QVS Software, Inc
Terminal Services for Windows™ Version 6

User's Guide

Program Number QVSTS_006

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Note: Before using this information and the product it supports, be sure to read the general information under "Notices".

Third Edition (May 2009)

This edition applies **Version 6** of the QVS 4690 Terminal Services (**TSF**) for Windows licensed program.

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QVS Software, Inc.

c/o TS Publications

5711 Six Forks Rd. Suite 300

Raleigh, NC 27609

USA

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About This Book

This manual guides you in using the QVS Terminal Services (TSF) for Windows product. It contains an overview of the product, supported hardware and software, and procedures for installation and configuration. All subsequent references to the Terminal Services for Windows product will be denoted as TSF.

Who Should Read This Book

This manual is written for the system programmers who install and manage Terminal Services for Windows. It is assumed that the reader is experienced in using both Windows and the IBM 4690 Operating System (OS). Training personnel can use this manual to identify the operational differences between TSF and 4690 environments.

How to Use This Manual

Use this manual as a guide to install, configure, and diagnose problems with TSF.

> **Note 1:** If TSF is to operate on an IBM POS terminal with RS485 / Powered USB peripherals, then TSF is dependent on the proper installation and configuration of Point-of-Sale Subsystem for Windows (POSSWIN) for RS485 / Powered USB IBM POS device support. You should read "Point-of-Sale Subsystem for Windows (POSSWIN)" and note the references to POSSWIN in the "Problem Determination" chapter before attempting to install POSSWIN.

> **Note 2:** If TSF is to operate on an IBM POS terminal with RS232 / USB peripherals, then TSF is dependent on the proper installation and configuration of IBM's JavaPos™ Version 1.12.0 GA for Windows. You should read "IBM's JavaPOS™ Version 1.12.0 for Windows User's Guide for additional information on IBM's JavaPOS™ support and note the references to JavaPOS™ in the "Problem Determination" before attempting to install IBM's JavaPOS™ Version 1.12.0 for Windows. **JavaPOS™ device support is provided in TSF for a limited number of POS devices.**

Note 3: If TSF is to operate in a POS terminal and execute a 4690 Java terminal application, then the user must ensure that the proper JDK/JRE environment has been installed on the POS terminal prior to installing TSF. The user should refer to IBM's 4690 Terminal Java runtime environment setup and support documentation. In general terms, the TSF Java™ support includes functional compatibility with 4690 up through 4690 V6R1 for Java 1 and Java 2 based implementation. TSF does support the V2R4 capabilities when attached to 4690 controllers (V3R4 – V5R2). More specifically, the 4690 V2R4 level Java™ functionality includes:

Java™ 1.1.8 support
Java™ 1.4.2 support
CBASIC JavaCall I/F support
ANDISPLAY Handler support
ANDISPLAY2 Handler support
4610 Printer Monitor support
IOPROC Handler support
CR Monitor support
Java™-Related Terminal Control Function support

The manual contains the following chapters to assist you in using the product:

- "Chapter 1. Overview of Terminal Services Feature" describes the prerequisites for TSF, compares TSF and the 4690 Operating System, and lists supported POS devices.
- "Chapter 2. Installation" explains how to configure prerequisite software and how to install TSF. It also includes information about problem determination.

- "Chapter 3. Maintenance" describes how to apply software updates and lists the error messages that can occur.

Where to Find More Information

The following IBM publications also contain helpful information:

- IBM 4690 Operating System: Communications Programming Reference (SC30-3582)
- IBM 4690 Operating System: Programming Guide (SC30-3602)
- IBM 4690 Operating System: Messages Guide (SC30-3598)
- IBM 4680 BASIC Language Reference (SC30-3356)
- IBM Point-of-Sale Subsystem Programming Reference and User's Guide (SC30-3560)
- IBM 4694 Point-of-Sale Terminals: Installation and Operation Guide (SA27-4005)
- IBM Point-of-Sale Subsystem: Installation, Keyboards, and Code Pages (GC30-3623)
- IBM Point-of-Sale Attachment Kit: Physical Planning, Installation, and Service Manual (GA27-4034)

Chapter 1. Overview of Terminal Services Feature

QVS Terminal Services (TSF) allows existing 4690 terminal applications to run in an open architecture Windows point-of-sale terminal. The TSF terminal loads the 4690 terminal application from a 4690 controller and can coexist on the same store loop, LAN, or TCP/IP network with native 4690 terminals. **Note:** Any 4690 sales application that runs properly under 4690 OS can be run in a TSF terminal. TSF emulates the 4690 Operating System.

This section provides an overview of the QVS 4690 Terminal Services product.

Prerequisites

TSF has the following hardware requirements for the terminal:

- TSF (with POSSWIN or UPOS) requires 2-3 MB of memory in addition to your existing Windows system and application requirements.
- 30 Megabytes of available hard disk space.
- TSF has been certified to run on the following machines:
    - Essentially all 4694 models
    - 4693 model 541
    - 4693 model 741
    - 4694 models which support a local hard drive
    - SurePos 300 series
    - SurePos 500 series
    - SurePos 600 series
    - SurePos 700 series
    - In addition, TSF should run on any Windows-certified machine

    Note: TSF should run on any IBM POS terminal with RS485 / Powered USB Device attachment Interface which is detected /supported by the IBM Point-of-Sale Subsystem for Windows(POSSWIN or UPOS). Additionally, TSF should run on any IBM POS terminal for which IBM has provided JavaPOS™ device attachment interface support.

- LAN adapter (Token Ring or Ethernet, or Store Loop Adapter) using DLC stack or
- Routable TCC (TCC over IP) if that feature supported and enabled on the store controller. UNICAST mode is also supported with INSIGHT agent installed on 4690 Store Controller.
- POS I/O devices required by your 4690 application and supported by TSF.

    TSF has the following software requirements for the terminal:

- Windows
    - NT Workstation Version 4.0 with Service Pack 6 or higher
    - 2000 Client with Service Pack 3 or higher
    - XP Professional with Service Pack 1 or higher
    - WEPOS 1.0 or higher
    - Windows XP Embedded
- RS485 / Powered USB devices - IBM POSSWIN Device Drivers, Version 2.4.0 or higher, or IBM UPOS 1.12.0 or higher, or

- IBM RS485 / Powered USB / Serial type devices - IBM's JavaPOS™ Version 1.12.0 for Windows or higher

Note: If you intend to attach peripherals that do not use either the RS-485 interface or the powered USB interface, then POSSWIN is not a required.

You can obtain updates for some prerequisite software from these locations:

- Microsoft Bulletin Board
- IBM Retail Web Site: http://www2.clearlake.ibm.com/store/support/ See "Supported POS Devices" for more information about the devices supported under TSF.

Comparison of TSF and 4690 OS

There are differences between running a 4690 terminal application on the 4690 Operating System and on TSF:

- TSF provides a virtual I/O mode that enables a 4690 Operating System application to run without requiring certain POS I/O devices to be attached.
- TSF provides the capacity to allow some POS I/O devices currently unsupported by the 4690 Operating System to be attached via special Windows programming.
- Storage retention is not available in TSF. If a power-line disturbance occurs, the terminal reboots and the terminal application must be reloaded. An Uninterruptible Power Supply (UPS) for each terminal is recommended. Using a UPS, a transaction can be completed even if a total loss of power occurs.
- TSF does not support the attachment of Model 2 (4683-xx2 and 4693-xx2) terminals.
- TSF terminals, connected via Store Loop to the controller, must also have at least one 4690 terminal on the same loop in order for the backup/resume function to perform properly.
- Any certified PC can be used as a standalone controller/terminal if the terminal has a configured LAN card installed and a valid LAN or loop back connection attached. Distributed Data Services (DDS) and the Controller Services Feature for NT must be installed to run the controller software.
- TSF supports Hard Totals equivalent to that provided on 4683, 4693, 4694, and SurePos class machines (1KB, 16KB and 99KB).
- TSF additionally supports serially attached or USB 2.0 attached 4610 printers
- TSF supports multiple models of both Epson and Axiohm POS printers, attached in either Model 4 or 4610 emulation modes (see section of Supported POS Devices below)
- If an Alphanumeric Point of Sale (ANPOS) keyboard is used, the following keys cannot be redefined when used on a TSF terminal:
  - Caps Lock
  - Print Screen
  - Num Lock
  - Scroll Lock
  - Pause
- A very limited number of I/O devices supported by 4690/OS are not supported by TSF. See "Supported POS Devices" to determine whether or not your configuration is supported.
- Up to two scanners may be attached to a TSF terminal.

- Not all System Functions that are supported by 4690/OS are supported by TSF. See "Supported System Functions" for a list of the functions that are supported.
- 4690 3270 Emulation under TSF is not supported. Many 3270 Emulation products are available for NT.
- The 4690 OS Device Channel Trace does not run on an NT terminal.
- The 4690 Application Debugger cannot be used in an NT environment.
- The Store Systems Regression Tester does not run in an NT environment.
- TSF currently does NOT log Vital Product Data (VPD) to the 4690 Controller
- 4690 Java Application support
  - SureVision GSA support
  - SureVision SA support
  - SureVision CDSA support
  - ASTRA (UK)
  - SI GUI (ACE)*

  * limited support

New Features in TSF Version 6

The following enhancements are included in TSF Version 6:

- 4690 OS Version 6 Support (Legacy and Advanced)
- Backward Compatibility for 4690 V2 – 4690 V5
- MTFTP Client Support (multicast pre-load support)
- Q: drive Terminal Ramdisk support
- Terminal Pre-Load Bundle Support
- Java 2 Enhanced Terminal Application Configuration Support
- 4610 TI8 Microcode Update Support
- 4610 2CR / 2NR printer support (for 4610 TI4 emulation mode)
- Auto 4610 Microcode Update Support
- ACE TOF support
- Support for new SurePos terminal models
- Support for 4690 Java 2 environment and Classpath
- Event Logging of TSF Diagnostic Requests

Supported POS Devices

Point of Sale devices that have been tested and are supported by TSF are:

Terminal Devices	IBM 4694	IBM SP 750	IBM SP 500/600	NCR 7452	FUJTP2K	FUJTP5K	IBM SP 700
Operator Display							
- Full Screen	YES	YES	YES	NO	YES	YES	YES
- 2x20	YES	YES	YES	YES	YES	YES	YES
- DYNAKEY	NO	YES	YES	YES	NO	YES	
Keyboard							
- POS	YES	YES	YES	YES	YES	YES	YES
- ANPOS	YES	YES	YES	YES	YES	YES	YES
IBM Mod ¾ Printer Appl							
- IBM Model ¾	YES	NO	NO	NO	NO	NO	YES
- NCR 7158	YES	YES	YES	YES	YES	YES	
- NCR 7167	YES	YES	YES	YES	YES	YES	
- NCR 7197	YES	YES	YES	YES	YES	YES	
- NCR 7193	YES	YES	YES	YES	YES	YES	
- NCR 7194 (Axhiom 794)	YES	YES	YES	YES	YES	YES	
- Axhiom 226 (Kiosk)	YES	YES	YES	YES	YES	YES	
- Epson TM 5000	YES	YES	YES	YES	YES	YES	
IBM Native 4610 Printer Appl							
- IBM 4610 – RS485	YES	NO	NO	NO	NO	NO	YES
- NCR 7158	YES	YES	YES	YES	YES	YES	
- NCR 7167	YES	YES	YES	YES	YES	YES	
- NCR 7197	YES	YES	YES	YES	YES	YES	
- NCR 7194 (Axhiom 794)	YES	YES	YES	YES	YES	YES	
- Axhiom 226	YES	YES	YES	YES	YES	YES	
- TM 6000 (4610 plug compat)	YES	YES	YES	YES	YES	YES	YES
- IBM 4610 - RS232	YES	YES	YES	YES	YES	YES	YES
- IBM 4610 – 24V USB	YES(1)	YES	YES	NO	YES	NO	YES
- TM 6000 – USB	NO	YES	YES	NO	YES	NO	
- TH 320 – Serial	YES	YES	YES	YES	YES	YES	YES
Cash Drawer	YES	YES	YES	YES	YES	YES	YES
Scanner / Scale	YES	YES	YES	YES	YES	YES	YES
Customer Display							
- 2x20	YES	YES	YES	YES	YES	YES	YES
- Full Screen	YES	YES	YES	YES	YES	YES	YES
Pin Pad	YES	YES	YES	YES	YES	YES	YES
MSR	YES	YES	YES	YES	YES	YES	YES

Notes:

Supported on 4694 models with 24 volt powered USB port

ANPOS keyboards can be attached to the PC keyboard port or via USB, but not to port 5 of the SIO bus. This keyboard also serves as the Windows system keyboard.

The list of features shown above includes the feature code for each device.

The latest version of the Terminal Services for Windows User's Guide can be found on the QVS web site http://www.qvssoftware.com. Click on Help Files under Support on the main toolbar. See documents under the **Terminal Services** heading.

Check the same web site for the 4690 Terminal Services for NT Tips document.

Supported System Functions

The following system functions are supported by TSF:

System Function	Key Code
Display Wait Message	1
Display Offline Message	2
Display System Message	3
Change Keyboard Tone Volume	6
Display Terminal Number	7
Display Date Format	50
Set Terminal Characteristics	71

Note: Set Terminal Characteristics under TSF does not display configured device information, store number, or the default application name.

Chapter 2. Installation

This chapter describes how to prepare for and install the IBM 4690 Terminal Services for Windows product.

Controller Considerations for TSF

- Store Loop, Token Ring, Ethernet, or Wireless can connect TSF terminals to the controller.
- On LANs, both TCC over DLC and TCC over IP protocol stacks are supported; uni-cast IP mode is also supported with a store controller update provided by the QVS Insight product.
- The controller must have terminal IDs set up in the terminal configuration for each TSF terminal. The 4690 controller is not aware that the TSF terminal is running a Windows based OS. The TSF terminal appears like a 4690 OS terminal to the controller.
- TSF does recognize and load terminals defined on the Store Controller with the Generic Terminal Configuration feature; including the Store record if no specific terminal record has been defined.
- TSF references the 4690 Store Controller database for basic terminal configuration to retrieve its keyboard map definition, the terminal application to load, and the Java-related configuration definitions. TSF does not use the 4690 controller information regarding attached POS devices. The terminal application will use the POS devices that are connected to the TSF terminal. The user must configure the specific POS attachment protocol for each POS device via the QCDIFILE keyword definitions.

Configuring POS Displays

If the terminal has multiple display ports (4A/4B) on the SIO planar, the default TSF configuration for displays is:

- If a single-sided display is connected in either port 4A or 4B, it is configured as the System Operator Display.
- If two single-sided displays are connected to the SIO, the display in port 4A is configured as the System Operator Display, and the display connected in port 4B is configured as the Customer Display.
- If a dual-sided display is connected in port 4A or 4B, the display with the even SIO address is configured as the System Operator Display, and the display with the odd SIO address is configured as the Customer Display.

If the terminal has a single display port (4) on the SIO planar, the default TSF configuration for displays is:

- If a single-sided display is connected to the display port (4), this display is configured as the System Operator Display.
- If a dual-sided display is connected to the display port (4), the display with the even SIO address is configured as the System Operator Display, and the display with the odd SIO address is configured as the Customer Display.

Configuring the Terminal at the 4690 Controller

You must define the TSF terminal at the controller as if it were a 4690 terminal. The key definitions needed are:

- A properly defined keyboard for this terminal
- A defined 4690 OS terminal ID
- A valid keyboard table name that matches the defined keyboard model
- A valid application name

In addition, the terminal ID must be defined as a valid LAN terminal if you intend to operate the terminal attached to either a Token Ring or an Ethernet LAN. This definition is not necessary if you are attaching to the terminal using Store Loop media. TSF also supports the Generic Terminal Configuration options available on the 4690 Store Controller Terminal Configuration Options menus.

Enabling Virtual POS Device Support

The virtual device support provided by TSF allows a 4690 POS application to run without one or more required I/O devices attached. The 4690 POS application cannot distinguish between devices designated as virtual (devices that are not attached) and real (devices that are attached). For example, you can run a 4690 POS terminal application on a standard notebook computer that is connected to a store controller, via a LAN. In this case, a KEYMAP file (keyboard mapping file) allows the notebook keyboard to simulate the POS keyboard. From a POS application viewpoint, all function calls to POS I/O devices complete successfully even though no I/O devices are present. TSF provides the virtual POS device support via **QCDIFILE** keywords. To use the full flexibility offered in TSF, the **QCDIFILE** keywords must be used.

Features Available Through Custom Programming

The TSF Virtual Device Interface can, through custom programming, allow 4690 POS applications to

interact with other I/O devices currently unsupported by 4690 POS applications. Using this feature you could:

- Create a graphical user interface to interact with the POS application based on I/O data from a POS application
- Interface with I/O devices supported by Windows NT, but not by the POS applications

For example, you can designate the POS printer as a virtual device and write code to divert the data sent to the POS printer to a different printer such as a specialized restaurant printer. In this example, the program would have to handle any error scenarios regarding the restaurant printer because none of the error handling of the POS application is used. (The POS application sees every "print" as successful.)

Application Programming Interfaces available through TSF allow Windows NT applications to retrieve information from the 4690 Controller. These applications can communicate with the 4690 terminal application using special TSF interfaces.

Note: Contact QVS Software, Inc. support for more information if you have an interest in either of these features.

Client-Based Device and Application Support

TSF provides programming APIs which enable a third party group and/or customer to develop extensions to the IBM Sales Application in either the Microsoft COM development environment or the JavaBean™ development environment.

National Language Support Considerations

TSF generates a limited number of messages that may be seen by the user. These messages are contained in the TS2MSGS.BIN file on one of the installation diskettes. If you need to translate these messages into another language, this file must be edited.

