



Program Directory for Teleprocessing Network Simulator

Version 3 Release 5, Modification Level 0

Program Number 5688-121

FMID HZQ3502

for Use with

MVS/370

MVS/XA

MVS/ESA

OS/390

z/OS

Service Level 0110

Service Updated

Document Date: December 2001

Note!

Before using this information and the product it supports, be sure to read the general information under "Notices" on page iv.

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APAR numbers are provided in this document to assist in locating PTFs that may be required. Ongoing problem reporting may result in additional APARs being created. Therefore, the APAR lists in this document may not be complete. To obtain current service recommendations and to identify current product service requirements, always contact the IBM Customer Support Center or use S/390 SoftwareXcel to obtain the current "PSP Bucket".

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1.0 Introduction

This program directory is intended for the system programmer responsible for program installation and maintenance. It contains information concerning the material and procedures associated with the installation of Teleprocessing Network Simulator. This publication refers to Teleprocessing Network Simulator as TPNS. You should read all of this program directory before installing the program and then keep it for future reference.

The program directory contains the following sections:

- 2.0, "Program Materials" on page 3 identifies the basic and optional program materials and documentation for TPNS.
- 3.0, "Program Support" on page 7 describes the IBM support available for TPNS.
- 4.0, "Program and Service Level Information" on page 9 lists the APARs (program level) and PTFs (service level) incorporated into TPNS.
- 5.0, "Installation Requirements and Considerations" on page 12 identifies the resources and considerations for installing and using TPNS.
- 6.0, "Installation Instructions" on page 21 provides detailed installation instructions for TPNS. It also describes the procedures for activating the functions of TPNS, or refers to appropriate publications.
- Appendix A, "APAR Fixes" on page 28 lists the APAR fixes incorporated in TPNS Version 3, Release 5, Modification Level 0, Service Level 0110.
- Appendix B, "Enhancements" on page 40 describes the enhancements incorporated into TPNS Version 3, Release 5, Modification Level 0, Service Level 0110.

Before installing TPNS, read 3.2, "Preventive Service Planning" on page 7. This section tells you how to find any updates to the information and procedures in this program directory.

Do not use this program directory if you are installing TPNS with a SystemPac* or ServerPac*. When using these offerings, use the jobs and documentation supplied with the offering. This documentation may point you to specific sections of the program directory as required.

If you are installing TPNS using the MVS* Custom-Built Product Delivery Offering (CBPDO*, 5751-CS3), a softcopy program directory is provided on the CBPDO tape which is identical to the printed copy shipped with your order. Your CBPDO contains a softcopy preventive service planning (PSP) upgrade for this product. All service and HOLDDATA for TPNS are included on the CBPDO tape.

Teleprocessing Network Simulator (TPNS) Version 3, Release 5, Modification Level 0, Service Level 0110 is a service update release of TPNS replacing TPNS Version 3, Release 4, TPNS Version 3, Release 5, Modification Level 0, and TPNS Version 3, Release 5, Modification Level 0 Service Level 9711.

"TPNS" is used throughout this document to indicate TPNS Version 3, Release 5, Modification Level 0, Service Level 0110.

TPNS Planning and Installation, SH20-2488, gives an overview of the installation process. You should familiarize yourself with this information before using this program directory. The program directory repeats some of the installation process described in *TPNS Planning and Installation*, but this directory contains the latest and most complete installation instructions.

1.1 TPNS Description

TPNS is a terminal and network simulation tool. You can use TPNS to determine system performance and response time, to evaluate network design, to perform functional testing, and to automate regression testing.

1.2 TPNS FMIDs

TPNS consists of the following FMIDs:

HZQ3502

2.0 Program Materials

An IBM program is identified by a program number and a feature number. The program number for TPNS is 5688-121.

Basic Machine-Readable Materials are materials that are supplied under the base license and feature code, and are required for the use of the product. Optional Machine-Readable Materials are orderable under separate feature codes, and are not required for the product to function.

The program announcement material describes the features supported by TPNS. Ask your IBM representative for this information if you have not already received a copy.

2.1 Basic Machine-Readable Material

The distribution medium for this program is 9-track magnetic tape (written at 6250 BPI), 3480 cartridge, or 4mm cartridge. It is installed using SMP/E, and is in SMP/E RELFILE format. See 6.0, "Installation Instructions" on page 21 for more information about how to install the program.

Figure 1 describes the tape or cartridge. Figure 2 describes the file content of the program tape or cartridge.

Notes:

1. The data set attributes in these tables should be used in the JCL of jobs reading the data sets, but since the data sets are in IEBCOPY unloaded format, their actual attributes may be different.
2. If you are installing TPNS using the Custom-Built Product Delivery Offering (CBPDO) (5751-CS3), some of the information in these figures may not be valid. Consult the CBPDO documentation for actual values.
3. If any RELFILES are identified as PDSEs, ensure that SMPTLIB data sets are allocated as PDSEs.

Medium	Feature Number	Physical Volume	External Label	R/M *	VOLSER
6250 tape	5811	1	HZQ3502BASE0110MVS	N	ZQ3502
3480 cart.	5812	1	HZQ3502BASE0110MVS	N	ZQ3502
4 mm cart.	7828	1	HZQ3502BASE0110MVS	N	ZQ3502

* R/M = Restricted Materials of IBM

Figure 2. Program File Content

Name	O R G	R E C F M	L R E C L	BLK SIZE
SMPMCS	SEQ	FB	80	8800
IBM.HZQ3502.F1	PDS	FB	80	8800
IBM.HZQ3502.F2	PDS	U	0	6144
IBM.HZQ3502.F3	PDS	FB	80	8800
IBM.HZQ3502.F4	PDS	FB	80	8800
IBM.HZQ3502.F5	PDS	FB	80	8800
IBM.HZQ3502.F6	PDS	FB	80	8800
IBM.HZQ3502.F7	PDS	FB	80	8800
IBM.HZQ3502.F8	PDS	FB	80	8800
IBM.HZQ3502.F9	PDS	FB	80	8800
IBM.HZQ3502.F10	PDS	FB	80	8800
IBM.HZQ3502.F11	PDS	FB	80	8800
IBM.HZQ3502.F12	PDS	FB	80	8800
IBM.HZQ3502.F13	PDS	FB	80	8800
IBM.HZQ3502.F14	PDS	U	0	6144
IBM.HZQ3502.F15	PDS	FB	80	8800
IBM.HZQ3502.F16	PDS	FB	80	8800

2.2 Optional Machine-Readable Material

No optional machine-readable materials are provided for TPNS.

2.3 Program Publications

The following sections identify the basic and optional publications for TPNS.

2.3.1 Basic Program Publications

Figure 3 identifies the basic unlicensed program publications for TPNS. One copy of each of these publications is included when you order the basic materials for TPNS. For additional copies, contact your IBM representative.

Figure 3. Basic Material: Unlicensed Publications

Publication Title	Form Number
Creating TPNS Message Generation Decks	SC31-6009
Defining TPNS Networks	SC31-6008
TPNS General Information	GH20-2487
TPNS General Utilities	SC30-3290
TPNS Language Reference	SH20-2489
TPNS Licensed Program Specifications	GH20-5323
TPNS Master Index	GC31-6059
TPNS Messages and Codes	SC30-3310
TPNS Operation	SC30-3289
TPNS Planning and Installation	SH20-2488
TPNS Primer	SC31-6043
TPNS Samples	SC30-3454
TPNS Script Generating Utilities	SC30-3453
TPNS STL Reference Card	SX75-0065
TPNS User Exits	SC31-6071
Using the TPNS Structured Translator Language (STL) and the STL Translator	SC31-6013
TPNS Function and Service Enhancements - 2001	SC31-8654

No licensed program publications are provided for TPNS.

2.3.2 Optional Program Publications

No optional publications are provided for TPNS.

2.4 Program Source Materials

No program source materials or viewable program listings are provided for TPNS.

2.5 Publications Useful During Installation

The publications listed in Figure 4 may be useful during the installation of TPNS. To order copies, contact your IBM representative or visit the IBM Publications Center at www.elink.ibm.com/applications/public/applications/publications/cgibin/pbi.cgi on the Internet.

Figure 4. Publications Useful During Installation

Publication Title	Form Number
MVS/ESA JCL Reference	GC28-1479
MVS/ESA JCL User's Guide	GC28-1473
MVS/DFP Utilities	SC26-4559
MVS/ESA System Messages, Volume 1	GC28-1480
MVS/ESA System Messages, Volume 2	GC28-1481
MVS/ESA System Messages, Volume 3	GC28-1482
MVS/ESA System Messages, Volume 4	GC28-1483
MVS/ESA System Messages, Volume 5	GC28-1484
MVS/DFP Linkage Editor and Loader	SC26-4564
IBM SMP/E for z/OS and OS/390 User's Guide	SA22-7772
IBM SMP/E for z/OS and OS/390 Reference	SA22-7771
IBM SMP/E for z/OS and OS/390 Messages, Codes, and Diagnosis	GA22-7770

3.0 Program Support

This section describes the IBM support available for TPNS.

