processing).

- On-line and utility report programs have been updated to have a 4-digit year in the date on the heading line (see Section 2.2.1).

Documentation Changes:
SNA Terminal Support Guide
System Control Commands
Messages and Codes
Operating Reference Manual
Multiregion Support Facility

New External Options: None.

Installation: Automatic.

2.9 VTAM FRONT END CHANGES

The following changes and enhancements have been made for VTAM support:

- The VXQCB area for VTAM system exit processing has been moved above the 16M line and the size of the VREPOOL (VTAM RPL's) acquired at startup has been reduced (see Section 2.7).

- For the VTERR macro with ID=76 (RECEIVE processing logic error in VTRECVE), the EXIT parameter has been changed from VTCN (bring down the VTAM Front End) to EXIT=SPLU (just SPLU the associated LU). Also, only an indicative Snap ID=62 is produced instead of a full region Snap ID=63. See the description of message VT025I in Messages and Codes.

- If the control terminal is the CPU Console, and it is defined via an LUNIT in the VTAM Network Table, the system is not abended at startup if a VTAM ACB OPEN failure is correctable. Instead, new message VT037R (VTAM STARTUP FAILURE WHILE IN STARTUP - ACB OPEN ERROR PROBABLE - REPLY 'START', 'ABEND', OR 'CONT') is issued via VTAUTOUP (must be included in the linkedit). This message allows the system administrator to reply START (VTAM Front End), ABEND (the system), or CONT (without the VTAM Front End) when the problem is resolved (if possible). Meanwhile, the CPU Console (control terminal) is activated and the rest of system startup completes. If VTAUTOUP is not in the link, or the CPU Console is defined as a BTAM terminal, or if CONT is the response (to message VT037R), then the VTCN$START command must be issued via the CPU Console to restart the VTAM Front End. Note that the APPLID option on the VTCN$START command can be used to provide a different (or corrected) VTAM APPLID for retrying the open of the VTAM ACB. If the new OPEN is successful, correct the APPLID parameter coded on the VCT macro in the VTAM Network Table for future system startups, if appropriate.

- VTAM Front End restart will try to acquire (via SIMLOGON) all 'shared' printers (output-only devices) with queued messages (even if ACQ=YES was not originally coded on the LUNIT), including all qualifying assigned 'dynamic' LUNIT's.

- New Origin Code 1E00 has been added for the VTAM FC121I (LU DISCONNECTED) message indicating the SPLU originated from VTURSDX1 due to a (earlier) RELREQ request (SPLU occurs after all queued messages are sent or flushed). Also, Origin Code 0400 has been added for this message if the SPLU is due to VTAM SCIP Exit processing. See the VTAM Origin Codes table for VTAM Messages FC100I-FC150I in Messages and Codes.

- The Multiregion MRPASSW parameter can now be coded on a VTCSB macro shared by all input terminals to be locked to a particular Satellite Region at logon. It is no longer necessary to code it on each LUNIT for which RAP processing is desired. As before, the terminal can be dynamically unlocked, or locked to a different region, after logon. However, for the next logon, the defined MRPASSW region locking will occur. VTST and WHOI/WHOU command processors have been corrected to display the current locked-to region name (if any) after logon, or the original defined region name (if any) when not logged on.

- General FECMDDQ processing has been corrected to handle DDQ access error processing, and DDQ close processing conflicts.

- Message flushing logic has been corrected to include a rescheduled message (if any) in the count, and to correct counting for FECMDDQ processing.

- For the CPU Console defined as a VTAM LUNIT, message flushing (and DDQ processing, if any) logic has been corrected in VT01MOD.

- Pacing of Logon (and other VTAM System Exit routines) processing in VTEXITS can now be controlled to prevent bottlenecks and allow more overlap with other processing (including logging) in the system (Control Region). This pacing is particularly needed for a mid-day startup (or failure, then restart) of the VTAM Front End. Pacing is defined via a new VCT macro parameter XPACE=nnn (default is 100), which gives the number of Exit routine threads that can be dispatched by VTEXMAIN in VTEXITS before control is temporarily released to the Dispatcher to process those (and other ready) threads. A value up to 32767 (or the maximum Dispatcher WQE's available less several hundred for other processing) can be defined. A value less than 50 is not recommended. This value can be dynamically modified via the VTCN$XPACE$nnnnn command.