Two utilities are provided to assist you in editing this file: NLSASC.EXE and NLSBIN.EXE. Both programs are located in the \TSNT\TOOLS directory. Typing the name of either utility brings up a help screen to provide assistance on how the program is used.

Use NLSASC to convert the TS2MSGS.BIN file to a text format. You can then use a normal text editor to edit the text file you have created. NLSBIN is then used to convert the edited text file back to binary format. This modified binary file should then be copied onto the installation diskette, replacing the original TS2MSGS.BIN file.

An alternative is to use any binary editor to directly edit the TS2MSGS.BIN file. The records in the TS2MSGS.BIN file are fixed length and NULL terminated. The NULL character at the end of each record must not be overwritten.

You should be aware that the file, once translated, must be reinstalled on future installation diskettes when new releases and fixes for TSF become available

Verifying Connectivity

To gain confidence in the hardware you want to install, you may want to verify the terminal can communicate with the controller using the 4690 Operating System. To verify connectivity, refer to "Appendix A. Verification of Controller to Terminal Connectivity" for instructions.

Setting up Terminals for TSF

This section describes setting up IBM POS terminals to run TSF.

4694 Terminals

1. If you have successfully verified connectivity, skip this step.
   The setup of 4694 terminals is described in detail and kept current on a World Wide Web site maintained by IBM. Use the IBM RSS Support Knowledgebase http://www2.clearlake.ibm.com/store/support/html/knowledgebase.html to find the 4690 4694 Tips document.
   The 4690 4694 Tips file contains the most current information on setting up your machine properly for use in communication with a 4690 OS controller. Use the 4694 top information to properly configure a 4694 as a terminal. Continue on to the next step.
2. Power on the terminal.
3. When the F2 prompt is displayed on the bottom of screen, run SETUP by pressing **F2**.
4. Set 1st Boot Source = Drive A.
5. Set 2nd Boot Source = Drive C.
6. Set 3rd Boot Source = NONE.

SurePOS 7XX Terminals

7. If you have successfully verified connectivity, skip this step.
   The setup of SurePOS 700 terminals is described in detail and kept current on a World Wide Web site maintained by IBM. Use the IBM RSS Support Knowledgebase http://www2.clearlake.ibm.com/store/support/html/knowledgebase.html to find the 4690 SurePOS 700 Tips document. The SurePOS 700 Tips file contains the most current information on setting up your machine properly for use in communication with a 4690 OS controller. Use this document to properly configure a SurePOS 700 as a terminal. Continue on to the next step.
8. Power on the terminal.
9. When the F2 prompt is displayed on the bottom of screen, run SETUP by pressing **F2**.
10. Set 1st Boot Source = Drive A.
11. Set 2nd Boot Source = Drive C.
12. Set 3rd Boot Source = NONE.

4693 Terminals

1. Power on the terminal:
   - **For 4693-541:** when the cursor moves to the upper right portion of the screen, press **CTRL-ALT-INS** to load the reference diskette image
   - **For 4693-741:** insert the reference diskette into the drive A of the 4693-741 and reboot.
2. Set the Starting sequence to:
   - 1 = diskette drive
   - 2 = C drive

- 3 = Not selected
- 4 = Not selected

SurePos 300/500/600 Terminals

If you have successfully verified connectivity, skip this step. The setup of SurePos 300/500 terminals is described in detail and kept current on a World Wide Web site maintained by IBM. Use the IBM RSS Support Knowledgebase http://www2.clearlake.ibm.com/store/support/html/knowledgebase.html to find the 4690 SurePos 300/500 Tips document. SurePos 300/500 terminals are not currently supported by 4690 OS, but the Tips file contains the current information on setting up these PCs. QVS recommends that users refer to the 4694 current information on setting up your machine properly for use in communication with a 4690 OS controller.

Continue on to the next step.

Power on the terminal.

When the F2 prompt is displayed on the bottom of screen, run SETUP by pressing **F2**.

Set 1st Boot Source = Drive A.

Set 2nd Boot Source = Drive C.

Set 3rd Boot Source = NONE.

Generic Terminals

TSF enables generic PCs to run the IBM POS Application Suite, provided that a supported IBM protocol stack can be enabled in the PC. If you intend to use a PC with a 7497 POS Attachment kit installed, refer to "Appendix B. Installing TSF on a Generic PC with a 7497 POS Attachment Adapter" for installation guidelines.

Install all pre-requisite software before attempting to install TSF on your POS machine:

- Windows Components
- Point-of-Sale Subsystem for Windows (POSSWIN™, UPOS™, JavaPOS™, none if virtual)
- connectivity stack (DLC or TCP/IP)

Note 1: As of 10/01/2003, the latest POSSWIN Version (2.4.0) is obtained from the IBM website http://www2.clearlake.ibm.com/store/support/html/drivers.html. Download the **OPOS** driver package, installing the base package only. This will in fact install the POSSWIN drivers.

Note 2: As of 09/18/2007, the latest UPOS Version (1.93) is obtained from the IBM website http://www2.clearlake.ibm.com/store/support/html/drivers.html. Download the **OPOS** driver package, installing the base package only. This will in fact install the POSSWIN drivers.

DLC Protocol for Windows

If the TSF machines are to communicate with the Store Controller using the TCC over DLC protocol, you must enable the Windows DLC Protocol stack. If the TSF terminals are to communicate with the Store Controller via TCC over IP protocol, you will not need to install the DLC protocol.

Installation of the DLC protocol may require the Windows installation CD for the currently installed Windows version of NT or 2000. Windows XP does NOT include the DLC protocol stack, however the TSF Installer will install a DLC stack if one is not already installed on the target POS terminal. If you are using the TSF V2 Installer under Windows XP™, contact QVS directly to obtain the necessary DLC install package. Once installed, do the following to add the DLC protocol stack:

From the Windows Start box, select Settings.

From the Settings list, select Control Panel.

From the Control Panel selection list, select Network.

From the Network folder, select Protocols.

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From the Protocols folders, select Add.
From the Add control panel, select DLC Protocol.

Note 1: When installing TSF on a terminal with more than one communications adapter, you must ensure that TSF utilizes the proper communications adapter. If the desired communications adapter is **NOT** adapter number **0 or 1**, then the user must add the following line to the TSF configuration file (**QCDIFILE**):

LanAdaptID = "0n" where 0n is the desired adapter number

Thus if the desired adapter number is 2, add line

LanAdaptID = "02"

Note 2: The TSF installation provides a utility, **FDSDLC.EXE**, which will report all active LAN adapter definitions. From a command window, type "start fdsdlc.exe" and press enter. The user must then determine the LAN adapter ID for TSF as per the above instructions.

Note 3: If TSF is **NOT** configured to use the correct LAN adapter (e.g. if the required LAN adapter is **NOT** adapter **0**), the user will see the following information logged to file **\TSNT\LOG\TSF3.LOG**:

FATAL ERROR: tccnetrm - qtrinit_cproc failed /lrc 80674005/

FATAL ERROR: PANIC: (System) Reason [tccnetrm - qtrinit_cproc failed]

FATAL ERROR: PANIC!!! /reason tccnetrm - qtrinit_cproc failed/eeeProcNum 3/

Program   /pd.p_name RIOAM_CTL/

PANIC /stack location 0012FE78/

Point-of-Sale Subsystem for Windows (Using POSSWIN Device Support)

If you are installing TSF on the SurePOS 700 series of terminals, you must install as a prerequisite the IBM OPOS drivers. During the installation, sequence, do not check the JPOS support option. Do not check the JAVA installation option since TSF requires a different version of JAVA support than that provided with IBM's installation package for OPOS.

If you are installing TSF on a 469x terminal, you must install

Important! Refer to the IBM Point-of-Sale Subsystem Programming Reference and User's Guide. Then, follow the installation instructions provided with POSSWIN and the following guidelines:

Before beginning, carefully read the READ.TXT file on the POSSWIN installation disk.

Close all applications before proceeding.

Place the POSSWIN installation media in the appropriate drive bay and run **setup**.

On the main installation screen, you should select only the following components:

    Device Handlers

    Documentation

If you are using an Alphanumeric Point of Sale (ANPOS) keyboard attached to the PC keyboard port, click the Alphanumeric POS keyboard option.

On the next selection screen, select "4695 or 7497 Adapter Card Installed" if you are using the 7497 adapter. If this option is chosen, you must then enter the I/O port address used by the 7497 adapter on the following screen.

Exit the installation program.

If you are using a keyboard that requires double-key support, you must perform the following steps:

- Copy the file, C:\TSNT\SAMPLE.RES, to C:\TSNT\TSNT.RES
- Modify the file, TSNT.RES, to define the double keys.

Note: Refer to the Point of Sale Subsystem Programmers Reference and User's Guide for information on defining the double keys.

IBM JavaPOS™ for Windows

Important! Refer to the IBM JavaPOS™ Programming Reference and User's Guide. Then, follow the installation instructions provided with IBM's JavaPOS™ and the following guidelines:

Before beginning, carefully read the READ.TXT file on the JavaPOS™ installation media.
Close all applications before proceeding.
Place the installation media in the appropriate drive bay and run **setup**.
On the main IBM UPOS installation screen, you should select the following components:
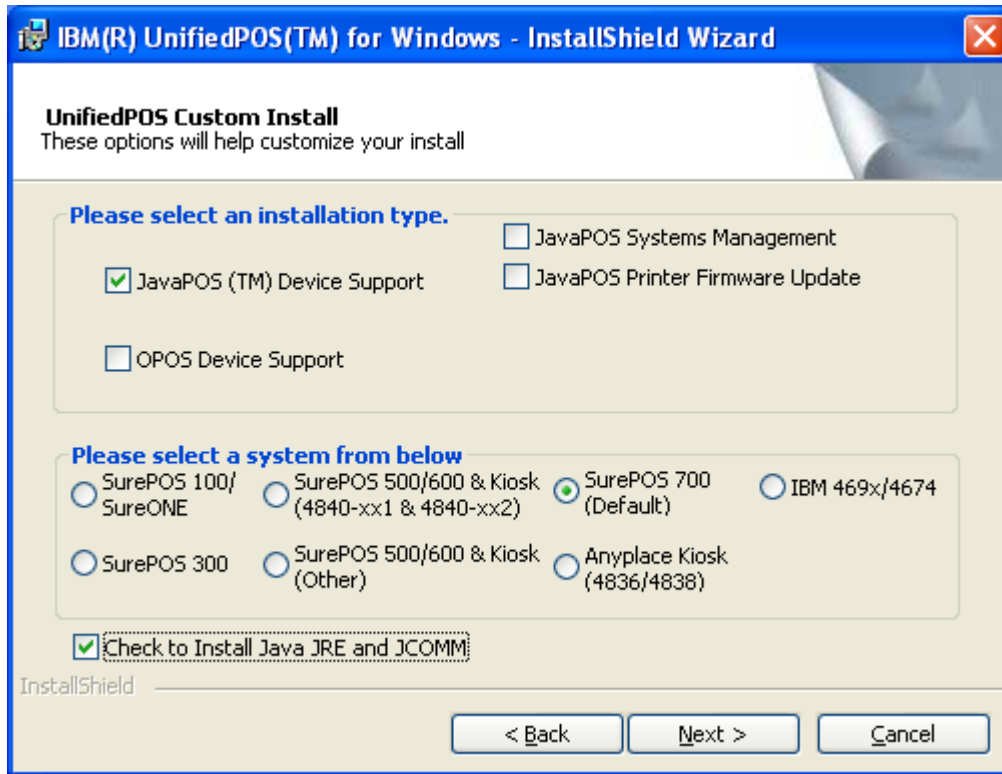
After completing the JavaPos installation, you must now setup CDI keywords to reference the JavaPos sub-system. The following is a sample JPOS device configuration for the CDI file. You must modify this sample to match the actual JavaPos configuration active on your POS terminal.
Please note that TSF currently has no JPOS device support for a POS printer or a POS PinPad device. QVS is working with IBM to design a POS Printer and POS Pinpad interface which will enable TSF to meet the IBM 4690OS emulation requirements for these two POS Devices. Prior to the completion of this new API, the user will continue to configure the POS printer as either Serially attached or RS485 / USB attached.
physKeyBoard="JPOS"
physKeyboardProfile="POSKeyboard USB 4820"
physKeyboardLockProfile="Keylock USB 4820"
physKeyboardToneProfile="ToneIndicator USB 4820"

physCashDrawer="JPOS"
physCashDrawerProfile="CashDrawer-A"

physAndisplay="JPOS"
physAndisplay2Profile="LineDisplay USB VFD-A"
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physAndisplay2="JPOS"
physAndisplay2Profile="LineDisplay USB VFD-B"

physMSR="JPOS"
physMSRProfile="MSR USB 4820"

jpsJavaJVM="c:\pos\ibmjre\jre\bin\classic\jvm.dll"
jpsJavaClassPath=   "C:\POS\IBMJPOS\config;C:\POS\IBMJPOS\Lib\jtux.jar;C:\POS\IBM
JPOS;C:\POS\IBMJPOS\Lib\xercesImpl.jar;

     C:\POS\IBMJPOS\Lib\xmlParserAPIs.jar;C:\POS\IBMJPOS\Lib\jpos-
common.jar;C:\POS\IBMJPOS\Lib\jutil.jar;

     C:\POS\IBMJPOS\Lib\poskbd.jar;C:\POS\IBMJPOS\Lib\posj.jar;C:\P
OS\IBMJPOS\Lib\log4j-1.2.8.jar;

     C:\POS\IBMJPOS\Lib\ibmjpos.jar;C:\POS\IBMJPOS\Lib\jpos1911.jar
;C:\POS\IBMJPOS\Lib\jsio.jar;

     C:\POS\IBMJPOS\Lib\jsr80_ri_windows.jar;C:\POS\IBMJPOS\Lib\jsr
80_ri.jar;C:\POS\IBMJPOS\Lib\jsr80.jar;

     C:\POS\IBMJPOS\Lib\ibmuposst.jar;"

JavaPOS Device Configuration Directory

A new sub-directory must be created as part of the JavaPOS device support. The directory
is \TSNT\JPOS\RES, and the **JPOS.XML** file must be copied to this sub-directory. The
posj.properties file must also be copied to this directory. These two files are required to
resolve the JPOS Profile names used in the device configuration file QCDIFILE.

TSF Version 6 Installation

The TSF installer can perform three distinct types of software installation.

1) The TSF installer initially checks for an existing TSF installation. If the installer finds an
   existing TSF installation, then the user can choose to update the existing installation, or to
   un-install the existing TSF installation. The TSF installer can be used to upgrade an
   existing TSF Version 2 system, an existing TSF Version 3 system, or an existing TSF
   version 5 system to the TSF Version 6 level.
2) If the TSF Version 6 installer does NOT find an existing TSF installation, the user then
   has the option to use the Version 6 installer in a manner similar to the TSF Version 2 / 3 /
   5 installer.
3) The "typical mode" installation option of the Version 6 installer should always be used,
   unless QVS explicitly directs the customer to use a different mode of installation. This
   option is based on a QCDIFILE file device configuration scheme.

Hardware Requirements

Memory

TSF requires a minimum of 32MB in addition to the required memory needed for the installed
operating system.

Disk Space

A TSF typical installation uses approx. 5MB of disk space

Created on 05/29/2009 9:10 AM

Software Requirements

NT 4.0 Workstation with Service Pack #6A , Win2000 with Service Pack 3 or Windows XP Professional.

Installation Procedures

ZIP file

Unzip the appropriate TSF ZIP file into a newly created directory on the PC where you intend to install the TSF product. Be sure and retain the path folder names.

Run SETUP.EXE from DISK1 directory

This will launch the InstallShield version of the TSF product installation.

Welcome Screen
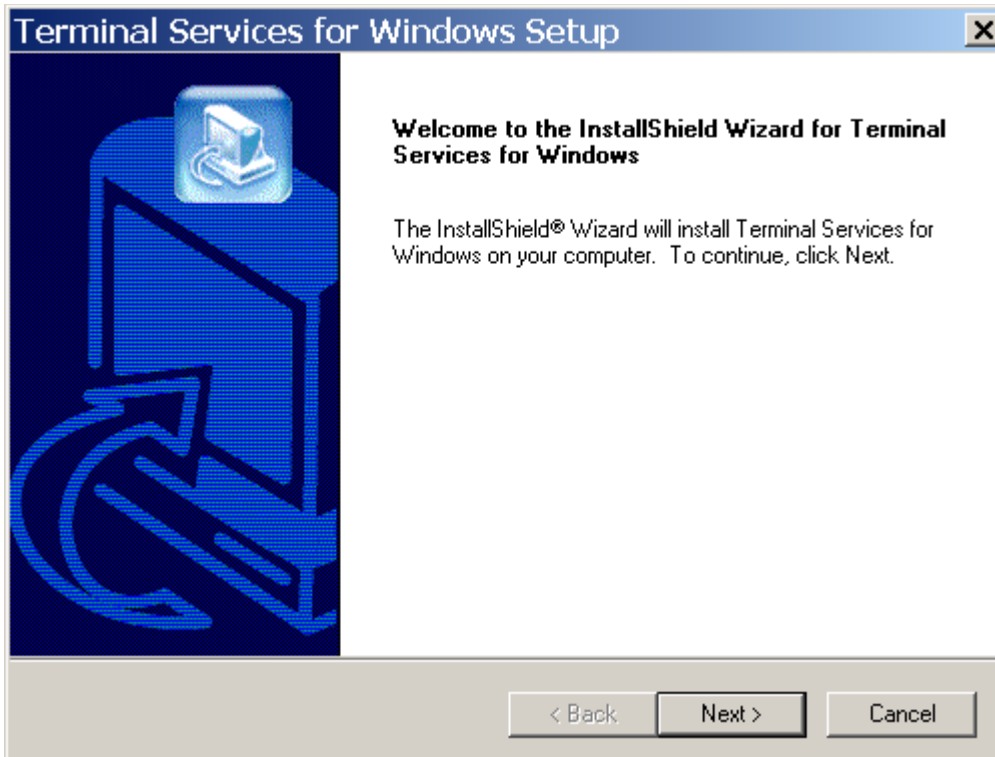
Click "Next."