3.1 Program Services

Contact your IBM representative for specific information about available program services.

3.2 Preventive Service Planning

Before installing TPNS, you should review the current Preventive Service Planning (PSP) information. If you obtained TPNS as part of a CBPDO, there is HOLDDATA and PSP information included on the CBPDO.

If you obtained TPNS on a product tape, or if the CBPDO is more than two weeks old when you install it, you should contact the IBM Support Center or use S/390 SoftwareXcel to obtain the current "PSP Bucket".

For access to RETAIN, visit <http://webspinner.boulder.ibm.com/retain> on the Internet.

PSP Buckets are identified by UPGRADEs, which specify product levels, and SUBSETs, which specify the FMIDs for a product level. The UPGRADE and SUBSET values for TPNS are:

<i>Figure 5. PSP Upgrade and Subset ID</i>		
UPGRADE	SUBSET	Description
TPNS350	HZQ3502/MVS	TPNS V3R5

3.3 Statement of Support Procedures

Report any difficulties you have using this program to your IBM Support Center. If an APAR is required, the Support Center will provide the address to which any needed documentation can be sent.

Figure 6 identifies the component IDs (COMPID) for TPNS.

<i>Figure 6. Component IDs</i>			
FMID	COMPID	Component Name	RETAIN Release
HZQ3502	568812101	TPNS V3R5	502

For technical assistance on TPNS related activities such as script generation and debug, contact the TPNS Technical Support Hotline.

US and Canadian Customers 1-800-835-8767 (1-800-TEL-TPNS)

Outside of US and Canada nnn-1-919-543-5983
nnn = Local International Access Code

E-Mail: tpns@us.ibm.com

4.0 Program and Service Level Information

This section identifies the program and any relevant service levels of TPNS. The program level refers to the APAR fixes incorporated into the program. The service level refers to the PTFs integrated.

This program is at Service Level 0110.

4.1 Program Level Information

The following APAR fixes against previous releases of TPNS have been incorporated into this release. They are listed by FMID.

- FMID HZQ3502

PL44404	PL51650	PL58046	PL63179	PL74066	PN03430
PL45788	PL51704	PL58053	PL63180	PL74645	PN03800
PL45920	PL51705	PL58054	PL63182	PL74672	PN03839
PL46023	PL51817	PL58055	PL63709	PL74750	PN03841
PL46139	PL52367	PL58057	PL63789	PL74760	PN03851
PL46220	PL52371	PL58058	PL63792	PL75004	PN03852
PL46230	PL52379	PL58206	PL64942	PL75064	PN04389
PL46401	PL52661	PL58207	PL64949	PL75068	PN05527
PL46708	PL52796	PL59475	PL65619	PL75134	PN05793
PL46853	PL53334	PL59478	PL66174	PL76224	PN05794
PL46863	PL53354	PL59839	PL68192	PL76227	PN06214
PL46896	PL53914	PL59841	PL68201	PL76229	PN06246
PL46918	PL53915	PL59860	PL68202	PL76231	PN06311
PL46973	PL54324	PL59861	PL68206	PL76389	PN06338
PL46980	PL54326	PL59863	PL68510	PL78839	PN07002
PL47687	PL56332	PL60034	PL68842	PL79413	PN07309
PL47697	PL56337	PL60441	PL68843	PL80220	PN07443
PL47930	PL56338	PL60628	PL69011	PL83104	PN09226
PL47932	PL56340	PL60630	PL69512	PL83191	PN09231
PL48031	PL56675	PL60632	PL69605	PL83199	PN09233
PL48051	PL56739	PL60641	PL69607	PL83211	PN09251
PL48058	PL56880	PL61930	PL70651	PL83722	PN09543
PL48650	PL56912	PL61933	PL70652	PL83973	PN09652
PL49124	PL56914	PL62273	PL70653	PL84388	PN09655
PL49167	PL56916	PL62274	PL70863	PN00130	PN10719
PL49240	PL57675	PL62275	PL70866	PN02496	PN10720
PL50079	PL57676	PL62276	PL70868	PN02613	PN11687
PL50308	PL57697	PL62277	PL70871	PN02767	PN11688
PL50311	PL57701	PL62396	PL70873	PN02769	PN30266
PL51294	PL57702	PL63178	PL71877	PN02776	PN30267

PN30287	PN36042	PN42658	PN53557	PN67948	PN80129
PN30294	PN36678	PN43212	PN55548	PN69103	PN80169
PN30295	PN36681	PN43684	PN56317	PN69105	PN80170
PN30296	PN36716	PN44069	PN57003	PN69514	PN80381
PN30297	PN38175	PN44420	PN57006	PN70497	PN80704
PN30298	PN38178	PN45054	PN57376	PN70501	PN81072
PN30422	PN39144	PN45082	PN59276	PN71218	PN83817
PN30570	PN39146	PN45085	PN57364	PN71221	PN82568
PN32616	PN39154	PN46438	PN60390	PN71976	PN83818
PN33174	PN39160	PN46440	PN59275	PN73028	PN84140
PN33563	PN39161	PN47029	PN60391	PN73347	PN84369
PN33778	PN39165	PN47030	PN60392	PN73348	PN84633
PN33779	PN39840	PN48578	PN60393	PN73505	PN84634
PN34370	PN40402	PN48580	PN60951	PN74363	PN85459
PN35125	PN40403	PN50082	PN60952	PN75619	PN85461
PN35126	PN40407	PN50084	PN60954	PN76027	PN85691
PN35276	PN40462	PN50147	PN61567	PN76767	PN86482
PN35280	PN40707	PN51529	PN61568	PN77099	PN86483
PN35313	PN40711	PN51699	PN62275	PN77196	PN87860
PN35319	PN41957	PN52134	PN63346	PN79131	PN88033
PN35322	PN41958	PN52135	PN65226	PN79133	
PN35584	PN42556	PN53088	PN67692		

The following APAR fixes against this release of TPNS have been incorporated into this service update. They are listed by FMID.

- FMID HZQ3502

PN89503	PQ02008	PQ07602	PQ14597	PQ17900	PQ27138
PN89504	PQ02175	PQ07709	PQ14598	PQ17902	PQ27369
PN89865	PQ02176	PQ08458	PQ14599	PQ18573	PQ30685
PN89866	PQ02194	PQ08994	PQ14601	PQ19386	PQ30687
PN89867	PQ02302	PQ09834	PQ14602	PQ19612	PQ30688
PN90724	PQ03193	PQ10239	PQ14603	PQ19613	PQ30689
PN91008	PQ03196	PQ11407	PQ14721	PQ19624	PQ33393
PN91042	PQ03828	PQ11426	PQ14722	PQ20608	PQ36772
PN91725	PQ04732	PQ11985	PQ15156	PQ20610	PQ36973
PN92272	PQ05435	PQ11986	PQ15553	PQ21104	PQ36974
PN92827	PQ06738	PQ12647	PQ15972	PQ21106	PQ39825
PQ01196	PQ06739	PQ13406	PQ16477	PQ24103	PQ39991
PQ01245	PQ06742	PQ13407	PQ16617	PQ25007	PQ48014
PQ01252	PQ06746	PQ13650	PQ16840	PQ25911	PQ48016
PQ02004	PQ06748	PQ13651	PQ17799	PQ26049	PQ48020
PQ02007	PQ07349	PQ13652	PQ17873	PQ26954	

PQ52895
PQ52897

4.2 Service Level Information

No PTFs against this release of TPNS have been incorporated into the product tape.

TPNS Version 3, Release 5, Modification Level 0, Service Level 0110 is a service update replacing TPNS Version 3, Release 4, Modification Level 0, TPNS Version 3, Release 5, Modification Level 0, and TPNS Version 3, Release 5, Modification Level 0, Service Level 9711.

5.0 Installation Requirements and Considerations

The following sections identify the system requirements for installing and activating TPNS. The following terminology is used:

- *Driving system*: the system used to install the program.
- *Target system*: the system on which the program is installed.

In many cases, the same system can be used as both a driving system and a target system. However, you may want to set up a clone of your system to use as a target system by making a separate IPL-able copy of the running system. The clone should include copies of all system libraries that SMP/E updates, copies of the SMP/E CSI data sets that describe the system libraries, and your PARMLIB and PROCLIB.

Some cases where two systems should be used include the following:

- When installing a new level of a product that is already installed, the new product will delete the old one. By installing onto a separate target system, you can test the new product while still keeping the old one in production.
- When installing a product that shares libraries or load modules with other products, the installation can disrupt the other products. Installing onto a test system or clone will allow you to assess these impacts without disrupting your production system.

5.1 Driving System Requirements

This section describes the environment of the driving system required to install TPNS.

5.1.1 Machine Requirements

The driving system can run in any hardware environment that supports the required software.