- BID (to begin a Bracket) failure recovery is now provided for non-CRT SNA devices after the message VT010I is issued for a SEND (REQ=22) request with RTNCD=04, FDBK2=04, and SENSE=08130000. VTSEND will then retry the BID (error message repeated if it fails again). An internal RSLU to resync the device is issued before the retry. If the BID fails again, then the LU is SPLU'd and message VT025I with new ID=64 and a Snap ID=62 is issued. If the SPLU'd LU is defined as a shared printer, then after a new message is queued and a successful SIMLOGON to reacquire the printer occurs, the BID process is restarted. If the failure recurs, the cause should be investigated (may be a BSC device defined to VTAM and Intercomm as an SNA device, or local and remote VTAM definitions do not match). Meanwhile, deactivate the LU (SPLU$....$DEACT command) to prevent more error messages.

- VTAM NSEXIT processing (in VTEXITS) has been enhanced to also recognize cancellation (NOTIFY RU sent by VTAM) of a pending SIMLOGON to acquire an LU. Such cancellation (after SIMLOGON initially accepted by the local VTAM) usually occurs due to a PATH error (LU's VTAM-id not recognized or rejected on the remote end) or VARY INACT (CPU System Operator command) of the LU (local or remote). The resulting SPLU origin code is 1400 on message FC121I (LU DISCONNECTED). This new exit processing precludes the need for CPU Console operator (Control terminal) intervention to be able to issue a new STLU for the terminal.

- After SPLU completion, NSEXIT and SCIP UNBIND exit processing will also call VTAUTOUP (as for the LOSTERM exit) to try reacquiring the LU (if an UPINTV and ACQ=YES was coded for the static LUNIT, and it is still active to accept a Logon).

- LOSTERM, NSEXIT, and SCIP dispatched VTAM Exit processing in VTEXITS has been modified to ignore the request if a VTAM Front End SHUTD or HALT is in progress, or if the VTAM ACB is already closed. LOGON Exit processing has been modified to reject the logon if the ACB was closed before the dispatched logon routine could be processed.

- VTAUTOUP has been modified to prevent a dispatch of itself (if VTUPINTV coded on the VCT macro) if a WTOR has been issued to provide for a dynamic restart of the VTAM Front End (see the description of messages VT031R, VT032R, and VT036R in Messages and Codes, and of new message VT037R above). Prevention of the dispatch also occurs by testing if a system closedown/abend is in progress, or it has already dispatched itself. In addition, the dispatched (if a VTUPINTV given) entry tests again if a system closedown/abend has occurred since the dispatch, and if so, it exits.

- A new VCT macro parameter, MAXLGONF=nnn (default is 0, maximum is 255), has been added to enable forcing an internal SPLU$...$HALT$DEACT of an LU (shared printer) after nnn SIMLOGON attempts to acquire the LU have failed (due to device not plugged in, or incorrectly defined, or otherwise not available). When an LU is deactivated, new SIMLOGON attempts to acquire that LU are prevented (even if new messages are queued for a shared printer). A running count is kept in each LU control block (LUB), and is copied to the dynamic VTIDTAB entry (if Dynamic LU's are implemented) when a dynamic LU is unassigned. The count in the dynamic VTIDTAB entry is then recopied to a newly assigned dynamic LU, if the dynamic VTIDTAB entry has not yet been deactivated. Note that a SPLU$...$DEACT (internal or external) of a dynamic LU will cause the corresponding dynamic VTIDTAB entry to be deactivated when the DLU is unassigned (and the now available DLU is reset to active status). (See also new DEACT option of VTST command in Section 2.10.) The LU (dynamic VTIDTAB entry) may be reactivated via a STLU command after the problem is fixed (if possible). If a successful LOGON occurs (problem was transient) before an LU counter reached the MAXLGONF non-zero value, then that LU's counter is reset to 0. New message FC144I (oooo-LU xxxxx DEACTIVATED - MAX ALLOWED CONSECUTIVE SIMLOGON FAILURES HAVE OCCURRED) is issued when an LU is internally deactivated. Defining a reasonable MAXLGONF value precludes the necessity for system operator/manager intervention (to SPLU$...$DEACT an LU) when acquire (SIMLOGON) failures occur (and also reduces the number of repetitive error messages issued to the Control Terminal). MAXLGONF may be dynamically set or modified via the VTCN$LGONF$nnn command. The maximum accepted value for nnn is 255.