Setup Type

The user must choose the setup type option to use with TSF Version 6 installer. The "TSNT Custom Installation" option should not be used, unless QVS explicitly directs the user to do so.
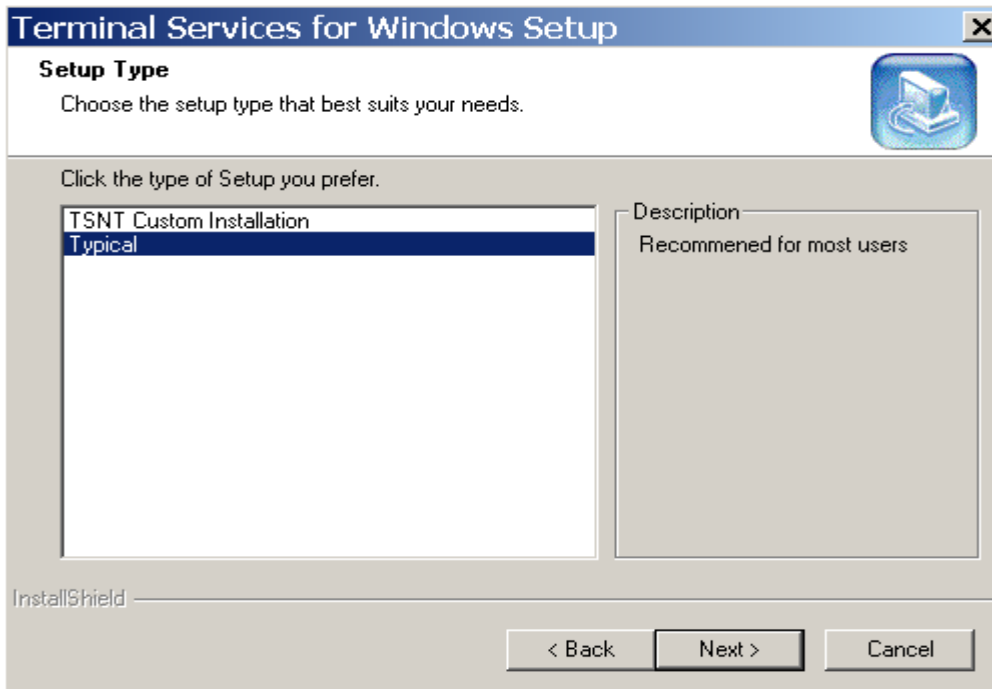
The Typical installation is recommended for most users. Click "Next".
If TST Custom Installation is chosen please go to Custom installation Option of the TSF Version 5 Installer.
When choosing the "Typical" installation, the user MUST be aware of some basic setup steps required to complete the TSF configuration. The TSF installer copies a file named QCDIFILE.IPL to the root TSF install path. This file must be modified to accurately describe the basic POS devices attached to the terminal.   See the **QCDIFILE.ALL** file (copied to the root TSF install directory by the Installer) for a complete list of CDI keyword options. The user must perform two tasks:

1) Modify the QCDIFILE.IPL file to accurately reflect the POS device types currently connected to the PC.

2) Create a permanent terminal configuration file for this terminal.

This permanent terminal configuration file may be placed in either the root TSF install directory (named QCDIFILE.MST) or on the store controller (named \ADX_UDT1\QCDIFILE.000). The user may configure multiple TSF terminals from a single QCDIFILE.000 file on the store controller (see QCDIFILE.ALL for additional examples and information).

From the following screen, you can override the default installation path, which is c:\TSNT. If you choose to install on a different drive, or in a different path, make sure that any auxiliary applications, which will interface with TSF, can support the different drive and or path.

Choose Destination
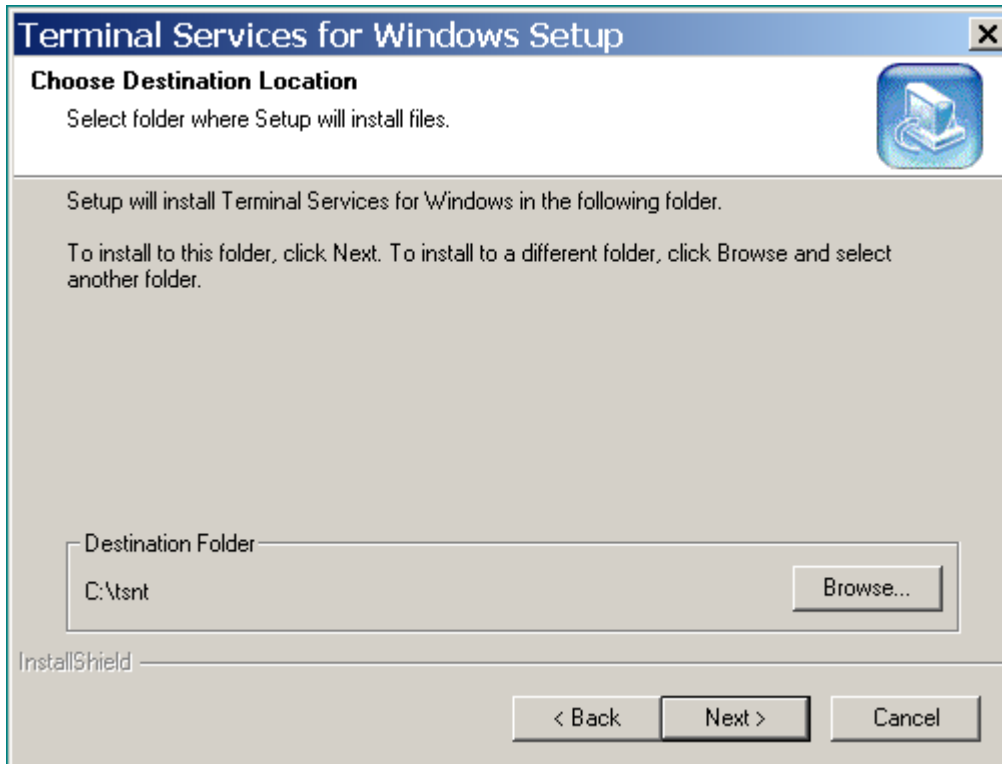
Select install path. You may browse and select your own folder name or the default.

Click "Next"

The installation screen which follows allows the user to override several default options associated with the TSF product. The options are as follows:

Launch TS Monitor at startup

If this box is checked, the TSF Tray Icon will be activated. This allows TSF to be started and or stopped from the Windows Desktop. If this option is chosen, a TS Monitor tray icon will appear in the service tray of the task bar at each terminal startup.

Launch Terminal Services at startup

If this box is checked, TSF will automatically be started each time the PC is powered on. This ensures that there is no user intervention or action required to activate TSF when the PC is powered on. If this box is not checked, then the user must either manually start TSF from either 1) the desktop, 2) the Programs start menu, or 3) the "NET START TSF" command from a command window.

Show TS console

If this box is checked, a mirrored image of the POS 2X20 display text is displayed on the user's screen. This mirrored 2X20 display text is visible when toggling through the active Window sessions. If this box is not checked, then an additional CDI keyword (**display="hide**") must be utilized so that NO mirrored copy of the 2X20 display text is visible as a Windows console session.
Note: An additional CDI keyword vdisplay="hide" must be used to hide the VDISPLAY console when a VDISPLAY device is configured.

TS Documentation / Samples

If this box is checked, the TSF Installer will copy additional TSF documentation and sample code to the **samples** sub-directory of the root TSNT install directory (\TSNT\SAMPLES by default) on the hard drive. This information includes documentation for developing a Monitor Pipe Client, a RPAM COMS client, or a Java Bean Client. Also included are some samples that may be executed against an operational TSF system to validate the Client application setup. The user is responsible for setting up the required development / execution environment to support the specific Client type (e.g. C++ or JAVA)

Choose Additional
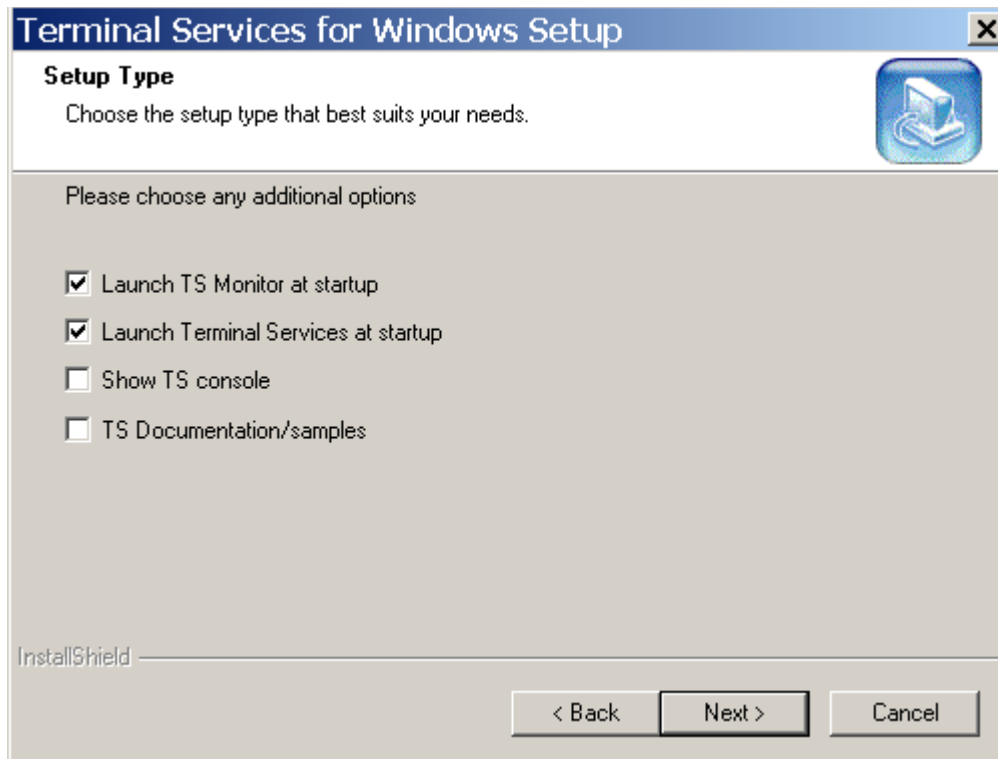
Select which additional options you would like to install.

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Click "Next"

Select folder
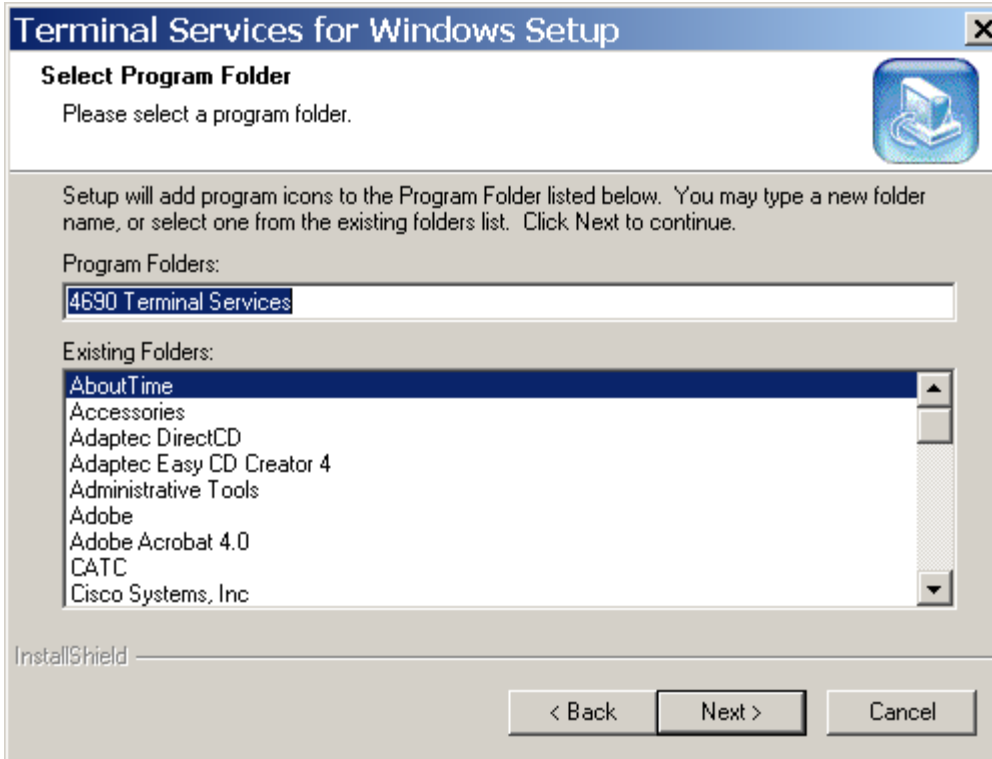
Click "Next"

File transfer status
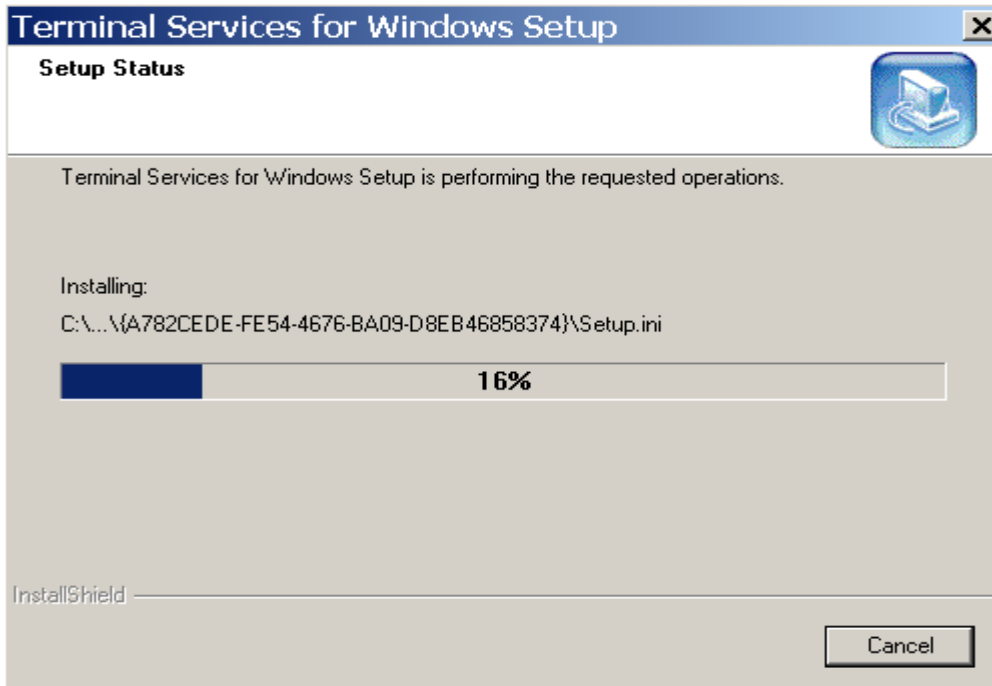
File transfer progress screen.

At this time all installation files are being copied.

Reboot

Terminal Services for Windows Setup

TSNT Installation Successful

TSF has been successfully installed.

○ Yes, I want to restart my computer now.

○ No, I will restart my computer later.

To start using TSF you must restart

< Back   Finish   Cancel
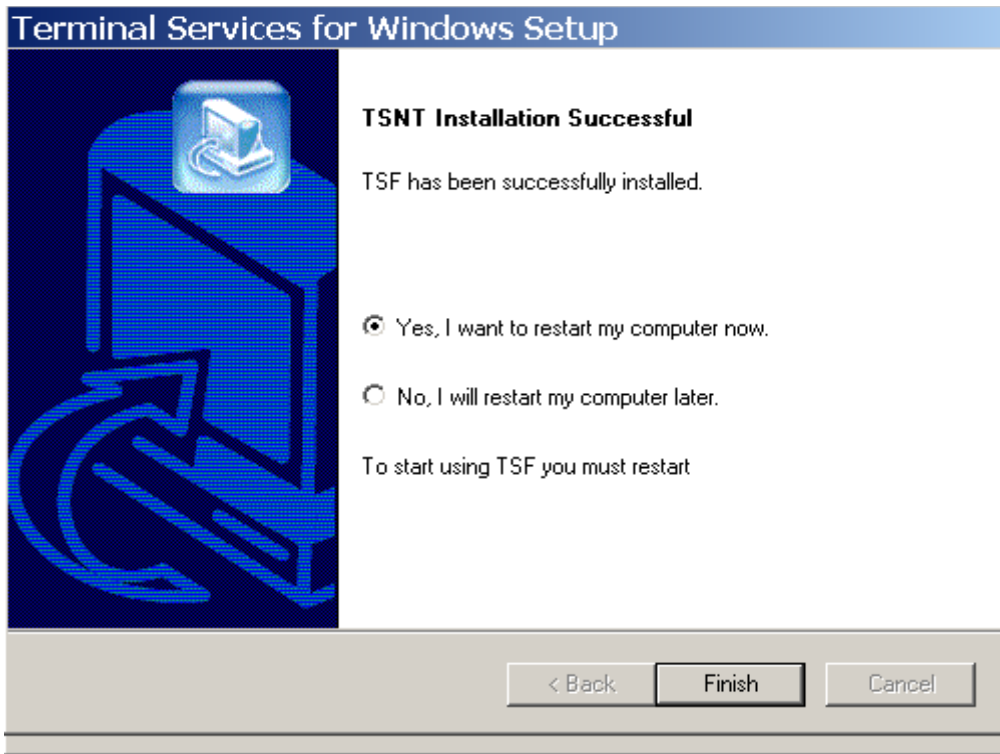
Installation is completed , restart the PC by clicking on "Finish".