5.1.2 Programming Requirements

Figure 7 (Page 1 of 2). Driving System Software Requirements

Program Number	Product Name and Minimum VRM/Service Level
Any one of the following:	
5647-A01	OS/390 SMP/E Version 2 Release 5 or higher with PTF UR51068
5647-A01	OS/390 SMP/E Version 2 Release 6 or higher with PTF UR51068
5647-A01	OS/390 SMP/E Version 2 Release 7
5694-A01	z/OS Version 1 Release 1 or higher

Figure 7 (Page 2 of 2). Driving System Software Requirements

Program Number	Product Name and Minimum VRM/Service Level
5655-G44	IBM SMP/E for z/OS and OS/39 Version 3 Release 1 or higher
(Note: Any available Linkage Editor/Program Binder may be used to install TPNS.)	
Any one of the following:	
5752-VS2	MVS/370* (MVS/SP* Version 1) any release
5740-XC6	MVS/XA* (MVS/SP Version 2 for JES2) any release
5665-291	MVS/XA (MVS/SP Version 2 for JES3) any release
5685-001	MVS/ESA* (MVS/SP Version 3 for JES2) any release
5685-002	MVS/ESA (MVS/SP Version 3 for JES3) any release
5695-047	MVS/ESA (MVS/SP Version 4 for JES2) any release
5695-048	MVS/ESA (MVS/SP Version 4 for JES3) any release
5655-068	MVS/ESA (MVS/SP Version 5 for JES2) any release
5655-069	MVS/ESA (MVS/SP Version 5 for JES3) any release
5645-001	OS/390 any release

5.2 Target System Requirements

This section describes the environment of the target system required to install and use TPNS.

TPNS installs in the MVS (Z038) SREL.

5.2.1 Machine Requirements

The target system can run in any hardware environment that supports the required software.

5.2.2 Programming Requirements

5.2.2.1 Mandatory Requisites

A mandatory requisite is defined as a product that is required without exception; this product either **will not install** or **will not function** unless this requisite is met. This includes products that are specified as REQs or PREs.

Figure 8. Mandatory Requisites

Program Number	Product Name and Minimum VRM/Service Level
Any one of the following:	
5752-VS2	MVS/370 (MVS/SP Version 1) any release
5740-XC6	MVS/XA (MVS/SP Version 2 for JES2) any release
5665-291	MVS/XA (MVS/SP Version 2 for JES3) any release
5685-001	MVS/ESA (MVS/SP Version 3 for JES2) any release
5685-002	MVS/ESA (MVS/SP Version 3 for JES3) any release
5695-047	MVS/ESA (MVS/SP Version 4 for JES2) any release
5695-048	MVS/ESA (MVS/SP Version 4 for JES3) any release
5655-068	MVS/ESA (MVS/SP Version 5 for JES2) any release
5655-069	MVS/ESA (MVS/SP Version 5 for JES3) any release
5645-001	OS/390 any release

5.2.2.2 Functional Requisites

A functional requisite is defined as a product that is **not** required for the successful installation of this product or for the basic function of the product, but **is** needed at run time for a specific function of this product to work. This includes products that are specified as IF REQs.

TPNS has no functional requisites.

5.2.2.3 Toleration/Coexistence Requisites

A toleration/coexistence requisite is defined as a product which must be present on a sharing system. These systems can be other systems in a multisystem environment (not necessarily sysplex), a shared DASD environment (such as test and production), or systems that reuse the same DASD at different time intervals.

TPNS has no toleration/coexistence requisites.

5.2.2.4 Incompatibility (Negative) Requisites

A negative requisite identifies products which must *not* be installed on the same system as this product.

TPNS has no negative requisites.

5.2.3 DASD Storage Requirements

TPNS libraries can reside on 3350, 3380, or 3390 DASD. However, only 3390 space requirements are listed in the following figures.

Figure 9 on page 15 lists the total space required for each type of library.

<i>Figure 9. Total DASD Space Required by TPNS</i>	
Library Type	Total Space Required
Target	376 Tracks
Distribution	437 Tracks

Notes:

1. IBM recommends use of system determined block sizes for efficient DASD utilization for all non-RECFM U data sets. For RECFM U data sets, IBM recommends a block size of 32760, which is the most efficient from a performance and DASD utilization perspective.

2. Abbreviations used for the data set type are:

- U** Unique data set, allocated by this product and used only by this product. To determine the correct storage needed for this data set, this table provides all required information; no other tables (or program directories) need to be referenced for the data set size.
- S** Shared data set, allocated by this product and used by this product and others. To determine the correct storage needed for this data set, the storage size given in this table needs to be added to other tables (perhaps in other program directories). If the data set already exists, it must have enough free space to accommodate the storage size given in this table.
- E** Existing shared data set, used by this product and others. This data set is NOT allocated by this product. To determine the correct storage needed for this data set, the storage size given in this table needs to be added to other tables (perhaps in other program directories). This existing data set must have enough free space to accommodate the storage size given in this table.

If you currently have a previous release of this product installed in these libraries, the installation of this release will delete the old one and reclaim the space used by the old release and any service that had been installed. You can determine whether or not these libraries have enough space by deleting the old release with a dummy function, compressing the libraries, and comparing the space requirements with the free space in the libraries.

For more information on the names and sizes of the required data sets, please refer to 6.1.7, "Allocate SMP/E Target and Distribution Libraries" on page 24.

3. All target and distribution libraries listed have the following attributes:

- The default name of the data set may be changed
- The default block size of the data set may be changed
- The data set may be merged with another data set that has equivalent characteristics

- The data set may be either a PDS or a PDSE
4. All target libraries listed have the following attributes:
- The data set may be SMS managed
 - It is not required for the data set to be SMS managed
 - It is not required for the data set to reside on the IPL volume
 - The values in the "Member Type" column are not necessarily the actual SMP/E element types identified in the SMPMCS.
5. All target libraries listed which contain load modules have the following attributes:
- The data set may be in the LPA
 - It is not required for the data set to be in the LPA
 - The data set may be in the LNKLST
 - It is not required for the data set to be APF authorized

The following figures describe the target and distribution libraries required to install TPNS. The storage requirements of TPNS must be added to the storage required by other programs having data in the same library.

Note: The data in these tables should be used when determining which libraries can be merged into common data sets. In addition, since some ALIAS names may not be unique, ensure that no naming conflicts will be introduced before merging libraries.

Figure 10 (Page 1 of 2). Storage Requirements for TPNS Target Libraries

Library DDNAME	Member Type	Target Volume	T Y P E	O R G	R E C F M	L R E C L	No. of 3390 Trks	No. of DIR Blks
SITPLMD1	LMOD	TVOL1	U	PDS	U	0	88	10
SITPEXE1	EXEC	TVOL1	U	PDS	FB	80	26	2
SITPPNL1	Panel	TVOL1	U	PDS	FB	80	110	50
SITPMMSG1	Message	TVOL1	U	PDS	FB	80	4	2
SITPSKL1	Skeleton	TVOL1	U	PDS	FB	80	6	2
SITPTBL1	Table	TVOL1	U	PDS	FB	80	2	2
SITPSAM1	Sample	TVOL2	U	PDS	FB	80	32	10
SITPCLS1	CLIST	TVOL2	U	PDS	FB	80	5	4
SITPDAT1	Data	TVOL2	U	PDS	FB	80	4	2
SITPDAT2	Data	TVOL2	U	PDS	FB	80	7	3
SITPDAT3	Data	TVOL2	U	PDS	FB	80	7	3
SITPDAT4	Data	TVOL2	U	PDS	FB	80	9	3
SCVAMOD1	LMOD	TVOL2	U	PDS	U	0	24	60

Figure 10 (Page 2 of 2). Storage Requirements for TPNS Target Libraries

Library DDNAME	Member Type	Target Volume	T Y P E	O R G	R E C F M	L R E C L	No. of 3390 Trks	No. of DIR Blks
SCVAMAC1	Macro	TVOL2	U	PDS	FB	80	24	8
SCVAMAC2	Macro	TVOL2	U	PDS	FB	80	27	11
SVCLIB	LMOD	n/a	E	PDS	U	0	1	1

Figure 11. Storage Requirements for TPNS Distribution Libraries

Library DDNAME	T Y P E	O R G	R E C F M	L R E C L	No. of 3390 Trks	No. of DIR Blks
AITPMOD1	U	PDS	U	0	150	160
AITPEXE1	U	PDS	FB	80	26	2
AITPPNL1	U	PDS	FB	80	110	50
AITPMSG1	U	PDS	FB	80	4	2
AITPSKL1	U	PDS	FB	80	6	2
AITPTBL1	U	PDS	FB	80	2	2
AITPSAM1	U	PDS	FB	80	32	10
AITPCLS1	U	PDS	FB	80	5	4
AITPDAT1	U	PDS	FB	80	4	2
AITPDAT2	U	PDS	FB	80	7	3
AITPDAT3	U	PDS	FB	80	7	3
AITPDAT4	U	PDS	FB	80	9	3
ACVAMOD1	U	PDS	U	0	24	60
ACVAMAC1	U	PDS	FB	80	24	8
ACVAMAC2	U	PDS	FB	80	27	11

The following figure specifies the TPNS data sets which corresponds to the Library DDNAME.