- VTERRMOD (internal VTERR macro/message VT025I processing) has been modified to ensure the passed VRE (RPL) area is freed on a VTERR condition (after message VT025I and Snap issued), if the associated LU is to be SPLU'd or the VTAM Front End is to be shut down. This will help speed up VTAM closedown. VTERRMOD has also been modified to check if a VTAM Front End closedown is in progress or the ACB is closed, and if so, do not dispatch local entry ASYNTHRD to process a SPLU (of LU in error) or VTCN (HALT of VTAM Front End) option if requested via the EXIT parameter of the VTERR macro. In the dispatched ASYNTHRD routine, it will exit immediately if a VTAM Front End closedown has been started or has occurred.

Documentation Changes:	SNA Terminal Support Guide System Control Commands Messages and Codes
New External Options:	see above.
Installation:	Automatic (add/modify new parameters as desired).

2.10 SYSTEM CONTROL COMMAND ENHANCEMENTS

The following system control commands displays have been revised, or new options have been added:

TALY SU display gives the BMN number from the BTAM sequence number or the internal SEXBMN# counter as described in Section 2.8. BACKEND MSGS LOST (Q FULL) and BACK END MESSAGES CANCELLED counts display line added.

The display date (with a 4-digit year) has been added to the TIME IS ... trailer line.

An error message is returned if no parameter option is entered (too many screens (output messages) are generated).

For Front End Messages Queued displays, the count of messages queued for a VTAM LU has been corrected to include the current message being sent (awaiting a VTAM Definite Response), and a rescheduled (after SEND error or SPLU of LU) message, and a FECMDDQ message (if DDQ being processed). Note that the count does not include messages to be sent in the DDQ (nor one being sent from the DDQ - redundent).

For displays of VTAM LU's, the NUMBER (of LCOMP's) ACTIVE column and total now show the correct counts.

For displays of VTAM LU's, the STATUS designation has been enhanced to add the following condition: LGON PENDING (indicates SIMLOGON has been issued, but logon has not yet completed). If the LU is an assigned Dynamic LU, the following potential STATUS conditions have been added: SPLU TIMEOUT (dynamic LU assigned for a printer has been SPLU'd, and it is now in a timeout with messages to send and awaiting a new STLU attempt or a flush (dynamic or after timeout) of the messages so the DLU can be unassigned); LOGON FAILED (indicates Dynamic LU assigned for a printer for which at least one SIMLOGON was issued, but was rejected by VTAM - LU is in a timeout state). If the LU is an unassigned Dynamic LU (cannot have queued messages), it is displayed as FREE DYNAMIC (and the TYPE column will have ?????, or will indicate it is part of a dynamic LU pool for LU6.2 processing).

SCTL TDUMP$nnn display/report for a specific thread number now supports 8-digit numbers for storage acquisition and totals counts. The heading line now gives a 4-digit year.

SPA$STOCORE= value increased to 4 digits so that more than 1M may be requested (as ssss in K - kilobytes). The maximum allowed value has been increased from 999 (K) to 4096 (K) which is 4M (megabytes).

WQES$FREE option displays only a maximum of the last 105 free Q WQES.

A WARNHIT=nnn option has been added to the SPA parameter as described in Section 2.2.7 for dynamically modifying the concurrent thread count threshold at which an ALERT message should be issued to indicate a system slowdown.