Directory structure

```
tsnt
    4690ram1
    4690ram2
    bin
    doc
    log
    logq
    samples
    tools
    update
```
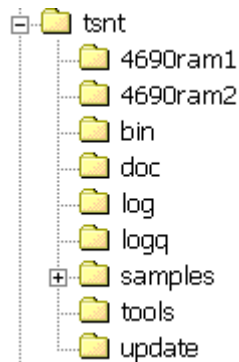
The following is a brief description of the directories created by the TSF Installer.

\tsnt – root TSF install directory. This directory contains basic TSF configuration files.

\tsnt\bin – TSF binary install directory. This directory contains all executables, device drivers, and DLLs required by TSF.

\tsnt\bin\upddir - TSF apply maintenance working directory. This directory is used by TSF to apply maintenance updates to TSF from the Store Controller.

\tsnt\tools - TSF tools directory. A variety of tools and utilities used by TSF are maintained in this directory.

\tsnt\update - TSF maintenance download directory. Each time TSF detects remote maintenance for the TSF terminal, TSF downloads the maintenance file from the Store Controller to this directory. The data of the current TSF maintenance level is also kept in this directory.

\tsnt\doc - TSF documentation directory. The TSF Installer copies various types of documentation to this directory.

\tsnt\samples   All TSF documentation and sample code is located off this directory.

\tsnt\log   All TSF Log Files Go Here.

\tsnt\4690ram1\tnnn   Location of X: files for terminal nnn. This location is cleared and re-loaded each time the terminal loads.

\tsnt\4690ram2\tnnn   Location of Y: files for terminal nnn. This location is cleared and re-loaded each time the terminal loads.

\tsnt\4690ram3\tnnn   Location of Q: files for terminal nnn. This location is cleared and re-loaded each time the terminal loads.

\tsnt\tscache   TSF using this location to cache terminal load components, greatly reducing the time to load a terminal.

\tsnt\tscache\sysext   Work directory for analyzing / expanding terminal pre-load bundles.

\adx_stld   Work directory for loading the terminal pre-load environment.

\tsnt\ts_work   Gereral working directory for TSF when loading the terminal.

Maintenance Setup

The Maintenance Setup option of the TSF Version 6 Installer is automatically selected if the Installer detects an existing TSF installation on the target PC. The user can choose from one of two options at this point: update an existing TSF installation, or remove an existing TSF installation. If an existing TSF installation is detected, the Update option will replace existing TSF execution components and add any new components required to complete the update to TSF Version 6.

If the user selects the "Remove TSNT and its components" option, then the existing TSF execution environment will be removed from the target PC. Once the removal option is completed, the user can then re-start the installer to choose the installation options described above.

Maintenance Dialog remove/update
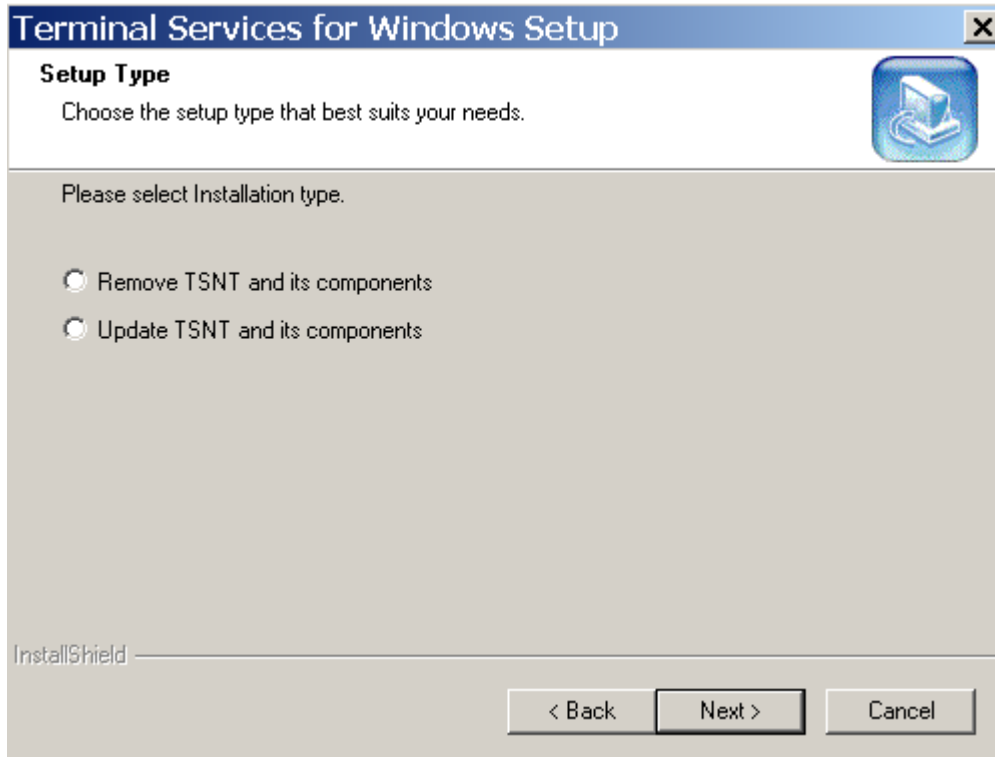
NOTE: Any files or directories that are created by the program or user will not be removed from the TSNT directory tree.

If the user selects the update option, all installed components will be updated. If running the same installer the second time selecting update will re-install all existing program files that have already been installed. If running a newer version of the installer, all existing files will be updated with the latest program files.

Configuring TSF for 4690 OS Java Applications

TSF provides 4690 OS Java application support as defined in section n.n.n of this document. The user must perform the following steps as a prerequisite for execution of a 4690 Java Application on TSF:

Install the desired Java Runtime Environment (JRE or JDK 1.1.8 or later)

or

Install the desired Java Runtime Environment (JRE or JDK 1.4.2)

If JRE.EXE (or JAVA.EXE) is not in the path, include the keyword

JavaJVM="c:\jdk1.1.8\bin\jre.exe"   for Java 1 environments

or

JavaJVM="c:\j2sdk\jre\bin\java.exe"   for Java 2 environments

in the QCDIFILE file, identifying the complete path where the specific Java runtime is installed.
If the archive containing the application class files also includes the base 4690 OS CLASSES.ZIP, then add the file specification for CLASSES.ZIP file from the JRE to the PrependJavaClasspath in the QCDIFILE. Newer applications especially those in .DUO files often include the 4690 OS version of CLASSES.ZIP. For example, **PrependJavaClasspath="c:\jdk1.1.8\lib\classes.zip"**

or

PrependJavaClasspath="c:\j2sdk\jre\lib\classes.zip"

Configuring RS232 COM support for Java Applications

The javax.comm Java extension provides native RS232 support for the Windows environment. To enable RS232 device support for Java applications started by TSF, the following prerequisites must be satisfied.

1) Place WIN32COM.DLL in the Windows system directory (C:\WINNT\SYSTEM32 or C:\WINDOWS\SYSTEM32)
2) Place the Windows version of COMM.JAR in the Java Library directory (C:\JDK1.1.8\LIB or J2SDK\JRE\LIB)
3) Place JAVAX.COMM.PROPERTIES file in Java Library directory (C:\JDK1.1.8\LIB or J2SDK\JRE\LIB)
4) Add the complete path of COMM.JAR to the PrePendJavaClasspath keyword in the QCDIFILE. For example,
   PrependJavaClasspath="c:\jdk1.1.8\lib\comm.jar"   for Java 1 environments
   or
   PrependJavaClasspath="c:\j2sdk\jre\lib\comm.jar"   for Java 2 environments

Check on the Sun's Java Website for information on locating the above referenced RS232 COM Java components.

Configuring Devices for TSF Version 6

The QCDIFILE file provides detailed configuration information required by TSF Version 6.
TSF Versions 2 and 3 do support a limited number of QCDIFILE keywords, in conjunction with the .INI file configurations. TSF Version 6, like TSF Version 5, requires the QCDIFILE device configuration. This QCDIFILE configuration support can be based on the Store Controller. This allows for a single configuration file on the store controller (\ADX_UDT1\QCDIFILE.000) with definitions common to all TSF terminals and definitions unique to one or more TSF terminals. The user is able to modify configuration information in a single location, and have those configuration changes active the next time the TSF terminal is started. The QCDIFILE file based device configuration component requires the user to uniquely configure each POS device, thus eliminating potential conflicts for a specific device. All available CDI keywords are documented in file QCDIFILE.ALL, which is copied to the root TSF directory (\TSNT by default) by the TSF Version 6 Installer.
There are two different techniques for utilizing the QCDIFILE file within TSF.

1) If the user prefers to keep all configuration local to the TSF PC, then the QCDIFILE file must be named QCDIFILE.MST and reside on the root TSF install directory (\TSNT). If TSF finds the QCDIFILE.MST file, no other search is performed to locate terminal specific configuration information (excluding Java CLASSPATH information).

2) If the user prefers to maintain TSF configuration information is a common location (in directory \ADX_UDT1 on the store controller), then the QCDIFILE.000 file can be placed on the store controller in directory ADX_UDT1. If this configuration approach is used, TSF still requires a minimum amount of device configuration local to the TSF PC. The information must be specified in a file named QCDIFILE.IPL in the root TSF install directory (\TSNT).

The TSF Installer installs this file (QCDIFILE.ALL) as part of the installation process. Included in this local file are keywords that specifically identify the Hard Totals, Keyboard, and 2x20 System Display types attached to the local terminal. This information is required by TSF in order to initially load and attempt to connect the TSF terminal to a Store Controller. It is the responsibility of the user to ensure that the POS device information in the QCDIFILE.IPL file contains the correct parameters for these three actual POS devices on the terminal. Once a QCDIFILE configuration file is located in \ADX_UDT1 on the store controller, all additional configuration parameters will be resolved. If that file contains different parameters for any of the three devices specified by QCDIFILE.IPL, they will be ignored. If the user subsequently chooses to add a local QCDIFILE.MST file, the local QCDIFILE.MST file will supercede the local QCDIFILE.IPL file.

CDIFILE Content

The TSF Installer creates a file named QCDIFILE.ALL on the root TSF install directory. This file contains a complete list of valid configuration keywords and possible values for each keyword. The user should edit this file to find documentation on QCDIFILE keywords. Below is a sample description extracted from the QCDIFILE.ALL file. Please refer to the QCDIFILE.ALL file, which was shipped as part of your installation for the most current set of parameters in use. Normally, as a customer, you would be given a QCDIFILE setup that works for your standard terminals. It would then be a small change to modify this to account for some specially-configured terminal. The descriptions contained within the QCIFILE.ALL file should provide enough information to make the necessary changes. Please note that the sample below is most likely not current. Please refer to the sample QCDIFILE that comes with the current TS installation for the most complete information. Options and features are added frequently as customers need them.
; SECTION: TERMINAL SERVICES
[TS]
; The keywords within the QCDIFILE file can generally be separated into three categories
;
; 1) terminal connectivity keywords

; 2) terminal behavioral keywords
; 3) POS device definition keywords
;
;
; 1) under the terminal connectivity category are keywords such as:
;
;
;   storeNum=""
;   termNum="" ; --
;
;
; Terminal Load Definition Information
;
;   These options allow configuration of items such as
;   the default terminal application and keyboard definition name.
;
;   The special keyword GET_FROM_CONTROLLER is used to tell TS/TC to
;   read this information from the 4690 controller terminal load definition
;   file(s). If GET_FROM_CONTROLLER is not specified, the terminal
;   application and keyboard definition name can be specified here and it
;   is not necessary to have a terminal load definition on the controller.
;   (It is necessary, however, to have terminals defined on the 4690
;   conftroller "lan terminal definitions" under system configuration).
;   Note also, that a "load configuration" or equivalent must be done to
;   make TS/TC update this information. Simply changing the QCDIFILE and
;   re-starting TS/TC is not enough.
;
; defaultApp1 is the name for the default starting application
;   program. This replaces the default application name in defining
;   the terminal load definition in the controller. Maximum of 24 characters.
;   Make sure to include the "r::adx_ipgm:" if the file is to be loaded
;   from the controller.
; keybDefName is the name of the keyboard definition file to be used for
;   translating scan codes into function codes. Keyboard definition files
;   are created under 4690 Terminal Configuration on the 4690 controller.
defaultApp1="GET_FROM_CONTROLLER"
keybDefName="GET_FROM_CONTROLLER"

TCC Over IP Configuration Information

The following section describes the CDI keywords required to configure TCC over IP terminal /
controller communication on the Windows PC. TSF supports the same default values as does the
4690 Store Controller, so multicast mode TCC over IP is enabled by setting the tccipEnable CDI
keyword on the TSF PC.
;   tccipEnable - Set this to 1 to use TCC over IP instead of over DLC. The default value is 0
;   which indicates that TCC over DLC will be used.

The following CDI keywords are required only if the corresponding default values have been changed
on the Store Controller.
;
;   tccipTTL - This is the "time to live" value. This parameter controls how many routers
;   TCCIP packets will be sent across. The default value for this is 1.
;
;   tccipAckPort - This defines the TCCIP Ack port value. The default is 4692.
;
;   tccipMultiCastPort - This defines the TCCIP Multicast port value. The default is 4691.
;
;   tccipMultiCast_Addr - This defines the TCCIP Multicast address value for the 4690
;   controller. The default is "224.46.90.1".

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;   tccipAckTimeout - This defines the amount of time TS/TC waits to receive a required
;   acknowledgement from the controller. The value is specified in ;
                      milliseconds and has a default value of 1000 (1 sec).

NOTE: For TCC over IP terminal configurations, the above CDI keyword values must match those currently active on the Store Controller in file ADX_SPGM:ADXTCCIF.DAT. Failure to ensure that the values are the same may result in the inability for the TSF terminal to communicate with the desired Store Controller.

Uni-cast Mode TCC over IP

- TSF and TC have also been enhanced to support uni-cast mode TCC over IP. The 4690 Store Controller does NOT currently support uni-cast mode TCC over IP. To enable this support on the Store Controller, the QVS INSIGHT agent must be installed on 4690 Store Controller.

-

To enable the terminal to use uni-cast mode, then following CDI keyword must be utilized.

;   tccipXidAddrList - A list of 1 to 8 specific ip addresses to which XIDs requests are
;   simultaneously sent. This list provides an alternative to using ip multi-cast to
;   find store controllers. Each ip address in the list should be separated by a
;   comma. A typical list will contain 2 addresses: one for the primary tcc
;   controller and one for the backup tcc controller. For stores with more than 2
;   controllers, up to 8 can be specified.
;

A user may prefer to specify HOSTNAMES instead of the dot IP addresses. These can be substituted for the IP addresses, but IP addresses and HOSTNAMES CANNOT be mixed.
Using this keyword forces TS / TC to enable unicast mode of TCC over IP. Corresponding software must be installed on the Store Controller to enable unicast support at the Store Controller. Please refer to the Insight User's Guide for information on configuring unicast TCC over IP on the Store Controller.