Figure 12. Corresponding TPNS data set name to Library DDNAME

Library DDNAME	TPNS Data Set
SITPLMD1	tpns.LOAD
SITPEXE1	tpns.EXEC
SITPPNL1	tpns.PANEL
SITPMSG1	tpns.MSG
SITPSKL1	tpns.SKEL
SITPTBL1	tpns.TABLE
SITPSAM1	tpns.SAMPLE
SITPCLS1	tpns.CLIST
SITPDAT1	tpns.MODELC
SITPDAT2	tpns.MODELM
SITPDAT3	tpns.MODELS
SITPDAT4	tpns.UEXINTFC
SCVAMOD1	tpns.TPNSCPOB
SCVAMAC1	tpns.TPNSCPS1
SCVAMAC2	tpns.TPNSCPS2
SVCLIB	SYS1.SVCLIB
AITPMOD1	tpns.OBJCPU
AITPEXE1	tpns.AEXEC
AITPPNL1	tpns.APANEL
AITPMSG1	tpns.AMSG
AITPSKL1	tpns.ASKEL
AITPTBL1	tpns.ATABLE
AITPSAM1	tpns.ASAMPLE
AITPCLS1	tpns.ACLIST
AITPDAT1	tpns.AMODEL
AITPDAT2	tpns.AMODEL
AITPDAT3	tpns.AMODEL
AITPDAT4	tpns.AUEXINTF
ACVAMOD1	tpns.ATPNCPOB
ACVAMAC1	tpns.ATPNCPS1
ACVAMAC2	tpns.ATPNCPS2

Note: tpns = High level qualifier used for TPNS data sets.

Refer to the installation topic in *TPNS Planning and Installation*, SH20-2488, for data sets that are not used by SMP/E, but are required for TPNS to execute.

5.3 FMIDs Deleted

Installing TPNS may result in the deletion of other FMIDs. To see what FMIDs will be deleted, examine the ++VER statement in the product's SMPMCS.

If you do not wish to delete these FMIDs at this time, you must install TPNS into separate SMP/E target and distribution zones.

Note: These FMIDs will not automatically be deleted from the Global Zone. Consult the SMP/E manuals for instructions on how to do this.

<i>Figure 13 (Page 1 of 2). FMIDs Deleted</i>		
Deleted FMID	Deleting FMID	Description
HZQ2302	HZQ3502	TPNS Version 2 Release 3
JZQ2310	HZQ3502	TPNS Version 2 Release 3
HZQ2303	HZQ3502	TPNS Version 2 Release 3 Service Level 8607
JZQ2311	HZQ3502	TPNS Version 2 Release 3 Service Level 8607
HZQ2402	HZQ3502	TPNS Version 2 Release 4
JZQ2410	HZQ3502	TPNS Version 2 Release 4
HZQ2403	HZQ3502	TPNS Version 2 Release 4 Service Level 8712
JZQ2411	HZQ3502	TPNS Version 2 Release 4 Service Level 8712
HZQ2404	HZQ3502	TPNS Version 2 Release 4 Service Level 8810
JZQ2412	HZQ3502	TPNS Version 2 Release 4 Service Level 8810
HZQ2405	HZQ3502	TPNS Version 2 Release 4 Service Level 8907
JZQ2413	HZQ3502	TPNS Version 2 Release 4 Service Level 8907
HZQ2406	HZQ3502	TPNS Version 2 Release 4 Service Level 9006
JZQ2414	HZQ3502	TPNS Version 2 Release 4 Service Level 9006
HZQ2407	HZQ3502	TPNS Version 2 Release 4 Service Level 9105
JZQ2415	HZQ3502	TPNS Version 2 Release 4 Service Level 9105
HZQ3102	HZQ3502	TPNS Version 3 Release 1
JZQ3110	HZQ3502	TPNS Version 3 Release 1
HZQ3202	HZQ3502	TPNS Version 3 Release 2

Figure 13 (Page 2 of 2). FMIDs Deleted

Deleted FMID	Deleting FMID	Description
JZQ3210	HZQ3502	TPNS Version 3 Release 2
HZQ3302	HZQ3502	TPNS Version 3 Release 3
JZQ3310	HZQ3502	TPNS Version 3 Release 3
HZQ3402	HZQ3502	TPNS Version 3 Release 4

5.4 Special Considerations

The TPNS channel-end and start-I/O appendages are installed into the SYS1.SVCLIB system data set. The appendages are necessary when TPNS will be performing I/O to a communication controller. The default names for these appendages are IGG0198N and IGG0198X. If you want to install using other appendage names, either rename them or copy them to different appendage names.

A series of 144 I/O appendage names are available for general use. This series ranges from:

IGG019WA through IGG019WZ
IGG019W0 through IGG019W9
IGG019XA through IGG019XZ
IGG019X0 through IGG019X9
IGG019YA through IGG019YZ
IGG019Y0 through IGG019Y9
IGG019ZA through IGG019ZZ
IGG019Z0 through IGG019Z9.

Be sure that modules with these names do not already exist in the SYS1.LPALIB and SYS1.SVCLIB system data sets before using these names.

Refer to the installation topic in *TPNS Planning and Installation*, SH20-2488, for additional special considerations.

6.0 Installation Instructions

This chapter describes the installation method and the step-by-step procedures to install and to activate the functions of TPNS.

Please note the following:

- If you want to install TPNS into its own SMP/E environment, consult the SMP/E manuals for instructions on creating and initializing the SMP/CSI and the SMP/E control data sets. Sample jobs DEFCSI and DEFZONES are provided for reference.
- Sample jobs have been provided to help perform some or all of the installation tasks. The SMP/E jobs assume that all DDDEF entries required for SMP/E execution have been defined in the appropriate zones.
- The SMP/E dialogs may be used instead of the sample jobs to accomplish the SMP/E installation steps.

6.1 Installing TPNS

6.1.1 SMP/E Considerations for Installing TPNS

This release of TPNS is installed using the SMP/E RECEIVE, APPLY, and ACCEPT commands. The SMP/E dialogs may be used to accomplish the SMP/E installation steps.

6.1.2 SMP/E Options Subentry Values

The recommended values for some SMP/E CSI subentries are shown in Figure 14. Use of values lower than these may result in failures in the installation process. DSSPACE is a subentry in the GLOBAL options entry. PEMAX is a subentry of the GENERAL entry in the GLOBAL options entry. Refer to the SMP/E manuals for instructions on updating the global zone.

SUB-ENTRY	Value	Comment
DSSPACE	(200,100,150)	Minimum value required for TPNS installation.
PEMAX	SMP/E Default	IBM recommends using the SMP/E default for PEMAX.
	3000	Minimum value required for TPNS installation.

6.1.3 Sample Jobs

The following sample installation jobs are provided as part of the product to help you install TPNS:

Figure 15. Sample Installation Jobs

Job Name	Job Type	Description	RELFILE
RECEIVE	RECEIVE	Sample RECEIVE job	IBM.HZQ3502.F3
ALLOCATE	ALLOCATE	Sample job to allocate target and distribution libraries	IBM.HZQ3502.F3
DDDEF	DDDEF	Sample job to define SMP/E DDDEFs	IBM.HZQ3502.F3
APPLY	APPLY	Sample APPLY job	IBM.HZQ3502.F3
ACCEPT	ACCEPT	Sample ACCEPT job	IBM.HZQ3502.F3
DEFCSI	DEFCSI	Sample job to create a new SMP/E environment including the SMPCSI and SMP/E control data sets. This job is provided for reference only.	IBM.HZQ3502.F3
DEFZONES	DEFZONES	Sample job to create new SMP/E target and distribution zones. This job is provided for reference only.	IBM.HZQ3502.F3

In the sample SMP/E jobs provided, the name of the global CSI data set is **#globalcsi**. The name of the target zone is **#tzone**. The name of the distribution zone is **#dzone**. The sample jobs must be updated to reflect the CSI and zone names for TPNS installation.

You may copy the jobs from the tape by submitting the job below. Add a job card and change the lowercase parameters to uppercase values to meet your site's requirements before submitting.

```
//STEP1 EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=*
//TAPEIN DD DSN=IBM.HZQ3502.F3,UNIT=tunit,VOL=SER=ZQ3502,
// LABEL=(4,SL),DISP=(OLD,KEEP)
//OUT DD DSNAME=jcl-library-name,
// DISP=(NEW,CATLG,DELETE),
// VOL=SER=dasdvol,UNIT=dunit,
// SPACE=(TRK,(40,20,10))
//SYSUT3 DD UNIT=SYSALLDA,SPACE=(CYL,(1,1))
//SYSIN DD *
COPY INDD=TAPEIN,OUTDD=OUT
/*
```

where **tunit** is the unit value matching the product tape, or cartridge, **jcl-library-name** is the name of the data set where the sample jobs will reside, **dasdvol** is the volume serial of the DASD device where the data set will reside, and **dunit** is the DASD unit type of the volume.