FTUN SSUP Processing corrected for changing MNCL for a dynamically loadable subsystem to prevent a tight code loop if the subsystem is not currently loaded. The code loop (introduced by SM 2180) occurred if MONOVLY (for Overlay B/C/D subsystem processing) was not in the linkedit (was not used).

VTCN XPACE$nnnnn parameter added as described in Section 2.9 for dynamically modifying the pacing of VTAM Exit Routine process dispatching in VTEXITS.

LGONF$nnn parameter added as described in Section 2.9 for dynamically modifying the threshold at which an acquirable (via SIMLOGON) LU (shared printer) is deactivated after nnn consecutive SIMLOGON failures have occurred.

WHOI WHOU Display of the region to which an LU is locked has been corrected as described in Section 2.9 for coding the MRPASSW parameter on the VTCSB macro.

WHOU The 'LOGICAL ADDRESS vvvvvvvv' (VTAM-id) is set to *DYNAMIC to indicate an unassigned Dynamic LU display (when appropriate).

If display for an unassigned Dynamic VTIDTAB entry is requested, it is treated as a static LU that is not logged on (data taken from the entry and associated VTLSB and VTCSB macro coding). To indicate that the VTIDTAB entry was used, the line 'vvvvvvvv IS A DYNAMIC VTAMID WHICH IS NOT LOGGED ON' is added at the bottom of the display.

VTST Unassigned Dynamic LU's are omitted from general displays, but can be displayed individually (LUxxxxx parameter), if desired.

Display of the region to which an LU is locked has been corrected as described in Section 2.9 for coding the MRPASSW parameter on the VTCSB macro.

SIM parameter display has been corrected to no longer erroneously include the CPU Console (if defined via a VTAM LUNIT).

DEACT parameter has been added (no sub-options) to list only deactivated (ineligible for LOGON/SIMLOGON) LU's (static and dynamic, if any). Also, dynamic VTIDTAB entries (if any) which have been deactivated are listed if they are not currently assigned to a dynamic LU (if implemented).

TOT display (and total line displayed at the end of a group display) has been changed as described in Section 2.8 to add the HIGH sessions count for the run. Also, a Dynamic LU's statistics/status line is added (if DLU processing implemented) to the totals display (as described at the end of Section 2.8).

Documentation Changes: SNA Terminal Support Guide
System Control Commands

New External Options: see above.

Installation: Automatic.

2.11 ESS (EXTENDED SECURITY SYSTEM) ENHANCEMENTS

The following enhancements have been made to ESS processing:

- Revise INTSEC02 to provide more base register relief (needed also for Year 2000 enhancements) - review placements of user modifications, if any.
- Revise ESS timeout processing to use the in-core sign-on control block to hold the timeout WQE address, rather than the Station Table. This eliminates ESS references to the Station Table, and thus allows generic entries in the Station Table for CRT's (see also Section 2.4.3).
- Revise INTVRB00 processing, when ESS is used, to handle an exempt terminal (such as the CPU Console) which is locked to a verb and enters a 5-character data field. Do not treat this field as a terminal-id for fast message switch (resulting in an error (invalid terminal-id) and return of the ESS sign-on screen to the exempt terminal).
- Revise IGCICSVC (for IISVC Intercomm Integrity SVC processing) load module to allow protected core requests up to 512K (from 256K). This may be needed for the ESS in-core user-id table when many users are defined in the security file. To use this change, reinstall IGCICSVC (see Installation Guide).
- Revise ESS modules for 4-digit year: fix displays, account/password expiration date, report dates, and replace GETDATE (uses CVTDATE) with INTTIME (on-line): INTSEC02, SECUEXIT, SECUPRNT. Also fix editing/converting of time fields.
- In INTSEC02, revise EXPDT attribute for 4-digit year: to provide for specifying an account/password expiration date after the millenium, the EXPDT(yyddd) attribute definition has been changed to EXPDT(yyyyddd).
- Resequence SECUEXIT to facilitate insertion of user modifications - review modification sequence numbering, and date field references for 4-digit years.
- Modify ESS SECUPTRS utility: add FIXDATE option for one-time conversion of 2-digit year fields to 4-digit year (change packed date fields, if initialized, to have leading century digits - convert from 00yyddds to ccyyddds), and convert time fields for easier internal use and external display. Print converted user record fields.