;
;   tccipEnable=""
;   tccipTTL=""
;   tccipAckPort=""
;   tccipMultiCastPort=""
;   tccipMultiCast_Addr=""
;   tccipAckTimeout"";
;   tccipXidAddrList=""
;
;

;
; 2) under the terminal operational behavior keywords category are keywords such as:
;
;   iplStatus=""
;   iplStatusDelay=""
;   iplPosDevice=""
;---
;ReqDevTimeOut keyword
;
;   - Force a TSF timeout while waiting on required POS devices. By

```
;          setting ReqDevTimeOut="nn", the user is directing TSF to wait
;          no more than "nn" seconds for all required POS devices
;          (display, keyboard, hard totals, printer, and cash drawer) to
;          report online.  Once this timeout occurs, if all required
;          devices are NOT online, TSF will proceed with the terminal
;          load.  This will enable TSF to locate an updated QCDIFILE on the
;          store controller which accurately defines the current POS device
;          configuration.  This parameter should ONLY be used in a lab
;          environment where POS devices are routinely being changed, and
;          where the QCDIFILE file is being accessed from the store
;          controller.  The default for this keyword is NEVER, meaning that
;          TSF will wait until all required POS devices report online.
;          Valid values for this keyword are: "20" (20 seconds) up to
;          "99" (99 seconds).
; ReqDevTimeOut="25"
ReqDevTimeOut=""
defaultApp1="GET_FROM_CONTROLLER"
keybDefName="GET_FROM_CONTROLLER"
dateTimeChanges="N"
monKeybWrites="Y"
; raiseSerDtr = "N"
;   to force TS to report the true DTR/DSR line values.  Default is to always
;   report these values as high to the serial GETLONG request.
;
;
;   Default: report DTR/DSR lines as high.
; raiseSerDtr="N"
;
;
; LanAdaptID keyword
;
;
;        - this keyword is used when more than 1 LAN adapter definition
;          is active on the machine where TS is installed.  Without this
;          keyword, TS always defaults the DLC binding to adapter 0 in
;          machine.  This keyword can be used to specify either an ASCII
;          adapter number, or the ASCII name associated with the adapter
;          to be used for TCC communications.
; Example
;   LanAdaptID = "01"

;MonitorFilen
;
;
; The CDI variable MonitorFilen is used to activate file I/O monitoring
; across the TSF Monitor Pipe for a specific file spec, where n sets the
; file number to be assigned to the monitored file spec. Thus by setting
; MonitorFile1="R::$AMITEMR", the user will see all reads and writes
; against the remote file $AMITEMR (base supermarket application Item
; Record File) being monitored and written to the TSF Monitor Pipe as
; device address 0xF1. Specifying MonitorFile2="R::$AMITEMR" has the same
; effect, except that device address 0xF2 will be used to identify the
; moniotr file activity.  To activate file I/O monitoring for a specific file,
; the MONITORFILEn keyword must be set to the same name that the terminal
; application specifies at file open time.  The monitor pipe client must
; always check the return code field prior to accessing the actual file data.
; If the return code is non-zero, the data will NOT be valid.
;
;
; - The user can specify up to 5 unique file names to be monitored by TSF.
;
```

; Note: the MonitorFilen keywords replace the environment variables:
;   TSF_IOMON_FILEn, where n = 1 to 5
;
MonitorFile1=""
; MonitorFile1="R::$ALCONFG"
; MonitorFile2="R::$ALITEMF"
; MonitorFile3="R::ADX_SPGM:ADXJAVCF.DAT"
; MonitorFile4="R::ADX_SDT1:ADXTSAWF.DAT"
; MonitorFile5="R::ADX_UDT1:TSNT_MNT.UPD"
;--
; cmos16Kb - by default, TS/TC reports CMOS size as 1K and terminal type as
;   4683. By setting this option to "Y", you are enabling
;   CMOS size of 16KB and terminal type as 4693
; cmos16Kb="Y"
;
;
; cmosKbSize="nn" - by default, TS/TC reports CMOS size as 1K and terminal
;   type as 4683. By setting this option to "16", you are
;   enabling CMOS size of 16KB and terminal type as 4693.
;   By setting this option to "99", you are enabling CMOS
;   size of 99KB and terminal type as SurePos 700 series.
;
; cmosKbSize="nn"
;
;
;--
; IbmAppTermType
;   used to specify the terminal type returned to the application on an
;   ADXSERVE, Function 4 call. The possible values supported are:
;
;   IbmAppTermType="1"   - 4693 terminal type returned
;   IbmAppTermType="2"   - 4694 terminal type returned
;   IbmAppTermType="3"   - 4683 terminal type returned
;   IbmAppTermType="5"   - SurePos terminal type returned
;
; The Default value is IbmAppTermType="3"
;--
;NoRS485 keyword
;
;
;   - set to "Y" to force TS to bypass checks which verify that POSSWIN is loaded before TSF is
;   actually started. This keyword would be coded when all normal
;   RS485 type devices are to be managed by the RPA sub-system,
;   instead of the POSSWIN sub-system.
; NoRS485="Y"
;--
;4820KeyLock keyword
;
;
;   - set to "Y" to force TS to recognize an IBM 4820 Touch Device
;   with no keyboard, but with a Manager Keylock Feature as the
;   actual keylock. A virtual keyboard is configured to TS, but the
;   JAVA client owns the 4820 as a touch input device.
; 4820KeyLock="Y"
; casefmt="2"
; appPrinter="4610"
; physPrinter="7194"
; physPrinterBaud="19200"
; physPrinterPort="3"

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```
; physPrinterCashDrawer="N"
; physPrinter="4610"
; physPrinterPort="USB"
 ; physPrinterBaud="{9600, 19200, or 115200}"
;
; appPrinter="4610"
; physPrinter="4610"
; physPrinter="7194"
; physPrinterPort="3"
; physPrinterBaud="19200"
;
; physPrinterBaud="9600"
; appPrinter="MOD4"
; physPrinter="7194"
; physPrinterPort="3"
; physPrinterBaud="19200"


;------------------------------------------------------------------------
;TotlDvr keyword
;
;
;        - set to "N" to prevent the TOTAL1/TOTALS driver from being loaded
;          by TSF.  Default is to always load the TOTAL1/TOTALS internal
;          drivers.
TotlDvr="N"
; physVdisplay1 = "virtual"


;  msrTracks
;    This option is used to specify the msr track capabilities
;    expected by the application.  Its format is "nttt" where
;    n is number of tracks that msr device can read and 'ttt'
;    corresponds to tracks 1, 2, and 3 respectively.  Each 't'
;    position can be either 0 or non-zero indicating if that
;    track can be read.  Here are some examples:
;      "3123" - three track MSR; read tracks 1, 2 and 3
;      "2120" - two track msr; read tracks 1 and 2
;      "1020" - single track msr; read only track 2
;      "2023" - two track msr; read tracks 2 and 3
;      "3120" - three track MSR; read tracks 1 and 2
;      "0000" - no MSR
;
;    the default for msrTracks is "2120"
;
;    msrTracks="3120"
;
[SJ]
; If you are running a POS application that assumes an IBM Model 2, 3, or 4 printer,
; you can use a feature of Terminal Services that saves Summary Journal entries to
; a file instead of writing them to the printer.  A file is created for this terminal
; for each day.  It can archive several days' summary journal records.  The files
; containing the summary journal data will be saved by default in the
; c:\tsnt\sjinfo folder on the terminal's hard drive. The format of the files is
; SJLOGnnn.DAT where "nnn" represents the terminal number for this terminal.  If you
: choose to archive more than the current day's data, the format will be SJLOGnnn.yyy
; where "yyy" represents prior days.  The format of "yyy" is "001", "002", "003", etc
```

; representing yesterday, the day prior, and the day prior to that, respectively.
; To set this up, this file must have a section added as follows:

; EjDur="xxx" activates the journal filekeeping. "xxx" is the number of days
;   to be archived. "0" implies just the current day.
; EjParse="Y" removes all Escape sequences from the summary journal data to
;   allow print of the saved data on a standard printer
; EjPath="path" Ex: "c:\ejdata" specifies a different folder in which to keep the
;   journal data. The user is responsible for creation of that folder.
; NOTE: the path cannot be ended with a "\" (a backslash)
; EjAddCR = "Y" specifies that a Carriage Return should be written at the end
;   of each print line written to the disk file.

TSF Maintenance Update Facility

An existing version/release of TSF may be upgraded by applying the TSF Maintenance File to the Store Controller. This maintenance file update has file name is TSNT_MNT.UPD. This file must be placed on the Store Controller in directory \ADX_UDT1. The Terminal Control Facility: Reload Terminal option on the store controller can be used to initiate the automatic TSF update. Each active terminal will apply the new TSF maintenance level at re-load time. Any TSF terminal which was powered off when the re-load was performed will be updated the next time that TSF is started on that terminal.

Starting TSF on a New Terminal

If you have chosen this option, TSF automatically starts after you power on the terminal. However, a new terminal will not have a proper terminal ID set in the terminal CMOS area. Even if the terminal has been running the 4690 Operating System, the storage location for the terminal ID will be different from the one used by TSF.
You must first run "Reset Terminal Number" to allow the machine to prompt for a new terminal ID. To run "Reset Terminal Number", perform the following steps:
1. Click **Start**.
2. Click Programs.
3. Click 4690 Terminal Services.
4. Click Reset Terminal Number.

The POS system display will display Z001. Enter **1** xxx, **S2**, where xxx is the terminal ID. The terminal should boot and load the application that is configured for that terminal at the 4690 Controller.

Using the Show-Hide TSF Feature

You may wish to use the main computer screen to display the 2x20 display information generated by the application running in the terminal. If you chose the "Show TS Console" option when TSF was installed, this window will be active whenever TSF is running. If you want to either show the display or hide it perform the following steps. (This action will toggle the display status.)
1. Click **Start**.
2. Click Programs.
3. Click 4690 Terminal Services.
4. Click Show-Hide TS.
Optionally, if you have the TS Monitor icon active, you can double-click this icon to toggle the Show-Hide TS status.

Starting and Stopping TSF

After "Reset Terminal Number" has been run and a valid terminal number has been set you can start and stop Terminal Services for NT in more than one way.
   1. TSF will start automatically at bootup if that installation option was chosen.

2. TSF can be started using the following steps:
   1. Click **Start**.
   2. Click Programs.
   3. Click 4690 Terminal Services.
   4. Click Start Terminal.
3. To stop the TSF program, perform the following steps:
   1. Click **Start**.
   2. Click Programs.
   3. Click 4690 Terminal Services.
   4. Click Stop Terminal.

You can also use the Terminal Services Monitor program to start and stop Terminal Services for NT. To do this use the small icon on the task bar labeled "TS Monitor". It is located in the service tray near the clock. If you right-click the icon you can then choose to start or stop TSF or to Exit/Stop the TS Monitor application. For detailed information see *Using the TS Monitor System Tray Application*.

Using the TS Monitor System Tray Application

The TS Monitor application allows for easy access to common TS tasks. It also serves as a visual indicator of the current state of the TS service.
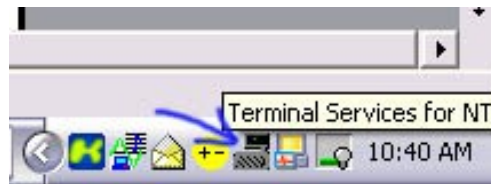
The TS Monitor icon changes to indicate whether TS is running or not running.

Figure 1 TS Not Running   **Figure 2 TS Running**

Double clicking on the TS Monitor icon will toggle the visibility of the TS console.
Right clicking the TS Monitor icon will bring up the TS Monitor menu.
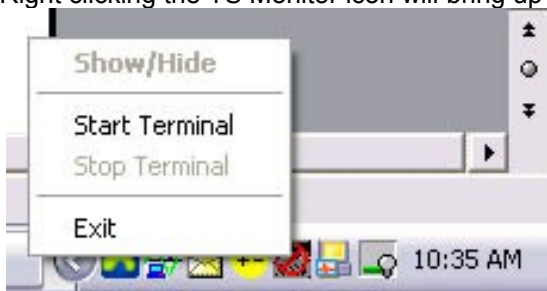
Figure 3 TS Not Running
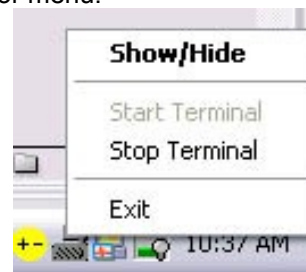
Figure 4 TS Running

Show/Hide will toggle the visibility of the TS console.
Start Terminal will start TS.
Stop Terminal will stop TS.
Exit will exit the TS Monitor application. TS will be unaffected by this menu choice.

Changing the Terminal Number, Application Name, or Attaching the Terminal to a New Controller

If you need to change the terminal ID or name of the application to be loaded, or attach the terminal to a new controller:

1. Click **Start**.
2. Click Programs.
3. Click 4690 Terminal Services.
4. Click Reset Terminal Number.

The POS system display will display Z001. Enter **1** xxx, **S2**, where xxx is the terminal ID. The terminal should boot and load the application that is configured for that terminal at the 4690 Controller.

Reconnecting the Alphanumeric POS Keyboard to the TSF Session

Attention: Disregard this section if you are using a 50-key POS keyboard for the POS application. The default installation option for TSF is to hide the TSF session, which means that 4690 Terminal Services will not appear on the Windows NT Task Bar. This makes it harder to accidentally close the Terminal Services session. If you begin using the keyboard in another session, you may have difficulty getting back to the TSF session. Under these circumstances, you may reconnect the keyboard to the TSF session by performing the following steps:

1. Click **Start**.
2. Click Programs.
3. Click 4690 Terminal Services.
4. Click Show-Hide TSNT.

You may choose not to hide the Terminal Services session at the time you install TSF. If so, the Terminal Services session will appear on the task bar, which allows you to click on it to bring this session into the foreground.

Problem Determination

The following list describes common TSF questions, problems, and possible solutions:

- ANPOS keyboard does not respond to keystrokes
  If you use the ANPOS keyboard as your system keyboard, you must replace the base NT keyboard driver (I8042PRT.SYS) with the POSSWIN driver for the ANPOS keyboard. If you let POSSWIN install ANPOS keyboard support, this should already be done. Refer to the Combined Terminal/Controller information in the POSSWIN documentation.

- PC system keyboard does not respond to keystrokes
  Ensure that the POSSWIN installation did not redefine the keyboard driver as detailed above. If it did, restore the driver that you saved before beginning the installation (see Point-of-Sale Subsystem for Windows (POSSWIN).

- How do I terminate TSF after it is active?
  Type **TERMSTOP** from a command line and press **Enter**.

- How do I initiate a terminal dump on a TSF system?
  Type **TERMDUMP** from a command line and press **Enter**.

- After TERMBOOT is started, the full screen display is blank. No activity can be observed on this session
  - Create a file called \POS\DISPLAY.ON.
  - Reboot your machine.
  - Select the AIPCTRL icon.
  - Select STATUS.
  - Refer to the POSSWIN documentation for the procedures to identify POS devices.

- After TERMBOOT is started, a message waiting for POS is displayed on the full screen session. No other activity can be observed on this session.
  It is possible that the media used to support Terminal-to-Controller Communications (TCC) is not working. Verify the connectivity from the controller to the terminal over your media (Token-Ring or Ethernet) by RPL loading your terminal from the controller. See "Appendix A. Verification of Controller to Terminal Connectivity".

- <mark>My 2x20 display is suspended at U007 the first time TERMBOOT is started</mark>
  Have you run TERMINIT to initialize CMOS? If not:

  Type **TERMINIT** from a command line and press **Enter**.
  When the display is suspended at U007, is the Offline guidance light on?
  1. Make sure that the 802.2 communications over the LAN adapter on the TSF terminal has been configured. (See "DLC Protocol for NT 4.0").
  2. Make sure the LAN cable is properly connected to the Store Controller LAN.
  3. Make sure the Controller LAN status is active.
  4. Make sure the Controller has a TSF terminal address defined as a LAN terminal.
  5. Check for messages in the Store Controller Message Log that might identify the problem.

When the display is suspended at U007, is the Offline guidance light off?
  1. If this terminal has been previously loaded from a Controller with a different application set, run TERMINIT to clear the terminal CMOS record.
  2. Make sure the keyboard definition name defined in the terminal load record on the Controller is correct.

- Unexpected display messages occur during the initial sign-on sequence
  Make sure the load record and the terminal keyboard name specified on the Store Controller matches the keyboard type used on the TSF terminal.

- Double key support is not working properly
  Double key support requires definitions for the keys to be put in file TSNT.RES, which is located in the directory where TSF is installed. A sample file, SAMPLE.RES, is shipped with the product.

  - If your environment requires double keys, copy or rename the file SAMPLE.RES to TSNT.RES and define all double keys as needed. Make sure the following statement has been added to the NT environment definition:

NOTE:

Later versions of IBM's UPOS drivers require that the TSNT.RES be moved to the \POS directory and named as AIPSYS.RES

SET POSAPPLRESDIR=C:\TSNT

To change the environment settings, click **My Computer**, **Properties**, and **Environment**.
- Keying sequences, such as Sign-on, are not working properly
Make sure the keyboard type matches the controller keyboard definition for this terminal. Next check to see if an incorrect double key definition file (usually called TSNT.RES) exists on your terminal. If a double key definition file is required, it must match the double key definitions on the controller keyboard definition.
- <mark>I am having problems configuring the 4694 Ethernet support on a 4694 with an integrated Ethernet adapter</mark>

Make sure that the Windows NT installation included the definition for the Ethernet adapter.

Collecting and Retrieving Dumps for Problem Analysis

TSF packages all problem determination files in the LOG directory and transfers them to the 4690 controller as the file ADX_UDT1\TSFL_ nnn.Dmm, where nnn is the corresponding terminal number and mm is the occurrence of a dump from that terminal.

For example, if TSF terminal number 21 generates problem determination data, the first occurrence of this data is transferred to the 4690 controller as \ADX_UDT1\TSFL_021.D01. The second occurrence is transferred as \ADX_UDT1\TSFL_021.D02.

The default mode is to store up to five occurrences of problem determination data on the 4690 Controller for each TSF terminal number. If you want to change the number of dumps to be stored on the 4690 Store Controller, see "Setting the Number of Terminal Dumps Kept at the Controller".

In the event that a dump is created on the terminal, the dump and associated log files are transferred to the controller. The file is placed in the ADX_UDT1 directory in the format TSFL_ xxx.D nn, where xxx is the terminal ID and nnnis the dump number. If the maximum number of dumps per terminal has been met, subsequent dumps are not transferred.

For a detailed description of the Dump File facility, see Chapter 3. Maintenance.

If a memory dump is requested, complete the following steps:

1. Verify that the terminal for which you want to obtain a memory dump has not reached the maximum number of possible dumps on the Store Controller. If it has, either:
    a. Go to the 4690 Store Controller and erase unwanted dumps for that terminal. The dumps will appear as \ADX_UDT1\TSFL_ nnn.Dmm, where nnn is the terminal ID and mm is the sequence number of the dump.

    or

    b. Increase the maximum number of dumps that will be retained for that terminal ID. See "Setting the Number of Terminal Dumps Kept at the Controller" for instructions on increasing the maximum number of dumps.
2. Recreate the problem situation for which a memory dump has been requested.
3. Create a memory dump for the terminal.
    a. If you want to initiate the dump from the Store Controller, perform the following steps:
        i. Type **ALT-SYS-REQ**, then **C** from the Store Controller that is either the Master or Alternate Master.
        ii. Choose Terminal Functions.
        iii. Choose Dump Terminal Storage.
        iv. Enter the ID of the terminal on which you want to perform the dump. The terminal should dump and reboot automatically.
    b. If you want to initiate the dump at the terminal having the problem, type **TERMDUMP** from a command line. The terminal should dump and reboot automatically.
4. Copy the dump from the Store Controller. The dump is located in the ADX_UDT1 subdirectory as TSFL_ xxx.D yy, where xxx is the ID of the terminal which dumped and yy is the sequence number of the dump. Choose the highest sequence number for that terminal ID and verify that the date/time stamp on the file corresponds to the date and time of the dump.
5. Transfer the dump file to QVS support personnel for analysis.

Collecting and Retrieving Traces for Problem Analysis

Programming bugs can sometimes occur that require a trace of I/O activity in order to determine the source of the error. You should obtain traces only upon the instruction of QVS maintenance support personnel.

Collecting a Trace for a Repeatable Error That Occurs After the Application has Initialized

If the problem is repeatable and predictable, it is best to use the following procedure if the problem occurs after a terminal has successfully loaded the application.

1. Ensure that the terminal dump count on the controller has not reached the limit for the terminal under test. To verify this, go to the Master File Server controller in the store and examine the ADX_UDT1 subdirectory.

    Erase all files with a file name TSFL_ xxx.D yy, where xxx represents the terminal ID you are working with and yy represents a sequence number, normally 01-05. For example, if you want to create a trace on terminal 24, issue the **del TSFL_024.*** command from a command line in the ADX_UDT1 directory.

2. Open a command window at the terminal and type **TERMSTOP**.
3. Change to the TSNT\LOG directory and type **del . .**. This command erases any old logs from the log area.
4. Open a command window and type **TERMBOOT**.
5. Get to a point in the operation of the application at which the error is about to be executed.
6. From a command line, type **tprocess -t**. This command turns on the trace function. Traces of terminal I/O activity are logged in the \TSNT\LOG directory.
7. Perform the operation that causes the error you are attempting to trace.
8. After you have reproduced the error, go to a command line and type **TERMSTOP**. This command turns off tracing and stops the application.
9. From a command line, type **TERMBOOT**. This command restarts the terminal application.
10. Go to the Master File server controller and copy the new dump file for the terminal ID with which you have been working. This dump file will be named ADX_UDT1\TSFL_ xxx.D yy, where xxx represents the terminal ID. The date time stamp of the file should also be consistent with the time your terminal was booted following the trace. If prior dumps for the terminal have been erased, the file name should be ADX_UDT1\TSFL_ xxx.D01.

Collecting a Trace For an Error That Occurs During TSF Boot or Whose Occurrence is Unpredictable

To collect a trace for an error that occurs during TSF boot or whose occurrence is unpredictable, perform the following steps:

1. Ensure that the terminal dump count on the controller has not reached the limit for the terminal under test. To verify this, go to the Master File Server controller in the store and examine the ADX_UDT1 subdirectory.
    Erase all files in that directory with a file name TSFL_ xxx.D yy, where xxx represents the terminal ID you are working with and yy represents a sequence number,

normally 01-05. For example, if you want to create a trace on terminal 24, issue the **del TSFL_024.*** command from a command line in the ADX_UDT1 directory.

2. Open a command window at the terminal and type **TERMSTOP**.
3. Change to the TSNT\LOG directory and type **del . .**. This command erases any old logs from the log area.
4. Create a trigger file, named **logging.on,** in the \TSNT directory. The contents of the file do not matter; only the name is important.
5. Open a command window and type **TERMBOOT**. This command starts both the application and the trace.
6. After you have reproduced the error, type **TERMSTOP** from a command line. This command stops the application and turns off tracing.
7. Now delete the trigger file (**\TSNT\logging.on**) from step 4 above.
8. From a command line, type **TERMBOOT**. This command restarts the terminal application. You will see **U008** displayed on the terminal system display while the diagnostic file is transferred to the store controller.
9. Go to the Master File server controller and copy the new dump file for the terminal ID with which you have been working. This dump file will be named TSFL_ xxx.D yy, where xxx represents the terminal ID. The date time stamp of the file should also be consistent with the time your terminal was booted following the trace. If prior dumps for the terminal have been erased, the file name should be TSFL_ xxx.D01.

Chapter 3. Maintenance

The Apply Software Maintenance (ASM) function is not used to maintain TSF. TSF handles software maintenance by including a terminal file maintenance facility that allows the distribution of updates. Changes to be applied are copied to the controller in the file TSNT_MNT.UPD stored in the ADX_UDT1 directory. When the terminal is re-loaded, it detects the presence of this file and transfers and applies the updates.

In addition, users can take advantage of an automatic transfer of user code from the store controller to the terminals by installing one or more of the files OEM_MNT.000 or OEM_MNT.nnn in the ADX_UDT1 directory. When the terminal detects a new file on the controller, this file is copied to the TSNT\UPDATE directory on the appropriate terminal.

Terminal Software Maintenance for TSF

TSF updates can be put on the store controller to be downloaded by the TSF terminal. TSF performs the following operations:

- **Detects when Terminal Software updates are available on the controller.** If the file TSNT_MNT.UPD, located in ADX_UDT1, is found on the store controller, the changes are transferred and applied to each terminal when TSF boots. A log of terminal maintenance is stored on the controller.
- **Performs dump/problem determination processing.** If the terminal is dumped, TSF packs the dump and supporting data and transfers them to the controller. The data is stored in the file \ADX_UDT1\TSFL_ nnn.Dmm, where nnnis the terminal number and mmis the occurrence for this terminal.

  Note: TSF stores a user-specified number of dumps on the controller (the default is five) for each TSF terminal. No additional dumps are accepted for a specific terminal ID until existing dumps on the controller are erased.

Function Description

Because of the need to handle the libraries that are locked when TPROCESS is running, TSFMAINT is broken down into 2 pieces. The TPROCESS function performs any file transfers needed for maintenance to and from the controller. Whenever the terminal is reloaded, TSFMAINT gets control and applies any software updates as well as preparing dump files for transmission.

When the file TERMBOOT.BAT is executed to start TSF, it first calls the routine TSFMAINT and then calls TPROCESS. Upon exiting TPROCESS, the command file loops back to the beginning and calls TSFMAINT again. The maintenance function of TSFMAINT and TPROCESS are described below.

TSFMAINT Processing

When TSFMAINT gets control, it parses any command-line arguments entered by the caller, loads any configuration parameters stored in the file TSFMAINT.CFG, and then processes the updates and dump files. Supported command-line arguments are:

- **D**   Turn debug messages on/off
- **Q**   No output to screen
- **C**   Display Configuration file parameters
- **U**   Undo last Update

In addition to the command line, the TSFMAINT function can be controlled through parameters set in the file TSFMAINT.CFG, which resides in the TSF base directory. Maintenance parameters that can be set through TSFMAINT.CFG are:

DEBUG=Y or N

Debug Mode

QUIET=Y or N

Quiet Mode. The default is Y.

UNDO_SUPPORT=Y or N

Support undo of changes. The default is Y.
If UNDO_SUPPORT is selected, any files that will be replaced by an update are saved first so that they can be restored in the event that a controller-initiated reversal cannot be performed. You can only restore one level back.

Figure 5 below shows the flow of TSFMAINT during normal update/dump processing.