You can also access the sample installation jobs by performing an SMP/E RECEIVE for FMID HZQ3502, and then copying the jobs from SMPTLIB data set '**high-level-qualifier**.HZQ3502.F3' to a work data set for editing and submission. See Figure 15 on page 21 to find the appropriate SMPTLIB data set.

Note: "high-level-qualifier" is the high-level qualifier specified as the DSPREFIX value in the SMPTLIB DDDEF or the OPTIONS entry of the global zone.

6.1.4 Saving TPNS Version 3 Release 4

If you are currently using TPNS Version 3 Release 4, Figure 16 on page 23 indicates the data sets you should copy if you want to save TPNS Version 3 Release 4 prior to installing TPNS Version 3, Release 5.

<i>Figure 16. TPNS Version 3 Release 4 Data Sets to Save</i>
tpns.CLIST
tpns.LOAD
tpns.NCPLOAD (optional data set, may not be present)
tpns.OBJCPU
tpns.PANEL
tpns.RATETBLS (optional data set, may not be present)
tpns.SAMPLE
tpns.TPNSCPOB
tpns.TPNSCPS1
tpns.TPNSCPS2
tpns.UEXINTFC

Note: tpns = High level qualifier used for data sets at time of TPNS Version 3 Release 4 installation.

There is no need to save the TPNS channel-end and start-I/O appendages since they are the same for TPNS Version 3 Release 3, TPNS Version 3 Release 4, and TPNS Version 3, Release 5.

6.1.5 Saving TPNS Version 3 Release 4 TPNS/ISPF Interface

If you modified the TPNS/ISPF Interface source, Figure 17 indicates the data sets you should copy if you want to save these modifications prior to installing TPNS Version 3, Release 5.

<i>Figure 17. TPNS/ISPF Interface Data Sets to Save</i>
tpns.EXEC
tpns.PANEL
tpns.MSG
tpns.SKEL
tpns.TABLE
tpns.MODELCL
tpns.MODELS
tpns.MODELM

Note: tpns = High level qualifier used for data sets at time of TPNS Version 3 Release 4 installation.

6.1.6 Perform SMP/E RECEIVE

Edit and submit sample job RECEIVE to perform the SMP/E RECEIVE for TPNS. Consult the instructions in the sample job for more information.

NOTE: If you obtained TPNS as part of a CBPDO, you can use the RCVPDO job found in the CBPDO RIMLIB data set to RECEIVE the TPNS FMIDs as well as any service, HOLDDATA, or preventive service planning (PSP) information included on the CBPDO tape. For more information, refer to the documentation included with the CBPDO.

The following SMP/E RECEIVE command is issued.

```
RECEIVE SELECT(HZQ3502) SYSMODS LIST .
```

Expected Return Codes and Messages:

This job should complete with a return code 0.

However, a return code 4 is acceptable when the following warning message is issued.

```
GIM50050W RECEIVE PROCESSING FOR SYSMOD HZQ3502 ENCOUNTERED THE DESCRIPTION OPERAND ON THE  
HEADER MCS. THIS OPERAND IS IGNORED SINCE IT IS SUPPORTED ONLY BY OS/390 RELEASE 7 SMP/E, OR  
HIGHER.
```

6.1.7 Allocate SMP/E Target and Distribution Libraries

Edit and submit sample job ALLOCATE to allocate the SMP/E target and distribution libraries for TPNS. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages:

This job should complete with a return code 0.

You must check the allocation messages to verify the data sets are allocated and cataloged as expected.

6.1.8 Create DDDEF Entries

Edit and submit sample job DDDEF to create DDDEF entries for the SMP/E target and distribution libraries for TPNS. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages:

This job should complete with a return code 0.

6.1.9 Perform SMP/E APPLY

Edit and submit sample job APPLY to perform an SMP/E APPLY CHECK for TPNS. Consult the instructions in the sample job for more information.

To receive the full benefit of the SMP/E Causer SYSMOD Summary Report, do *not* bypass the following on the APPLY CHECK: PRE, ID, REQ, and IFREQ. This is because the SMP/E root cause analysis identifies the cause only of **ERRORS** and not of **WARNINGS** (SYSMODs that are bypassed are treated as warnings, not errors, by SMP/E).

Once you have taken any actions indicated by the APPLY CHECK, remove the CHECK operand and run the job again to perform the APPLY.

Note: The GROUPEXTEND operand indicates that SMP/E apply all requisite SYSMODs. The requisite SYSMODS might be applicable to other functions.

The following SMP/E APPLY command is issued.

```
APPLY SELECT(HZQ3502)
        FORFMID(HZQ3502)
        CHECK
        GROUPEXTEND
        BYPASS(HOLDSYS,HOLDUSER,HOLDCLASS(UCLREL,ERREL))
        COMPRESS(ALL) .
```

REDO must be added if TPNS has previously been applied.

Expected Return Codes and Messages from APPLY CHECK:

This job should complete with a return code 0.

However, a return code 4 is acceptable when the following warning messages are issued.

```
GIM50050W APPLY PROCESSING FOR SYSMOD HZQ3502 ENCOUNTERED THE DESCRIPTION OPERAND ON THE HEADER
MCS. THIS OPERAND IS IGNORED SINCE IT IS SUPPORTED ONLY BY OS/390 RELEASE 7 SMP/E, OR HIGHER.
```

```
GIM23903W LINK-EDIT PROCESSING FOR SYSMOD=HZQ3502 WAS SUCCESSFUL FOR MODULE ITPxxxx IN LMOD
ITPxxxx IN THE SITPLMD1 LIBRARY. THE RETURN CODE IS xx
```

Expected Return Codes and Messages from APPLY:

This job should complete with a return code 0.

However, a return code 4 is acceptable when the following warning messages are issued.

```
GIM50050W APPLY PROCESSING FOR SYSMOD HZQ3502 ENCOUNTERED THE DESCRIPTION OPERAND ON THE HEADER
MCS. THIS OPERAND IS IGNORED SINCE IT IS SUPPORTED ONLY BY OS/390 RELEASE 7 SMP/E, OR HIGHER.
```

GIM23903W LINK-EDIT PROCESSING FOR SYSMOD=HZQ3502 WAS SUCCESSFUL FOR MODULE ITPxxxx IN LMOD ITPxxxx IN THE SITPLMD1 LIBRARY. THE RETURN CODE IS xx

6.1.10 Perform SMP/E ACCEPT

Edit and submit sample job ACCEPT to perform an SMP/E ACCEPT CHECK for TPNS. Consult the instructions in the sample job for more information.

To receive the full benefit of the SMP/E Causer SYSMOD Summary Report, do *not* bypass the following on the ACCEPT CHECK: PRE, ID, REQ, and IFREQ. This is because the SMP/E root cause analysis identifies the cause only of **ERRORS** and not of **WARNINGS** (SYSMODs that are bypassed are treated as warnings, not errors, by SMP/E).

Before using SMP/E to load new distribution libraries, it is recommended that you set the ACCJCLIN indicator in the distribution zone. This will cause entries produced from JCLIN to be saved in the distribution zone whenever a SYSMOD containing inline JCLIN is ACCEPTed. For more information on the ACCJCLIN indicator, see the description of inline JCLIN in the SMP/E manuals.

Once you have taken any actions indicated by the ACCEPT CHECK, remove the CHECK operand and run the job again to perform the ACCEPT.

Note: The GROUPEXTEND operand indicates that SMP/E accept all requisite SYSMODs. The requisite SYSMODS might be applicable to other functions.

The following SMP/E ACCEPT command is issued.

```
ACCEPT SELECT(HZQ3502)
        FORFMID(HZQ3502)
        CHECK
        GROUPEXTEND
        BYPASS(HOLDSYS,HOLDUSER,HOLDCLASS(UCLREL,ERREL))
        COMPRESS(ALL) .
```

REDO must be added if TPNS has previously been accepted.

Expected Return Codes and Messages from ACCEPT CHECK:

This job should complete with a return code 0.

However, a return code 4 is acceptable when the following warning message is issued.

GIM50050W ACCEPT PROCESSING FOR SYSMOD HZQ3502 ENCOUNTERED THE DESCRIPTION OPERAND ON THE HEADER MCS. THIS OPERAND IS IGNORED SINCE IT IS SUPPORTED ONLY BY OS/390 RELEASE 7 SMP/E, OR HIGHER.

Expected Return Codes and Messages from ACCEPT:

This job should complete with a return code 0.