Documentation Changes: Extended Security System

New External Options: FIXDATE parameter for executing SECUPTRS to convert the SECURITY file for 4-digit year processing.

Installation: ***** WARNING FOR ESS USERS *****

Do not use the Release 11 INTVRB00, INTSEC00, INTSEC02, SECUEXIT, or SECUPRNT in production until all of the following steps have been taken:

1) Use the SECFILE Utility to copy the production ESS file.
2) Run R10 SECUPRNT Utility to print the entire copied file.
3) If not already done, run R10 or R11 SECUPTRS Utility against the copied file with PARM='UPDATE' to provide user account record back-chaining for on-line delete processing.
4) Run R11 SECUPTRS Utility against the copied file with the new PARM='FIXDATE' to fix non-zero date and time fields as described above.
5) Run R11 SECUPRNT Utility against the updated (by FIXDATE parameter for the SECUPTRS Utility) file to reprint the entire file.
6) Compare the Security file printouts from steps 2, 4, and 5 to verify that the file was correctly fixed for 4-digit years in the date fields, and to verify time fields, where those fields were originally non-zero.
7) Change the system (Control Region) JCL to ensure the DD statement for SECURITY is pointing to the updated file. Optionally do this in a Test system first, before changing the production system.
8) Revise the R10 INTSEC02 and SECUEXIT user modifications for R11, as needed, and apply them to the R11 versions. Reassemble and link together the (modified) R11 INTSEC02 and SECUEXIT and place the new load module in a STEPLIB library for on-line system execution (before any library containing the R10 version). Relink Intercomm with the R11 INTVRB00 and start the R11 Intercomm system (Control Region).
9) Verify date/time fields in the sign-on response display (to ensure updated Security file being used with R11 INTSEC02).
10) Use the SECU$DISPLAY$ACCOUNT$user-id command to display various users to verify R11 versions of date/time fields are being shown.

If initially tested in the Test system, relink the new INTSEC02 load module to the Production system STEPLIB library and change the DD statement for SECURITY to point to the updated (by SECUPTRS) file in the Production JCL and relink production Intercomm with the R11 INTVRB00 and INTSEC00 for the next system startup.

Warn your Security Managers of the date display changes and the EXPDT(yyyyddd) attribute change (if used).

Chapter 3

NEW DOCUMENTATION

All of the Intercomm documentation is being updated to correspond to Release 11, where applicable. The following manuals have or will have SPRs or new editions:

- ASMF Users Guide -- New Edition (with first SM's)
- Assembler Language Programmers Guide -- New Edition
- Basic System Macros -- New Edition - 7/98
- COBOL Programmers Guide -- New Edition
- Concepts and Facilities -- New Edition
- Dynamic Data Queuing Facility -- New Edition
- Extended Security System -- New Edition
- File Recovery Users Guide – New Edition
- Installation Guide -- New Edition - 6/98
- Messages and Codes -- New Edition or SPR
- Multiregion Support Facility -- New Edition
- Operating Reference Manual -- New Edition
- Planning Guide -- New Edition - 5/98
- SNA Terminal Support Guide -- New Edition or SPR
- System Control Commands – New Edition - 8/98
- Table Facility -- SPR

Interim separate documents for the following new features will be provided with the Release 11 tape, giving a detailed description and installation/usage notes: Storage Management Enhancements and Dynamic LU Support.

Some manual updates will be mailed with the Release 11 installation tape. The rest will be published when ready. New/revised indexes to the above manuals are being prepared, where necessary. Manuals not listed above have been recently updated (see the latest Publications Price List/Order Form) and require no new updates, or will not be updated because the feature is no longer generally used.