```
                      ┌───┐       ┌───┐
                      │   START   │
                      └───┘       └───┘

                   │ Does file .\LOG\TSFDUMP.D00 exist? │
          NO        YES

     ┌──────────────────────────────────┐   Note:  .D05 assumes the default max
     │ Check for controller files        │   of 5 dump files.  If the parm
     │ ADX_UDT1\TSFL_xxx.D01 through .D05 │   MAX_DUMPS is set (see above), then
     │ where 'xxx' is terminal number.   │   this number will be different.
     │ Do all of the files exist?        │
     └──────────────────────────────────┘
          YES       NO

     ┌──────────────────────────────────────────────────┐
     │ Create TSFL_XXX.Dnn on controller, where 'xxx' =  │
     │ terminal number and 'nn'= the first available dump│
     │ number.  Transfer the file .\LOG\TSFDUMP.D00 to   │
     │ the controller.  If the transfer was successful,  │
     │ delete the terminal file .\LOG\TSFDUMP.D00        │
     └──────────────────────────────────────────────────┘

     ┌──────────────────────────────────────────┐
     │ Does file .\LOG\TSFMAINT.LOG exist?        │
     └──────────────────────────────────────────┘
          NO       YES

     ┌──────────────────────────────────────────────────┐
     │ Open (create if not existing) the controller file │
     │ ADX_UDT1:TSFMAINT.LOG.  Copy all records in the   │
     │ terminal log file to the controller, inserting the│
     │ terminal ID into each record.  If transfer was    │
     │ successful, delete the terminal log file.         │
     └──────────────────────────────────────────────────┘

     ┌──────────────────────────────────────────────────┐
     │ Does controller file ADX_UDT1:TSF2_MNT.UPD exist?  │
     └──────────────────────────────────────────────────┘
          NO       YES

     ┌──────────────────────────────────────────────────┐
     │ Determine the size and timestamp of the remote file.│
     │ Read in the terminal file .\UPDATE\MNT_DATE.TSF to │
     │ get the date of the last update.  Compare the two  │
     │ file specifications.                               │
     │                                                    │
     │ Does the Controller Update file size and Timestamp │
     │ match the last one applied by the terminal?        │
     └──────────────────────────────────────────────────┘
          YES       NO

     ┌──────────────────────────────────────────────────┐
     │ - Write out the size and timestamp of the controller│
     │   update file to .\UPDATE\MNT_DATE.TSF.            │
     │ - Transfer the controller update file to the terminal│
     │   file .\UPDATE\TSF2_MNT.UPD. If transfer completed│
     │   successfully, compare the received size with the │
     │   expected size.                                   │
     │                                                    │
     │   Does the size of the terminal update file match  │
     │   the size of the controller update file?          │
     │        YES                          NO             │
     └──────────────────────────────────────────────────┘

     ┌──────────────────┐   ┌──────────────────────────────────┐
     │ Set flag to force│   │ Delete the file .\UPDATE\TSF2_MNT.UPD│
     │ TPROCESS to exit so│ │ Delete the file .\UPDATE\MNT_DATE.TSF│
     │ maintenance can be│  │ Log error messages indicating abort│
     │ applied          │   └──────────────────────────────────┘
     └──────────────────┘

               ┌──────────┐   │
               │   EXIT   │
               └──────────┘
```

Figure 5. TSFMAINT Flow During Normal Update/Dump Processing

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Created on 05/29/2009 9:10 AM

Setting the Number of Terminal Dumps Kept at the Controller

During initialization of the TPROCESS function, decisions are made whether files need to be transferred between the controller and the terminal to facilitate maintenance. There are no command-line parameters to the TPROCESS function that affect maintenance. There is one TSFMAINT.CFG parameter, which is:

MAX_DUMPS=x

Maximum number of dump files from this terminal to keep on the controller

By default, the controller is sent a maximum of 5 dump files from each terminal. By modifying the parameter, MAX_DUMPS, you can control the number of dump files retained on the controller. The file, TSFMAINT.CFG, is located in the \TSNT directory of the terminal.

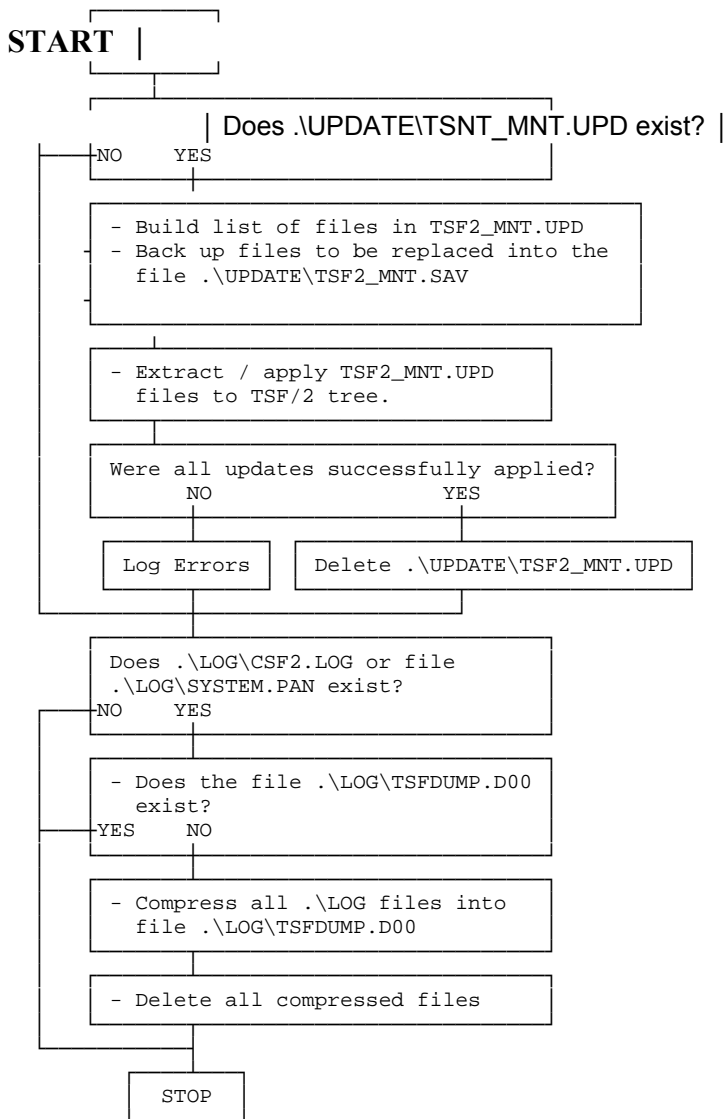Figure 6 below shows the flow for the maintenance portion of TPROCESS.

```
START  |

                | Does .\UPDATE\TSNT_MNT.UPD exist? |
        NO    YES

           - Build list of files in TSF2_MNT.UPD
           - Back up files to be replaced into the
             file .\UPDATE\TSF2_MNT.SAV

           - Extract / apply TSF2_MNT.UPD
             files to TSF/2 tree.

           Were all updates successfully applied?
                 NO                    YES