However, a return code 4 is acceptable when the following warning message is issued.

```
GIM50050W ACCEPT PROCESSING FOR SYSMOD HZQ3502 ENCOUNTERED THE DESCRIPTION OPERAND ON THE HEADER
MCS. THIS OPERAND IS IGNORED SINCE IT IS SUPPORTED ONLY BY OS/390 RELEASE 7 SMP/E, OR HIGHER.
```

6.2 Installing the TPNS-Supplied Rate Tables

The following JCL may be used to generate the TPNS supplied sample rate tables data set. The sample rate tables data set is not required for TPNS execution.

```
//RATETBLS JOB
//*-----
//*          LOAD THE PREGENERATED SAMPLE RATE TABLES
//*-----
//LOADRATE EXEC PGM=ITPRATLD
//*
//*          tpns = High Level Qualifier from installation
//*
//STEPLIB DD DSN=tpns.LOAD,DISP=SHR      TPNS CPU LOAD LIB <===
//SYSPRINT DD SYSOUT=A
//SYSIN   DD DSN=tpns.SAMPLE(SRATETBL), SAMPLE FILES D/S <===
//        DISP=SHR                      RATE TABLES MEMBER
//RATEDD  DD DSN=tpns.RATETBLS,          SAMPLE RATE <===
//        DISP=(NEW,CATLG),              TABLES D/S
//        UNIT=3380,VOL=SER=tpnspk,      tpspk = TPNS DASD <===
//        SPACE=(2000,(15,7,2))
```

6.3 Activating TPNS

After TPNS has been installed, refer to the installation topic in *TPNS Planning and Installation*, SH20-2488, for post-installation activities, such as system authorization and installation verification.

Appendix A. APAR Fixes

The following APAR fixes have been incorporated into TPNS Version 3, Release 5, Modification Level 0, Service Level 0110.

APAR PN89503

When an FMH-5 CP-CP capabilities is received without PIP data, an UNBIND and then a BIND is received, the TPNS CP-CP session does not result.

APAR PN89504

TPNS CPI-C rejects the TP name parameter on the CMSTPN verb if it is not from character set 0640. While CPI-C TP names are required to be from character set 0640, the first byte of SNA service transaction programs may not be from character set 0640. In order to be compatible with LU 6.2 TPs, TPNS CPI-C must allow the first byte of the transaction program name to be a non-0640 character. Also, the message ITP4015I insert is incorrect when the log data buffer on CMSLD is too long.

APAR PN89865

In STL, LEAVE and ITERATE are flow of control statements and should not be treated as asynchronous subset statements. The TPNS scripting language code generated does not leave or iterate a loop. These statements will now be flagged.

APAR PN89866

When a WONT for an unrecognized option is received for a Telnet 3270 simulated device, TPNS goes into a hard loop. This appears to happen when running to some non-390 Telnet servers.

APAR PN89867

When running with a server other than the IBM TCP/IP for MVS or VM, the TPNS FTP client command and data flows can get out of sequence, causing unpredictable results and errors. Also fixed is a check for message 226 to indicate the end of a file transfer.

APAR PN90724

PU21 APPN* EN BIND response rejected with sense 0835 due to byte 23. Already-verified function support bit off but LU-LU verification bit was on in the BIND response. This was due to an echoing of the BIND request LU-LU verification bit.

APAR PN91008

When FUNCTION=RIGHT is specified on a DATASAVE statement and the value coded for the PLENG operand is greater than the length of the TEXT specified, the data is placed and padded incorrectly. In effect, the data is being padded on the right with garbage instead of being padded on the left with the character specified by the PAD operand. The STL RIGHT() function is also affected since it generates a DATASAVE with the FUNCTION=RIGHT operand.

APAR PN91042

When a connection attempt for a simulated STCP client fails, it is retried immediately rather than waiting ten seconds before retrying as intended. Message ITP478I is written to the log data set each time a connection attempt fails.

APAR PN91725

When running X.25 passthru with Switched Virtual Circuits and high traffic, an ABEND0C4 may occur in module ITPMLBLD or ITPXREST if the SVC is RESTARTed, CLEARed, or the MCH link receives a SABM.

APAR PN92272

An ABEND0C4 may occur in ITPGLLDS when generating a script with ITPIDC or ITPLSGEN if the 3270 used when capturing data with IDC did not support extended functions such as extended color or highlighting.

APAR PN92827

A hang condition can occur in a script for an STCP device when zero or very small delays are indicated, THKTIME=IMMED is being used, and two messages are to be generated with no intervening receive. (Such generation is only ever possible when THKTIME=IMMED is being used.) The problem may occur when the first message generated requires a connection to be established and the intermessage delay expires before the connection has been established. It is only a problem, however, if there is a need to transmit another message without waiting.

APAR PQ01196

The following TPNS CPI-C changes were made.

- If the send type is set to 'send and confirm', any available data is not sent. Only the confirm request is sent.
- A confirm request will not be sent if the send type is 'send and deallocate', and the deallocate type is 'confirm', or the deallocate type is 'sync-level' and the sync-level is 'confirm'.
- If the send type is 'send and deallocate', the send return code will be 'cm_program_parameter_check' if the deallocate type is 'deallocate abend'; even though the deallocate is successful.

APAR PQ01245

When running TPNS CPI-C, an ABEND0C4 may occur if the debug option is specified on the network.

APAR PQ01252

When simulating Simple TCP clients (STCP), the address of the buffer containing the data to be transmitted can become corrupted if a time delay expires while the connection is being established to transfer the data.

APAR PQ02004

If the TCP/IP product is not able to accept all of the data being sent but does accept some of it, all of the data is resent instead of only that portion not accepted on the first try. This could cause duplicate data received at the receiver.

APAR PQ02007

When the MVS TCP/IP Product is invoked using the IUCVMCOM macro, the caller's registers may be saved and restored using a predefined set of labels. For the registers to be restored correctly, these labels should be in an area based on register 13. In TPNS, this area is based on register 7, which does appear to work, but seemingly only by chance of the way the TCP/IP module uses its registers. To forestall any potential future problems due to TCP/IP changes, TPNS will now assign the labels so the normal save area will be used.

APAR PQ02008

When a TPNS Start command is issued for all networks and more than one network is initialized and the last resource in the first network is a TCP/IP resource, an ABEND0C1 in ITPFREBF can occur.

APAR PQ02175

The loglist entry for a CPI-C Set FMH-5 Extension (CMSFM5) verb is incorrect. The device counter mapping for the FMH-5 extension length is incorrect. Also, the default CPI-C parameter name is shown in the log for the FMH-5 extension length, even if a name other than the default CPI-C parameter name was specified on the verb.

APAR PQ02176

When MSGDISK is used in a TPNS NTRWK definition, there is a possibility that some message generation statements, particularly DATASAVE, may be interpreted incorrectly during script execution. This can happen when the storage used to hold the entries representing those statements is reused during initialization without that storage being cleared.

APAR PQ02194

This change avoids a possible loop or ABEND in ITPLL when processing incompatible CPI-C trace records.

APAR PQ02302

When simulating an FTP client and communicating with the FTP server through an IP address which is not the primary local host IP address, TPNS will send the primary host IP address rather than the IP address being used on the PORT command prior to data transfer. This may cause the transfer to hang if the server cannot locate the TPNS host using the primary address.

APAR PQ03193

If storage is unavailable for the PU 2.1 extension to the TRM control block for a LINE under a PU21 statement which is mapped to an LCH or LLS statement, an ABEND0C4 can occur in ITPERROR while trying to clean up partially built control blocks.

APAR PQ03196

When a hardware error is indicated by the Token Ring Adapters during startup of a Token Ring LPORT, the TPNS Control Program may get an ABEND951 when formatting the error record to be recorded by MOSS. TPNS is picking up an address from an invalid location and whether the ABEND occurs or incorrect data is recorded depends on the exact content of that location.

APAR PQ03828

A base language CMD request is rejected. The CPI-C code was checking for CMND, but not CMD. CMD was being treated as a CPI-C verb, and then later being rejected. Also, if additional characters are tacked to the end of a CPI-C verb name, an ABEND0C5 results.

APAR PQ04732

A timing window exists with receive-any command completions for TPNS CPI-C simulation. Since the receive-any completes asynchronously, a second completion can occur before a previously queued TPII DQE has been removed from the dispatcher queue. If this occurs, ITPDSPQR forces an ABEND0C1.

APAR PQ05435

The Display Monitor code can cause an ABEND in the VTAM module ISTAPCSX via a timing window which frees the RPL before VTAM schedules the RPL exit. The following TPNS scripting statements, coded together, may intermittently cause the error.

```
OPCMND(M 1u_name1,OFF)
..
OPCMND(M LU_nameN,OFF)
OPCMND(ZEND) or OPCMND(C)
```

APAR PQ06738

The start command may hang waiting on the start procedure for an X.25 MCH to complete, depending upon the exact sequence of interrupts occurring during the previous stop or cancel of that MCH.

APAR PQ06739

A resource registration GDS is rejected if the network ID of the CP is the same as the CP it is in session with. The network ID is not included in the GDS and causes VTAM* to reject the GDS with a sense of 08910004.

APAR PQ06742

When an R (reset) TPNS operator command is issued for a TPNS network which contains APPCLU (CPI-C) statements and which has RSTATS=YES coded on the NTRWK statement, an ABEND0C4 will occur.

APAR PQ06746

An ABEND0C1 will occur in ITPGENDS (storage overlaid with random data) after executing a LOG BLOCK=CNT statement when more than 31 index counters are being used. The ABEND occurs when the next DATASAVE statement is executed from the script.

APAR PQ06748

A TPNS boundary channel attached PU21 does not support CP-CP sessions.