Appendix A

INTERCOMM MODULES ADDED/DELETED/REVISED FOR RELEASE 11

Added:

IC31PL00	TRAP31	VTIDTABD (Dsect)
DYNSAMP	CMSGHBMN (BMN-back-off change deck)	
ASMHOC	ASMHPC	ASMHPCL
ASMHPCM	LIBEHASM	LIBHLINK
DEFHSYM	SYMHGEN	

Deleted:

LOADP	LOADPAGE	PMIPGLD	SPLEVEL (IBM Macro)
BLOCKA	BLOCKAD	BLOCKAW	BLOCKB
BLOCKBD	BLOCKBW	BLOCKC	BLOCKCD
BLOCKCW	COBOLGN	GENERTRN	INTVL
IRANGE	RANDU	RANDV	TRANGEN

Revised and/or Rewritten/Resequenced:

MANAGER	RMTRACE	POOLDUMP	TRAP
POOLSTRT	RMPURGE	RMDSECTS	SPALIST
GETDATE	INTTIME	PMIDATER	STARTUP3
INTSTS	LOGPUT	RPT00045	TALLY
INTSEC02	SECUEXIT	SECUPRNT	SECUPTRS
BATCHPAK	BTAMSIM	CLOSDWN3	IJKDSP01
ICOMFEOF	LOGPRINT	PMISNAP1	TRIGGER
MRBATCH	MRINTER	MRMOD	MRPURGE
FEWHOI	FECMD	FESEND	FEMSG
INTVRB00	LUCUR	PMIEXTRM	LCOMP
LUNIT	LUDSECTS	VCT	VTIDTAB
VTAMSTAT	VTAUTOUP	VTCDM2	VTEXITS
VTLUCMD	VTQMOD	VTRECVE	VTSEND
VTSTART	VTURSDX1	VTVREERR	VT01MOD

Note: Many others have small changes. Csects which have changes for Release 11 have DC X'11000000' as the next to last statement.

Changed lines in Dsects, Macros, copy code, and Csects have 'R11-xx' (Release 11 change) or 'XM0nnn' (where nnn is in the range 871-919 indicating R10 Experimental SM nnn incorporated), where possible, starting in column 66. Changed lines for the Dynamic LU enhancement have '90xx' starting in column 68. User mods to all modules must be carefully evaluated for applicability and necessity.

Appendix B

Intercomm Message Header Layout

Field Name	Length	Description	Alter Legend*
MSGHLEN	2	Length of message including header (binary number)	Y
MSGHQPR	1	Teleprocessing segment I/O code: 02/F2=full message; 00/F0=header segment; 01/F1=intermediate segment; 03/F3=final (trailer) segment	N
MSGHRSCH	1	High-order receiving subsystem code	Y
MSGHRSC	1	Low-order receiving subsystem code	Y
MSGHSSC	1	Low-order sending subsystem code	M
MSGHMMN	3	Monitor message number assigned by Message Collection (binary)	N
MSGHDAT	6	Julian date (YY.DDD)	N
MSGHTIM	8	Time stamp (HHMMSSTH)	N
MSGHTID	5	Terminal identification (originating terminal on input messages/ destination terminal on output) or Broadcast Group name	Y
MSGHFLGS	2	Message indicator flags	N
(MSGHPID)	2	Reserved area	N
MSGHBMN	3	Front End message number (binary) - R10/11	N
MSGHSSCH	1	High-order sending subsystem code	M
MSGHUSR	1	User/system processing code	L
	2	Reserved for special processing by the Front End (MSGHBMN - R9)	N
MSGHLOG	1	Log code	L
MSGHBLK/ MSGHMRDX/ MSGHRETN	1	Reserved area/ Multiregion region number (log code 01/30)/ Subsystem return code (log code FA/FD)	N
MSGHVMI	1	Verb or message identifier interpreted by receiving subsystem as required, and by FESEND	Y

*Alter Legend - see Operating Reference Manual, Appendix B.