            Log Errors        Delete .\UPDATE\TSF2_MNT.UPD

           Does .\LOG\CSF2.LOG or file
           .\LOG\SYSTEM.PAN exist?
        NO    YES

           - Does the file .\LOG\TSFDUMP.D00
             exist?
        YES    NO

           - Compress all .\LOG files into
             file .\LOG\TSFDUMP.D00

           - Delete all compressed files

              STOP
```

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Figure 6. TPROCESS Maintenance Flow

Maintenance of TSF Dump Files

On a periodic basis, you should retrieve TSF dump files from the 4690 controllers. These files reside on the Master File Server controller in the ADX_UDT1 directory. The dump files are named TSFL_ xxx.D yy, where xxx is the terminal ID, and yy is the sequence number associated with the dump (normally 01–05).
These files should be erased after they have been retrieved. The presence of these files normally indicates a problem at the terminals for which a memory dump has occurred. They can be used, in conjunction with a description of the sequence that led up to the memory dump, to help IBM maintenance personnel diagnose a programming problem.

A CDI keyword is support which allows the user to tailor the method by which TSF Dump Files are maintained. If the user specifies the following CDI keyword:

AgeOutTsfDumps="Y"

Then the most recent TSF dump Files will be maintained on the Store Controller; with older Dump Files being deleted the make room for the more recent files.

User Maintenance

TSF allows users to automatically download and process their own maintenance files. The type of maintenance that can be done is very flexible. The user might, for example, choose to update a terminal database using information created by a Store Controller application or sent from the host. TSF provides for the transfer of two types of files. One, ADX_UDT1:OEM_MNT.000, applies to all terminals. The second type has file name ADX_UDT1:OEM_MNT. nnn, where nnn represents a unique terminal number. This file contains maintenance for the terminal that has terminal number nnn. TSF, running on each terminal, transfers files ADX_UDT1:OEM_MNT.000 and/or ADX_UDT1:OEM_MNT. nnn, from the controller to the TSNT/UPDATE directory in the terminal. The file transfer is done under the following conditions:

1. The TSF application is started.
2. The ADX_UDT1:OEM_MNT.000 is transferred under the following conditions:
   a. The ADX_UDT1:OEM_MNT.000 file on the store controller has been modified in some manner (new date, new time, or new size).
   b. There is not currently an OEM_MNT.000 file in the TSNT\UPDATE directory of the terminal.
3. The file, ADX_UDT1:OEM_MNT.nnn is transferred under the following conditions:
   a. The nnnsuffix matches the current terminal's number.
   b. The ADX_UDT1:OEM_MNT. nnnfile on the Store Controller has been modified in some manner (new date, new time, or new size).
   c. There is not currently an OEM_MNT. nnnfile in the \TSNT\UPDATE directory of the terminal.

In order to take advantage of this feature, the user must write one or more custom NT applications that will process the \TSNT\UPDATE\OEM_MNT.000 file or the \TSNT\UPDATE\OEM_MNT.nnn file or both. After an update file has been processed, it must be either erased or replaced in order to receive and process new updates.
Note: There is no restriction on the content of either of these files.
The call to the user's NT application or batch file should be made using an entry in the \TSNT\BIN\OEMMAINT.BAT file. Comments within that BAT file explain where this call should be inserted.

Error Messages

Error messages are produced by both the TPROCESS and TSFMAINT functions. Most error messages contain the fully qualified file name of the file generating the problem. The message text below assumes that the terminal TSF code was installed in the directory C:\TSNT. If TSF is installed in a different directory on the machine generating the error, the path specification will be different.

"ERROR Allocating memory for Transfer Buffer" or

"ERROR Allocating memory for Controller Dump File Name"

Module: *TPROCESS*

Explanation: Memory could not be allocated for the indicated operation.
User Response: Force a dump of the terminal and follow procedures to acquire data for problem determination.

"ERROR closing <filename> rc = xxxxxxxx"

Module: *TPROCESS*

Explanation: The indicated file could not be closed after opening or creating.
User Response: Consult the 4690 Operating System: Messages Guide for a description of the return code and correct the problem.

"ERROR closing C:\TSNT\UPDATE\MNT_DATE.TSN after verify - rc = xxxxxxxx"

Module: *TPROCESS*

Explanation: After opening the date file to verify the data, TPROCESS could not close the file.
User Response: Consult the 4690 Operating System: Messages Guide for a description of the return code and correct the problem. If this error is displayed, TPROCESS attempts to delete all files in the TSNT\UPDATE subdirectory to prevent the possibility of trying to apply an update that is not correct. t is likely that the update is corrupt. Terminate TSF in the terminal and delete all files in the TSNT\UPDATE subdirectory. Restart TSF.

"ERROR - Controller offline"

Module: *TPROCESS*

Explanation: An operation was initiated that required communication with the controller and the controller could not be accessed.
User Response: Determine that the controller is operational, that the EPROCESS CSF/2 module has been started, and that the terminal and controller are attached to the LAN.

"ERROR creating %s rc = %08lX", CtlrDumpFile

Module: *TPROCESS*

Explanation: The indicated file could not be created.
User Response: Consult the 4690 Operating System: Messages Guide for a description of the return code and correct the problem.

"ERROR deleting <filename> rc = xxxxxxxx"

Module: *TPROCESS*

Explanation: The indicated file could not be deleted.
User Response: Consult the 4690 Operating System: Messages Guide for a description of the return code and correct the problem.

"ERROR deleting C:\TSNT\UPDATE\TSNT_MNT.UPD after verify failure rc = xxxxxxxx"

or

"ERROR deleting C:\TSNT\UPDATE\MNT_DATE.UPD after verify failure rc = xxxxxxxx"

Module: *TPROCESS*

Explanation: The update transfer was incomplete for some reason and TPROCESS is unable to delete the update files. Maintenance may fail to apply or may be improperly applied.
User Response: The files in the TSNT\UPDATE subdirectory are corrupt. Delete the files and reload the terminal. Check to see if there is enough space on the terminal for the update file.

"ERROR getting Diskfile table rc = xxxxxxx"

Module: *TPROCESS*

Explanation: The GET command to retrieve the file data for the controller update file failed.
User Response: Consult the 4690 Operating System: Messages Guide for a description of the return code and correct the problem.

"ERROR - Missing quote (C:\TSNT\TSFMAINT.CFG)"

Module: *TPROCESS*

Explanation: One or more of the defined strings in TSFMAINT.CFG has no closing quote.
User Response: Edit the indicated file and make sure that all defined strings have quotes at each end.

"ERROR opening <filename> rc = xxxxxxxx"

Module: *TPROCESS*

Explanation: The indicated file existed but could not be opened.
User Response: Consult the 4690 Operating System:Messages Guide for a description of the return code and correct the problem.

"ERROR opening C:\TSNT\TSNT_MNT.UPD for Verify rc = xxxxxxxx"

Module: *TPROCESS*

Explanation: After copying the maintenance update file from the controller, TPROCESS was unable to open it to verify that the file had been completely transferred.
User Response: Consult the 4690 Operating System: Messages Guide for a description of the return code and correct the problem. If this error is displayed, TPROCESS attempts to delete all files in the TSNT\UPDATE subdirectory to prevent the possibility of trying to apply an update that is not correct.

"ERROR reading <filename> rc = xxxxxxxx"

Created on 05/29/2009 9:10 AM

Module: *TPROCESS*

Explanation: A read command failed on the indicated file.
User Response: Consult the 4690 Operating System: Messages Guide for a description of the return code and correct the problem.

"ERROR writing <filename> rc = xxxxxxxx"

Module: *TPROCESS*

Explanation: A write command failed on the indicated file.
User Response: Consult the 4690 Operating System: Messages Guide for a description of the return code and correct the problem.

"Dump Transfer did not complete"
or

"Update Transfer did not complete"

Module: *TPROCESS*

Explanation: The named process did not complete due to the occurrence of one or more errors.
User Response: Correct the indicated errors and this message will not appear.

"ERROR - Update File Size Verify (Cxxx/Tyyy)"

Module: *TPROCESS*

Explanation: After being transferred, the size of the update file on the terminal does not match the size of the same file on the controller, where xxx is the Controller file size and yyy is terminal size.
User Response: The update file and the corresponding date file will be deleted on the terminal. The transfer will be attempted again on the next terminal reload. Check to see if there is enough space on the terminal for the update file.

"ERROR - Invalid Input Argument (<string>)- TSFMAINT aborted"

Module: *TSFMAINT*

Explanation: TSFMAINT was started with at least one invalid command-line parameter, where <string> contains the invalid parameter.
User Response: Enter **TSFMAINT -?** on a command line and note the allowed parameters.

"ERROR - Undo not allowed - TSFMAINT aborted"

Module: *TSFMAINT*

Explanation: TSMAINT was started with a –U command-line parameter to undo the last update, and the TSFMAINT.CFG parameter UNDO_SUPPORT was not set to Yes.
User Response: If undo support is desired, edit the file C:\TSNT\TSFMAINT.CFG and add the parameter
UNDO_SUPPORT=Y. Note that you will not be able to undo the last change unless you had this parameter set on at the time you applied the previous update. You can determine whether Undo is possible by looking at the file TSNT\UPDATE\TSNT_MNT.SAV. If this file is present and has the date and time set the same as the last time maintenance was applied, then Undo is possible.

"Undo Aborted – file C:\TSNT\UPDATE\TSNT_MNT.SAV not found"

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Module: *TSFMAINT*

Explanation: TSFMAINT was started with the –U parameter for undo, and the file TSNT\UPDATE\TSNT_MNT.SAV could not be found.
User Response: If undo support is desired, edit the file C:\TSNT\TSFMAINT.CFG and add the parameter
UNDO_SUPPORT=Y. Note that you will not be able to undo the last change unless you had this parameter set on at the time you applied the previous update.

"Undo aborted by operator"
or

"Archive Restoration Terminated without action"

Module: *TSFMAINT*

Explanation: TSFMAINT was started with the –U parameter for undo, and the operator aborted the process when prompted to continue.
User Response: Determine if an undo is required and restart the process.

"ERROR - File C:\TSNT\TSNT_MNT.UPD has incorrect length"

Module: *TSFMAINT*

Explanation: After being transferred, the size of the update file on the terminal does not match the size of the same file on the controller after transfer.
User Response: The update file and the corresponding date file will be deleted on the terminal. The transfer will be attempted again on the next terminal reload. Check to see if there is enough space on the terminal for the update file.

"Could not delete C:\TSNT\TSNT_MNT.UPD"

Module: *TSFMAINT*

Explanation: The update transfer was incomplete for some reason and TSFMAINT is unable to delete the update files. Maintenance may fail to apply or may be improperly applied.
User Response: The files in the TSNT\UPDATE subdirectory are corrupt. Delete the files and reload the terminal. Check to see if there is enough space on the terminal for the update file.

"ERROR - file <filename> could not be deleted"

Module: *TSFMAINT*

Explanation: The indicated file could not be deleted.
User Response: Consult the 4690 Operating System: Messages Guide for a description of the return code and correct the problem.

"Archive will not be performed"

Module: *TSFMAINT*

Explanation: Accompanied by a delete error, this message indicates that TSFMAINT was unable to delete the existing file TSNT\UPDATE\TSNT_MNT.SAV in order to create a new one. As a result, the files to be overlaid cannot be saved.
User Response: Check the .SAV file to make sure that it is not set to read only. Delete the update directory and reload the terminal.

"ERROR - Update not processed Completely!"

Module: TSFMAINT

Explanation: One or more of the files contained in the update could not be applied.
User Response: The update may be corrupt. If undo support is active, restore the saved files. If not, reload the previous update from the controller.

"ERROR - Maint file <C:\TSNT\TSNT_MNT.UPD> could not be deleted"

Module: TSFMAINT

Explanation: The maintenance file could not be deleted after a successful update.
User Response: The update completed, but the file could not be deleted. Delete the file manually to avoid it being re-applied on the next reload of the terminal.

Appendix A. Verification of Controller to Terminal Connectivity

If you would like to RPL your terminals using the 4690 Operating System prior to installing TSF to verify terminal-to-controller connectivity, follow the steps described in this section for your specific terminal.

4694 Terminals

The setup of 4694 terminals is described in detail and kept current on a World Wide Web site maintained by IBM. Use the IBM RSS Support Knowledgebase http://www2.clearlake.ibm.com/store/support/html/knowledgebase.html to find the 4690 4694 Tips document.   Look in the 4694TIPS file in the 4690 Operating System area of this web site. This document contains the most current information on setting up your machine properly for use in communication with a 4690 OS controller. Use the 4694TIPS information to properly configure a 4694 machine as a terminal.

Note: If you are using an ANPOS keyboard, make sure it is connected to SIO port 5 at the back of the terminal, NOT the standard PC keyboard port.

When this setup has been completed, perform the following steps:

1. Invoke terminal configuration at the controller and configure this terminal, ensuring that the terminal load specifies a keyboard and device group that describes the specific POS I/O on the terminal.
2. Invoke system configuration at the controller. Specify that the terminal is a LAN terminal, and specify which controllers are primary and secondary for the terminal.
3. Activate terminal and system configuration, and ensure no errors were generated. If errors are reported, correct and activate configuration again until successful.
4. Boot the controllers to load the configuration.
5. Ensure that the LAN adapter in the terminal is connected to the same MAU or hub to which the controller(s) are connected or that the loop adapter is attached to the same loop concentrator (LWC).
6. If the 4694 machine has a dump switch installed, boot the terminal and press the dump switch when the U005 message is displayed. The terminal reboots and automatically runs the Set Terminal Characteristics (STC) program.
7. If the 4694 machine does not have a dump switch installed, you must obtain and run a special program, ADRCLR94. This program runs under DOS and is available from the World Wide Web site:
   http://www2.clearlake.ibm.com/store/support/html/knowledgebase.html. Look for a program listed as the "4694 DOS clear terminal address program". This program should be downloaded, copied to a DOS boot diskette, and run on your 4694 terminal from a DOS prompt. It clears NVRAM on the machine. After this has been done, remove the diskette, reboot the machine and continue with the next step. Clearing NVRAM causes the Set Terminal Characteristics (STC) program to be automatically invoked at the next bootup.
8. After the terminal has booted at the Z001 prompt, enter **1**XXX and press **S2**, where XXX is the terminal ID matching the terminal load you configured for this terminal at the controller.
9. At this point, the terminal first begins to communicate with the controller. If the terminal configuration is not displayed on the POS I/O, return to the controller and verify that the terminal configuration exactly describes the POS I/O on the terminal.

10. Either press **CTRL-S2** (4693 POS keyboards) or **S2** (4680 keyboards) repeatedly until the terminal reloads.
11. Verify that the terminal loads the terminal application configured at the controller.

At this point you have verified that your hardware is configured properly and that you have established communications over the LAN to the controller.
Note: If you are using an ANPOS keyboard, be sure to connect it to the PC keyboard port before converting the terminal to run Terminal Services for NT.

4693 Terminals

Note: If you are using an ANPOS keyboard, make sure it is connected to SIO port 5 at the back of the terminal, NOT the standard PC keyboard port.

1. For 4693-541 terminals:
   * Power off/on the terminal and, when the cursor moves to the upper right portion of the screen, press **CTRL-ALT-INS** to invoke the reference diskette image to be loaded.
2. For 4693-741 terminals:
   * Power off/on the terminal. Place the reference diskette for the machine in the diskette drive and power on the terminal.
3. Specify the Utility option and set the starting sequence to
   * 1 = diskette drive
   * 2 = RPL from network
   * 3 = Not selected
   * 4 = Not selected
4. Invoke terminal configuration at the controller and configure this terminal, ensuring that the terminal load specifies a keyboard and device group that describes the specific POS I/O on the terminal.
5. Invoke system configuration at the controller. Specify that the terminal is a LAN terminal, and specify which controllers are primary and secondary for the terminal.
6. Activate terminal and system configuration, and ensure no errors were generated. If errors are reported, correct and activate configuration again until successful.
7. Boot the controllers to reload the configuration.
8. Ensure that the LAN adapter in the terminal is connected to the same MAU or hub to which the controllers are connected or that the loop adapter is attached to the same loop concentrator (LWC).
9. Boot the terminal, and press the dump switch when the U005 message is being displayed. The terminal reboots and automatically starts the Set Terminal Characteristics (STC) program.
10. After the terminal has booted, at the Z001 prompt, enter **1**XXX and press **S2**, where XXX is the terminal ID matching the terminal load you configured for this terminal at the controller.
11. At this point, the terminal first begins to communicate with the controller. If the terminal configuration is not displayed on the POS I/O, return to the controller and verify that the terminal configuration exactly describes the POS I/O on the terminal.
12. Either press **CTRL-S2** (4693 POS keyboards) or **S2** (4680 keyboards) repeatedly until the terminal reloads.

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13. Verify that the terminal loads the terminal application configured at the controller.

At this point, you have verified that your hardware is configured properly and that you have established communications over the LAN to the controller.
Note: If you are using an ANPOS keyboard, be sure to connect it to the PC keyboard port before converting the terminal to run Terminal Services for NT.

Appendix B. Installing TSF on a Generic PC with a 7497 POS Attachment Adapter

This appendix provides guidelines for installing TSF on a generic PC with a 7497 POS Attachment adapter installed. This section assumes that you have successfully configured the PC to work with all additional devices and attachments prior to installation of this adapter.

Refer to the 7497 adapter documentation for system resources required by the adapter. The 7497 attachment card is not Plug-and-Play enabled. The machine must be informed of the resources required by any non-Plug-and-Play adapters.

Generally, most installation problems occur because of conflicts between resources required by this adapter and other adapters or the PC in which the adapter is installed. Both the IBM 300 and 700 series PCs allow you to reserve resources for the use of non-Plug-and-Play ISA bus cards. Set the switches on the 7497 adapter card to use resources that are available. Set the 7497 adapter to use interrupt 7. It is not necessary to disable the printer port, which also normally uses interrupt 7.

The setup of 4694 terminals is described in detail and kept current on a World Wide Web site maintained by IBM: http://www2.clearlake.ibm.com/store/support/html/knowledgebase.html. Look in the 4694TIPS file in the 4690 Operating System area of this web site. Note carefully the need of the loop adapter or the Token Ring adapter for upper memory space. Be sure to select memory space for the 7497 adapter card that does not conflict with either of these cards.

In addition, you should run the PC setup program and perform the following steps:

1. Disable any power-saving features.
2. Set 1st boot source = Drive A.
3. Set 2nd boot source = Drive C.
4. Make NOT AVAILABLE any ISA Legacy resources used by the 7497 adapter.

Make note of the card setting for the I/O port address. This address must be entered when the POSSWIN drivers are installed.

Appendix C. TSF Version 6 - Fixes and Releases

TSF Version 06.00.00.00 (05/11/2009)

Enhancement
   TSF will log a message to the Windows Application Event Log each time   that TSF
        tracing is activated or de-activated by either a CDI keyword,
      an initial command line parameter "-t" when starting TSF, or when the user issues the
      command line string "tprocess -t" to toggle TSF tracing on or off while TSF is active.
      The message specifies either

        "User <username> enabled TSF trace mode"
            or
      "User <username> disabled TSF trace mode"

 Fix
  Application cannot communicate with a serial device after opening, closing, then re-
       opening the device. The application set the timeout value to 0 (tt=0x00) after the
       first open. TSF failed reset to the timeout parm to the default value (tt=0x64) when
       the last close() is done.