APAR PQ07349

If multiple serial CPI-C conversations are allocated by the same script and the conversations are not explicitly deallocated by the script, an ABEND0C5 may occur. The TPNS CPI-C conversation clean-up logic issues deallocate abends to get rid of dangling conversations. This process may result in a conversation control block being freed while a deallocate abend issued by the conversation partner is still outstanding. If the freed storage gets reused before the partners deallocate abend completes, the ABEND0C5 will result.

APAR PQ07602

The CPI-C verb CMEPLN (Extract Partner LU name) may return an incorrect value when referencing an inbound conversation. The partner LU name length is set incorrectly when accepting a conversation with a fully qualified partner LU name. As a result, the CMEPLN verb returns only the network name instead of the fully qualified name.

APAR PQ07709

An RPL logic error (RTNCD=20) may occur when running TPNS CPI-C with VTAM 4.4. This error may put the TPNS CPI-C code into a hard loop. This error will probably only happen when a started CPI-C network is stopped, reset, and started.

APAR PQ08458

An LU session hang condition may occur with ITPECHO when LOGOFF TYPE(COND) is specified or other situations where the LOSTERM exit is scheduled, but the outstanding RPL is not completed via the RPL exit.

APAR PQ08994

When a PIU is rejected because the address cannot be resolved to an active LU (particularly for Type 2.1 nodes), the pacing indicator in the response RH is set to the same value as the pacing indicator in the request RH. It should be reset to zero. TPNS will now insure that this indicator is reset in the response and will also insure that the Begin and End Chain indicators are set on.

APAR PQ09834

When a user exit changes the length of data in a save area to a shorter value and then the script data saves the original length of data, the shorter data length set by the exit is maintained.

```
Example: DATASAVE AREA=1,TEXT=(XXXXX)
          EXIT MODULE=YYYEXIT           the exit inserts YYY
          WTO ($RECALL,1$)              YYY displayed
          DATASAVE AREA=1,TEXT=(ZZZZZ)
          WTO ($RECALL,1$)              ZZZ displayed (Error!)
```

APAR PQ10239

A DBCS datastream with a Program Tab after an SI is flagged as invalid with a sense of 1003.

APAR PQ11407

When an event is signaled or posted, a pending delay may be started even though the keyboard has not been unlocked by the application. In addition to the delay being started early, expiration of the delay causes the keyboard to be unlocked, which may lead to unexpected situations for the script to handle. Note that this is only a problem when THKTIME=UNLOCK is coded, an event for the DEV or LU is signaled or posted, and there is no other conditions other than the keyboard not yet being unlocked that would prohibit further message generation.

APAR PQ11426

When a chain element is received which exceeds the remaining space in the input buffer and less than 27 bytes are left in the buffer and the TRACE option is being used, ITPECHO will try to move 27 bytes from the data buffer to the trace table. If the storage beyond the end of the buffer is not owned by ITPECHO, an ABEND0C4 occurs.

APAR PQ11985

When a 'FF'x is in a TN5250 data stream, the 'FF'x is doubled and the length is incremented. The server sends a disconnect.

APAR PQ11986

The routines in TPNS which maintain the current date referenced by the script are treating leap years and non-leap years backwards. That is, in non-leap years, the year is being advanced one day late and, in leap years, it is being advanced one day early. Depending on just how the date is referenced in the script, the discrepancy in non-leap years may not be apparent until the second day of the new year.

APAR PQ12647

When STL encounters a complex IF statement where the first condition is <bit_variable>=ON and the second condition includes a function which requires calculation of an intermediate result, incorrect TPNS scripting language code may be generated.

APAR PQ13406

When a user specifies through the use of RESP=NO that the script is to build a BIND response for a secondary PU 2.1 LU with INIT=PRI specified or defaulted, the desired response is not generated, although the next message generation location may well be altered. This can have the effect of eventually generating two BIND responses for the same BIND, the second being the user's, but not occurring until after the session is established.

APAR PQ13407

When a previously unused variable or a variable of invalid type is used as a queue name in an STL PUSH or QUEUE statement, no STL error message is issued. The network thus generated will not preprocess correctly, since the underlying PUSH or QUEUE statement cannot be fully generated.

APAR PQ13650

TPNS never includes the fully qualified SLU name in the user data structured subfields of a BIND Response. For simulated PU 2.1 LUs, TPNS will now include this subfield if the fully qualified PLU name subfield is included in the BIND Request.

APAR PQ13651

A BIND request received with an SLU name that does not match any of the LUs under the PU21 results in a sense 80040000. The SLU name is a dependent LU under the PU21.

APAR PQ13652

The PUSH or QUEUE statement may fail to execute correctly. A null queue item may be pushed or queued and the original text may be executed as a TEXT statement when this occurs.

This situation may occur when the PUSH or QUEUE statement directly follows a TEXT statement or follows within a few statements of an EVENT statement coded without the TIME= operand.

APAR PQ14597

When a SOCKET socket call fails during simulation of TCP/IP resources, the failing call is retried after a delay of 10 seconds, but no record is kept of the nature of the failure. Message ITP477I will now be written indicating the reason code returned by TCP/IP. For now the SOCKET socket call will still be retried after ten seconds, possibly resulting in additional messages. Note that ITP477I is an informational message written to the TPNS log data set and not an operator message.

APAR PQ14598

If TPNS is running across midnight on December 31, 1998, the date in the header of the data written to the SYSPRINT data set will be garbled. The problem would not reoccur until midnight, December 31, 2010.

APAR PQ14599

Generating CPI-C scripts using a VTAM buffer trace file that has truncated records may result in a loop in ITPSGEN.

This is happening because the length field LL in the trace data is larger than the physical data. The data set had been truncated somehow.

APAR PQ14601

When parsing the data received on an FTP command connection, a loop occurs if the last character in the block received is a carriage return.

APAR PQ14602

An ABEND0C4 can occur when a TCPIP resource is stopped and restarted. This appears to be caused by the TCP/IP product not predictably clearing the token provided by TPNS during the TERMAPI processing and trying to reuse information from that token on a subsequent INITAPI. To insure that no such misinterpretation occurs, TPNS will clear the token area before issuing the INITAPI.

APAR PQ14603

The X.25 QLLC QXID address field is not always set with a non-'FF'x address to indicate a QXID response.

This causes a problem with some link station implementations such as routers TPNS may be connected to.

APAR PQ14721

A CPI-C script generation with multiple conversations per TP will be missing the 'leave' statement at the end of each STL DO FOREVER loop except for the last.

APAR PQ14722

When generating CPI-C scripts, a CMCFM call may be generated after the conversation has been deallocated. This is caused by the fact that VTAM issues an LUSTAT with definite response requested during the cleanup activity after the conversation has been deallocated.

APAR PQ15156

If the YEAR() STL function is processed by the translator at TPNS V3R5 Service Level 9711, it is flagged as an error.

APAR PQ15553

For VTAMAPPL and APPCLU (CPI-C) network definitions, this minor enhancement allocates the ACB above the 16 Meg. line in 31-bit storage when VTAM V4R4 or later is available. This change allows additional VTAM application resources to be simulated by TPNS.

APAR PQ15972

When running CPI-C script generation with basic conversations and multiple LLs per trace record, the CPI-C set calls and post receive checking statements may be generated too soon. This may result in error message ITP4008I for send records or failure of post receive checks for receive records. Also if multiple conversations are generated for the same TP, the set calls may not be generated as required for all conversations after the first.

APAR PQ16477

For script generation using ITPIDC or ITPLSGEN, do not abort the script generation process when logic errors (ITP1655I error message) occur. Instead, continue to generate the script and insert the following comments into the generated script.

```
/* ITP1655I ERROR DETECTED HERE!      --TIME-- SEQNO */
/*----- 07182571 00010 */
```

The script will NOT contain the operator actions at the time of the logic errors. ITPLL can be used to find the invalid display records.

APAR PQ16617

TPNS issues a SELECT socket call to determine which sockets have data available to receive. There is no need to issue such a call if the mask used to select ready sockets is null. This may also avoid an apparent problem with the SELECT taking too long to end when no sockets have data ready.

APAR PQ16840

For STCP (and SUDP) if multiple messages are generated without delays between them ending with a null message indicating that the connection is to be broken and the socket closed, the close may occur before all of the messages have been sent. TPNS will now delay the close until the SEND or SENDTO socket calls have all completed.

APAR PQ17799

Error message ITP1655I may be issued when generating an ITPIDC or ITPLSGEN script if the application program does not erase/write the initial operator screen.

This is resolved by issuing an erase/write to the ITPIDC console before passing data from the traced application to it.

APAR PQ17873

When using the Display Monitor facility with a non-display, non-SNA simulated device -- such as a Simple TCP (STCP), Simple UDP (SUDP), or FTP device -- an ABEND0C4 may occur, depending upon the precise allocation of the control block representing the simulated device. A check is being made beyond the end of that control block and whether or not the ABEND occurs depends upon whether TPNS owns the storage immediately following.

APAR PQ17900

An ABEND0C4 can occur in ITPVTAPP when large numbers of sessions are used and deallocate abends are issued. Before setting the RPL record length back to zero, a check is made to ensure the RPL still exists. This check is incorrect and in fact the RPL may have already been freed when the attempt is made to set the length field.

APAR PQ17902

At times the SELECT socket call ends with inconsistent results -- in particular with a count of 1 ready socket, but with no bits set in the Receive mask. This causes TPNS to go beyond the end of a chain of control blocks and leads to the ABEND0C4. TPNS will now insure that it aborts the SELECT processing if it runs out of control blocks.

APAR PQ18573

Attempts to establish CPI-C sessions to a single-session server yield RC 54 on the CNOS request indicating the mode is not defined. The subsequent allocate fails. TPNS CPI-C indicates to VTAM that all sessions are parallel. Therefore VTAM sends the CNOS and errors out the CNOS and the subsequent allocate when it determines SNASVCMG is not defined on the partner LU.

APAR PQ19386

TN3270E negotiation failure with CONNECT resource name due to a mismatch on the length of the resource name sent back from the server. The response on the CONNECT had a resource name with an added space. No checks will be made on the resource name due to the added enhancement of the generic pool names.

APAR PQ19612

An ABEND0C1 may occur if a SOCKET socket call for the listen socket for an FTP data connection fails and a message is received on the command connection while delaying ten seconds to retry the SOCKET call. The received message triggers another attempt at the SOCKET call, and when it, too, fails, the ABEND occurs because of a double queuing problem. The ABEND may appear to be in IPTLSCH, but it actually occurs in ITPDSPQR.

APAR PQ19613

ITP1655I error when generating a script. The emulator didn't support query as per TSO. However, the emulator would accept a query and respond if a query were sent such that EXTFUN=YES could be determined. This fix uses the CKBNDQRY execution parameter to override the query setting from TSO and send the query anytime CKBNDQRY is not coded. If CKBNDQRY is coded, the query will only be sent if TSO indicates query support.

APAR PQ19624

If the quiesce operand is specified on the TP statement, it only applies to the first TP instance. If it is specified on the APPCLU or network, it works ok.

APAR PQ20608

When TPNS and its utilities are executed multiple times under the TPNS ISPF Front End without exiting the Front End, storage may gradually be used up and various types of storage related messages and ABENDs may occur. One of the things that uses up this storage is the console buffers obtained by ITPIDC when running using the TSO Console option. These buffers should be freed along with other working storage before ITPIDC ends.

APAR PQ20610

When TPNS or TPNS utilities are executed repeatedly without ending the job step or exec controlling the execution (as is possible with the TPNS ISPF Front End Interface), the storage allocated by QSAM for buffers associated with SYSPRINT or SYSIN data are not freed. This can lead to out of storage messages or 878 ABENDs after several runs. How quickly this becomes a problem depends on the block size of the data set and the region size in which TPNS or its utilities are being run. The buffer storage does come from *below 16MB* storage.

APAR PQ21104

The TPNS VTAMAPPL code will generate an internal 1003 sense if the CMND statement coded for an UNBIND has the SENSE= operand coded and the SON= operand is not set to 'FE'. With this change, the SENSE= operand will be ignored unless the SON= operand value is set to 'FE'. Note: The CMND UNBIND was generated by ITPSGEN.

APAR PQ21106

If more than one session is used by the same TP, the CPI-C script generator generates a TP statement label for each subsequent session. The labels are of the form @TPnnnnn. This label causes a prep error since the TP name defaults to this label and the '@' character is not valid in character set 640.

APAR PQ24103

The Display Monitor panel ASCII or EBCDIC field is defined as a numeric field. It should be defined as non-numeric field in case the 3270 emulator is defined with the 3270 Numeric Lock option on.

APAR PQ25007

An ABEND0C4 can occur in ITPECHO if the LOSTTERM exit is scheduled by VTAM after the internal LU control block has been freed. In the reported case, this happened after a session ended with an 'environment error'. The LOSTTERM exit is being changed to insure that only conditional termination cases are handled by the exit, thus avoiding references to potentially unallocated storage.

APAR PQ25911

A TN3270E device negotiating to a TN3270 device may have incorrect data stream results.

APAR PQ26049

An assignment statement which assigns one bit variable to another is not a valid asynchronous subset statement, but it is not being flagged by the STL translator. The TPNS scripting language statements produced, however, will halt execution of the asynchronous subset and the assignment will not be done.

APAR PQ26954

Labels generated by STL may reach the maximum of 65535 for very large STL programs. This minor enhancement will reset the label number back to one with each new MSGTXT statement and allow up to 99999 labels per MSGTXT deck.

ITP3042I will now be issued when 99999 labels have been generated in a single MSGTXT deck.

APAR PQ27138

This APAR fix is an enhancement to the TPNS CPI-C function to recognize the userid already verified condition and set the corresponding indication in byte 4 of the FMH-5. CPI-C 1.1 doesn't natively support security. However, some LU 6.2 simulations require the 'userid already verified' bit to be set in the FMH-5. Since CPI-C doesn't provide user access to the fixed part of the FMH-5, TPNS provides no STL interface to allow changing the FMH-5 flag byte.

APAR PQ27369

The TPNS Control Program has always ended a Sense Channel Command with Channel End and Device End status only. For the 3745, Unit Exception needs to be added to this status to avoid problems with the dump utility.

APAR PQ30685

Some IS shops do not allow applications to run with an outstanding WTOR. This minor enhancement adds the NOWTOR execution parameter to ITPENTER. When TPNS is started as a batch job, no WTOR will be issued when NOWTOR is specified. In most cases, you would automatically start a network which would run and issue ZEND via an operator command from the script to bring TPNS down at the end of the simulation run.

APAR PQ30687

TN3270E negotiation with device type of a display without extended function will fail.

APAR PQ30688

Data written to the TPNS log with the LOG (data) statement (or LOG string_expression STL statement) is normally presented by ITPLL in 'dump' format. With this enhancement, if the NOFMT control statement has been specified for the ITPLL RUN, this LOG data will be presented in a plain text format.

APAR PQ30689

When running the Display Monitor Facility with View=Data and a lot of data is being monitored, TPNS starts flushing data whenever 200 messages are queued in TPNS to be sent to the monitor. If the user hits the 'enter' key while this flushing is taking place -- hoping to put TPNS into a 'HOLDING' state -- the enter key is essentially ignored. Note that even with this fix, it may take some time for the acceptance of the enter key to become apparent since VTAM may have a lot of data queued for the monitoring device as well.

APAR PQ33393

If a VTAMAPPL PLU sends a negotiable BIND request and receives a non-negotiable BIND response, the session parameters from the original BIND request are not used. A 400C or some other sense may be generated by the VTAMAPPL PLU when this situation occurs.

APAR PQ36772

When generating scripts in STL using ITPSGEN, extra quotes may be generated after the repeat function or after hex data that ends a line. In addition, a null CHARSET statement is generated for the default instead of CHARSET FIELD.

APAR PQ36973

Simulating Telnet 3270E, data containing sequence number FF and sent in segments with the break after the first FF may cause a hang situation.

APAR PQ36974

Possible 0C4 abend when using the UTBLCNTR= operand on the IF statement.

APAR PQ39825

If there is a special character within a BTS statement which is to be continued, the TPNS generated statement is incorrect. The special character is repeated more than once and parts of the BTS statement may be missing.

APAR PQ39991

If a BTS statement contains a special character in column 50 and is continued, the generated TPNS TEXT statement data output is incorrect.

APAR PQ48014

Sense 1006 may be generated on a received LOCATE GDS response if the length of the embedded CDINIT GDS is greater than X'FF'.

APAR PQ48016

When simulating TCP/IP and the socket connection is lost without the TCP/IP stack generating a close socket flow, the log may fill up with 'ITP477I RECVFROM ... TCPERRNO 54' if the error is reported with each select operation. TCPERRNO 53 may also be logged for sends, but only for the queued output buffers.

APAR PQ48020

With this change, the keyboard will only be unlocked on the last repeated (PF5/PF6) message sent to the display instead of being unlocked on each repeated message.

APAR PQ52895

This minor enhancement accepts the 'LOG' option on the 'DSPLY' control statement. When 'DSPLY LOG' is specified, only the log display records created using the 'LOG DISPLAY' scripting statement will be printed.

APAR PQ52897

When ITP477I ... TCPERRNO 11 (EAGAIN) is logged, the socket operation is not retried. This change retries socket operations when EAGAIN (TCPERRNO 11) is returned.

Appendix B. Enhancements

TPNS enhancements associated with increased script generation capabilities, increased scripting language capabilities, expanded TCP/IP support, expanded CPI-C protocol support, and a file I/O user exit have been incorporated into this service update.

Refer to **TPNS Function and Service Enhancements - 2001, SC31-8654-02** for enhancement details.

Reader's Comments

Program Directory for Teleprocessing Network Simulator Version 3 Release 5, Modification Level 0 Service Level 0110

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