Enhancement
  Add support of flashing the microcode in 4610 models TI8 (in TI4 mode) and the 4610
       models 2CR/2NR (in compatibility mode).

Fix
  Originate Pipe Event Logging API left an open file handle. Thus each new Event Logging
       request orphaned a new file handle.

Enhancement
  Support serial connection baudrate of 115,200 BAUD for 4610 2CR/2NR printer.
       physPrinterBaud="115200"

 Fix
  Additional Epson 6000 printer/DI support.

 Fix
  Customer reported problems with document handling on Epson 6000 printers.

Fixes and Enhancements in version 05.03.00.17 (02/12/2009)

Fix
Customer reported a B111 display message when ACE is started on a self-checkout lane.

Fix/Enhancement
Add 4690 Event Logging to the bundle pre-loader.

Version 05.03.00.16 Not Released

Fix
Fixed a problem that caused a system hang when using Epson 6000 printers.

Fixes and Enhancements in version 05.03.00.15 (01/29/2009)

Enhancement
Add initial support for IBM 4690 OS Version 6 Classic. TSF is backward compatible with
        prior versions of 4690 OS.

Enhancement
Support the User Logical Name "ADX4610U = AUTOMATIC". Check file
        R::ADX_SPGM:ADX4610F.XML for the current 4610 microcode version. If the
        Store Controller version is newer than the version currently loaded in the terminal's
        4610 printer, force a 4610 Microcode update to the terminal's 4610 printer.

 - WARNING
   This enhancement may cause one or more TS terminals to perform an immediate
        microcode update when the terminal is next re-loaded.

 - WARNING

   The update does not complete successfully for 4610 TI8 printer attached via
        POSWIN/UPOS

   The update does complete successfully for 4610 TI8 printers attached via QVS usb driver

Enhancement
For Java 2 environments, force the "-Dos.name=4690OS" JVM argument if the CDI
        keyword javaJVMArgs is not specified.

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Fix

Start java application at same priority as sales application. This is how 4690 works and is how it should work in TS since the java app and the sales app work together as a single app. Note that TS starts the sales app at higher than normal priority because customer scanning performance is considered higher priority than other Windows apps that might be running at the same time.

Fix/Enhancement

TSF fails to update the microcode on a 4610 TI8 configured in TI4 emulation mode. The printer is usb attached via the QVS usb printer driver (not POSWIN or UPOS).

Fixes and Enhancements in version 05.03.00.14 (12/10/2008)

Fix

Modified Terminal Services to prevent a system hang when an Epson TM-H6000 encountered an error

Fix

Modified Terminal Services to honor CTS and DSR on NCR 7158 and 7167 printers. Also modified the emulation of 4610 printer on an NCR printer to perform an internal tclose whenever an inline logo is going to be printed.

Fixes and Enhancements in version 05.03.00.13 (12/04/2008)

Fix

Fixed race condition in virtual serial sub-driver where data available may be reported back to the application on a get when in fact there is no data available.

Fixes and Enhancements in version 05.03.00.12 (12/01/2008)

Fix

System panic related to USB device I/O error. Panic string was "ASY_WR_THREAD - DosWrite()".

Fixes and Enhancements in version 05.03.00.11 (11/21/2008)

Fix

60 Terminal Services for Windows V6

Customer reported a problem where an Epson 6000 printer caused a panic when reading MICR data from check.

Fix

Modified Terminal Services to honor CTS and DSR on NCR 7158 and 7167 printers. Also modified the emulation of 4610 printer on an NCR printer to perform an internal tclose whenever an inline logo is going to be printed.

Enhancement

Log a terminal hardware event (W310 SERIAL PORT ADAPTER PROBLEM) if a serially attached pinpad type device drops line control from TSF. This is consistent with what IBM does on 4690 OS when communication is lost with a TAILGATE type device. This enhancement is activated by the CDI keyword: raiseSerDtr = "N"

NOTE: The EFT device must support raising the DSR and CTS lines when connected for this enhancement to work; otherwise TSF may not be able to communicate with the device.

Fix

After upgrading from TSF V2 to TSF V5, customer reports that TSF Abends soon after startup. The pinpad is configured as a POSWIN device. All other devices are configured as virtual.

Fix

Fixed a problem in Terminal Services where Check Writing in ACE on a NCR printer was printing the all text lines on the same line of the check.

- Fix

Prior enhancement to log 4610 offline events to the store controller failed to handle the offline to online transition properly, causing the terminal to abend. The 4610 printer was serially attached.

Fixes and Enhancements in Version 05.02.00.13 (10/31/2008)

Fix

Customer reports that terminals randomly abend while attempting a credit tender. The failures are somewhat infrequent and occur after the terminal has been loaded for multiple hours / days. The customer environment consists of a NCR 7158 printer configured under TSF to emulate an IBM Model 3/4 printer,

Fixes and Enhancements in Version 05.02.00.12 (10/16/2008)

Fix
User reported error W104 on the system display and in the event log. Changed keyed file
services read logic to honor the record length and key length specified by the caller.
Previously the lengths from the keyed file control record were always used. This
could cause memory corruption when the terminal application passed a buffer
smaller than the keyed record size on a keyed file read request.

Fix
Prior fix added to TSF Version 05.02.00.11 to cleanup a memory leak failed to handle the
case where a sales application opens, then closes a pinpad session without issuing
any writes to the pinpad device.

Fix
TSF abends at startup when the Windows PC is extremely busy starting multiple
applications.

Fixes and Enhancements in Version 05.02.00.11 (09/02/2008)

Fix
Java Console displays "Class not found: JavaAppName" after upgrading to TSF Version
05.02.00.09. This only occurs for Legacy Terminal Definitions. The terminal
loads successfully the first time after the update, but all subsequent load attempts
fail with the "Class not Found" error. Generic Terminal Configuration definitions
always load successfully.

Fix
A Terminal Concentrator feature which allows the SA application to load with no file
server present was inadvertently enabled in all Terminal environments. The feature
should only be enabled for environments where Terminal Concentrator is running
on the Store Controller (combined ctlr/concentrator environment). This feature
causes terminals to incorrectly report a W104 error when running against the
backup controller / file server.

Fix
TSF terminal abends during the end of terminal load. The Operator Guidance message
indicates that the pinpad device is being initialized at the time of the abend.

Fix

SurePoint keypad fails to operate correctly when configured as a JPOS device under TSF. User must also specify the CDI keyword

surePosKeyboardType="SurePoint"

to enable the SurePoint keypad as a JPOS device under TSF.

Fix

TSF terminal abends after the Sales application was updated to send up to 2k bytes of data in a BASX message to the Java application. Traces show that TSF aborts while formatting the resulting MONITOR Pipe message (from the new BASX message).

Fix

TSF terminal fails to load after upgrading TSF from Version 03.02.00.23 to TSF Version 05.02.00.09. The PC platform is a 4694 with Windows 2K and the IBM UPOS 1.94 (JPOS) device stack. The same upgrade was done on an RP5000 with ISS card and the JPOS device stack. The RP5000 upgrade works perfectly.

Fixes and Enhancements in Version 05.02.00.10 (07/22/2008)

Fix

Added support to Terminal Services to be able to configure the correct behavior of ADXPIRn (RS232) drivers. If a device is being configured physSerialX="COMx" then the new keyword physSerialXPortEmulationType should be set to indicate how the device was attached in a native 4690 environment. The valid values are "485" and "systemSerial" with the default being "485". Currently this keyword affects whether Terminal Services treats the timeout/intercharacter delay value as a a true intercharacter delay ("485" mode) or timeout from first character received ("systemSerial" mode).

Fix

Input data from the pinpad device is potentially corrupted if the application issues multiple reads to retrieve all pending input data.

Fix

A TSF terminal loads ASTRA 5.2 from a 4690OS V3R1 controller, but the user is unable to sign-on to the sales application. Keys show up briefly on the ASTRA GUI display before disappearing. The same symptom exists when using a touch display or a real POS keyboard.

Fix

TSF was coded to use an incorrect Java Device Manager message format for CD level 0220 of V3R1. The message format was internally changed by IBM, but at a later CD level for V3R1.

Fix

Java application fails to start, because the environment table is not setup to match the 4690 OS environment. Correct the differences.

Fix

Terminal which is defined to load a Java 2 application hangs when loaded under TSF. The banner being displayed is from the old Java 1 version of the application. It appears that TSF is actually loading an old Java 1 classpath.

Fixes and Enhancements in Version 05.02.00.09 (05/29/2008)

Fix

Sales application sometimes hangs if the 4610 printer is disconnected; then re-connected to TSF.

Fix
Panic "Missing XZL signature at offset xxxxxxxx" when running against a newer V5
controller. The format of the load shrink file changed and TS was having a
problem scanning the file for the X: and Y: RAM disk preload section in the load
shrink.

Fixes and Enhancements in Version 05.02.00.08 (05/12/2008)

Fix
Symptom reported was a panic at application shutdown due to active noabort() region.
Another symptom would be that application could not be shutdown externally such
as from controller 'stop application.' Found a case where a multiple threaded
application that used SWIs (such as terminal sales) could get into a race condition
resulting in this state.

Fixes and Enhancements in Version 05.02.00.07 (04/24/2008)

Fix
Barcode type 128 barcodes fail to print properly. The code 128 data has the data length
explicitly specified in the byte following the bar code
type.

Fixes and Enhancements in Version 05.02.00.06 (04/23/2008)

Enhancement
You can now configure the system to dump when the user presses a defined Ctrl+Alt key
sequence (ANPOS/PC keyboards only). Refer to the section titled "Hotkey to
Dump TS" in QCDIFILE.ALL for configuration information.

Fix
Excessive printer offline events were being logged to the Windows Event log. Exclude
4610 offline events caused by TSF resetting the 4610.

Fix
   If the default terminal application name which is specified in the Generic Terminal
         Configuration "chains" to a secondary application which is the actual terminal sales
         application, the secondary application fails to start.

Enhancement
   Add additional support to parse the Java 2 Advanced Terminal Load Definition records.

Fixes and Enhancements in Version 05.02.00.05 (04/02/2008)

Fixes and Enhancements in Version 05.02.00.04 (04/01/2008)

Enhancement
   If the POSS scanner goes offline Terminal Services will log a message to the Windows
         event log.

Fix
   Removed window in Terminal Services where a panic might occur attempting to
         acquire/release the keyboard while Terminal Services was shutting down.

Fix
   Application that expected only 2 pending masks for 4610 printer writes failed when a 3rd
         outstanding mask was returned on a WRITE. This happened following a print error
         scenario (out of paper or cover open). Found a case where TS 4610 base driver
         didn't complete an older emask during an error resume.

Fix
   Terminal hangs during printing on a specific terminal with a USB attached 4610 printer
         (POSWIN). Diagnostic traces show that the printer is going offline, then online,
         from time to time when the terminal is idle. Subsequently, a transaction is
         attempted at this terminal, and a "hang" condition occurs. Correct a line count
         issue in the 4610 driver when an offline condition occurs and no prints are active.
         A Windows event log entry is created if the printer goes offline.

Fix
   Support added to the TCP/IP stack to support the GetNodeID request from the terminal
         application incorrectly NULL terminated the Node ID string in the caller's buffer.

Enhancement
   Add support to the TCP/IP stack for GetNodeID request from the terminal application.
         This will return the Node ID (eg. 'CC') of the Store Controller to which the terminal
         is attached.

Enhancement

Added initial support to extract both classname and classpath information from a 4690 Store Controller with has been configured to use 4690 Java 2 Advanced Java 2 terminal configuration support.

Fixes and Enhancements in Version 05.02.00.03 (02/27/2008)

Fix Enhancement
Add new functions FlexNestedSwiDisable() and FlxNestedSwiEnable() that some newer 4690V5 applications and/or libraries call.

Fix
Unable to communicate with a new serial device which has been configured to communicate at baud rate 115200.

Fix
TSF abends when started after attaching a WinCore TH320 printer to the COM1 port and setting the following CDI keywords:
appPrinter="4610"
physPrinter="7194"

Fix
Internal arrays used to manage the user-defined proportional font height/width values were being incorrectly indexed, causing a TSF failure when processing the 0x1B26 command (4610 User Defined Characters) in virtual 4610 printer mode.

Fixes and Enhancements in Version 05.02.00.02 (02/13/2008)

Fix
Under Terminal Services, a client program would no longer run with TS after upgrading to TS Version 5. The problem turned out to be an address conflict with the Windows HID.DLL used by the client and the fixed location used by TS for dynamically allocated shared memory. After reviewing the \WINDOWS\SYSTEM32*.DLL preferred base address's, changed the TS memory location from 0x68000000 to 0x3C000000. The same potential issue existed for CSF and for the QVSDBG shared memory areas and these were moved from 0x61000000 to 0x38000000 and 0x6C000000 to 0x3F800000 respectively.

Fixes and Enhancements in Version 05.02.00.01 (02/07/2008)

Fix
Added support in IOPROC for keyed RSS14 labels.

Fix

Java application is attempting to pass signature capture device data to the terminal Sales application. TSF abends as soon as the customer presses DONE on the signature capture device.

Fixes and Enhancements in Version 05.02.00.00 (01/10/2008)

Fix
Fixed some problems in TCC/IP protocol frame retry logic. The typical outward symptom was brief offline transition followed by reconnect/online. Under TC with high volume, one of the problems could cause TC to never reconnect after an offline unless the head was shutdown and restarted by the TC client.

Fix
First keystoke not mapped properly when using the Windows ANPOS keyboard emulator program.

Fix
If terminal went offline when it was time for generic config information to be read from ADXJAVIF.DAT, TS/TC could get stuck in a loop and never get any farther.

Enhancement
Allow CDI keywords for redirecting devices to Java to now override what is stored in the controller configuration files.

Fix
Found a race condition where 4610 base driver could orphan an event mask when resuming from an error condition. This showed up in an environment where the application specifically ensured that there were no more than 2 event masks pending to the printer. In 99.9% of most 4690 applications, the orphaned emask would not be noticed.

Fix
Fixed IOPROC incorrect behavior where keystrokes added to the type ahead queue were incorrectly turning off alpha mode before they were actually processed.

Fix
IOPROC was not properly handling the BACKSPACE key when the global full screen flag was not on, the state was defined to allow full screen data entry, and the function code definition defined normal display as keyed.

Fix
In a RPAM client environment, the virtual 4610 sub-driver was incorrectly generating a "vr4610-parse4610Stream() - error" panic when processing print streams if the printer was in a hold status.

Fix

Panic/Exception in TCC/IP .DLL. Fixed race condition between timer thread and init routine that led to exception.

Fix

Virtual 4610 sub-driver was generating an error if app wrote a doc eject to the doc station when no doc is present. A real 4610 doesn't generate an error for this case.

Enhancement

Changed VDISPLAY to use Lucida Console when in Hercules mode and allow users to specify foreground and background colors in the format
0xRRGGBB in the CDI file.

Fix

Export new function from t46apsvc.dll needed by .exe applications that write to the POS printer or to serial devices.

Enhancement

LANINFO.LOG now reports whether each listed adapter is present or not.

Enhancement

For LAN TCC, TS/TC now defaults to the LANA_NUM for the first present adapter. Previously, TS/TC defaulted to LANA_NUM 0. This changes makes it easier to configure TS/TC on laptops and other systems that have had adapters added and removed over time. Now, if Windows Network Adapter   Configuration is used to bind DLC to only one adapter, TS/TC should always find and use the correct adapter.

Fix

Sales application hangs at TCLOSE after signature capture logs, which contained both text and graphics data. IBM's 4610 driver did NOT initially expect the 4610 firmware to increment line count after processing a select and print logo command (0x1B2A...). The firmware does increment the line count, so the 4610 driver must anticipate the line count change. This has been corrected in 4690 (after V3R1), so TS now needs to do the same.

Fix

Add support for barcode label type UCC/EAN128 to TSF.

Fix

The complete linecount being returned from the 4610 printer did not match the expected line count after a large number of intermixed text prints and graphics prints (0x1B2A) are sent to the 4610 with no TCLOSEs to separate them.

Fix

IOPROC was incorrectly displaying scanned data when using a global full screen input state table while in a state that allowed full screen data entry.

Fix

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TS was losing a system resource when the following sequence occurred:
1) the sales application sent an invalid print line to the 4610 printer,
2) the sales application was notified with the appropriate error code,
3) the sales application sent a valid print line to the 4610 printer,
4) the sales application sent a resume, with no retry request to the 4610 printer (to cancel the original invalid print line).
This problem has been corrected.

Fix

The fix added Sept 18, 2007 actually uncovered a long term logic error in the initialization between TSF and the PosWin sub-system. If PosWin reports an error in response to the PosInitialize API call, TSF checked the errno variable to see if the error persists. Errno is only meaningful when the rc variable is returned with a non-zero value.

Fix

Terminal 'hangs' after operator is prompted to insert a check into the 4610 Document Insert station. The customer is tendering with a check, so a MICR read request is attempted on an invalid check. TSF hangs if a read Micr command only returns a single byte (signal strength) of data. Ensure that there is always a '?' character returned to the requesting application to indicate a Micr read error.

Fix

IOPROC was incorrectly modifying the beginning and ending points of the prompt input area when not in a global full screen environment.

Fix

When using CDI setting ProcessLoadShrink="Y", TC was not processing the 4690 loadshrink and expanding ramdisk pre-load files for instances other than the first TC instance. Fixed logic so this keyword applies to all instances.

Enhancement

System now logs W103 and W104 to system event log and to the system display.

Enhancement

New CDI keyword dumpOnApplFatal when set to Y will cause system to dump when an application ends abnormally

Enhancement

New CDI keyword sysShutdownOnApplTerm when set to Y will cause system to shutdown when an application ends normally.

Fix

The enhancement to uniquely identify the 4610 TI8 printer added on May 02, 2007 was invalid. This could potentially cause MICR reads to fail on 4610 printers.

Enhancement

The cent character (¢) fails to display correctly on a VDISPLAY screen in environments where the Windows PC is configured with the Locale Language set to French Canadian. Setting the CDI keyword mapFrenchChar="Y" will re-map the cent symbol from value 0x9B to 0xBD

Fix
On an ISS 485 attachment configuration, TSF may abnormally terminate when more than 4 bar codes are scanned very quickly. This fix is to correct a bug that was introduced on TSF Version 5.0.0.1 on the ISS 485 attachment configuration.

- Fix
Modified NCR 4610 emulation subdriver to correctly map 4610 24 dot density logo streams to NCR 24 dot density streams.

- Fix
On system with IBM POSS/Win (UPOS) devices and POSS/Win and TSNT services set for autostart, TS sometimes panics because it is started before   POSS/Win is ready. Added logic to wait and retry up to 30 seconds when POSS/Win returns service not available error code.

- FIX
Make the numeric keys (1-9, 0) on the PC keyboard perform like the corresponding numeric keys on the keypad portion of the PC keyboard.

- Fix
Found case where TS/TC detected a misbehaved application (spinning too fast without any waits) and throttled the application with 30 msec
sleeps inside of 4610 printer reads when it shouldn't have.

- Fix
Fixed IOPROC to not return the pressed function code/motor key to the application if in a Full Screen alpha entry state and the associated alpha entry function code is a motor key.

- Enhancement
Add support to the virtual keyboard driver to allow the user to configure a "virtual" ANPOS keyboard device. This pop-up keyboard application may be integrated with TSF in a future release. With this virtual keyboard application, TSF can support a virtual pop-up ANPOS keyboard.

- Fix
Terminal Services was not correctly handling inline logo data contained in the 1B2A command.

- Enhancement
When attempting to start a Java application, the Java console displays error message: Class not found: @X:\OPER.RSP

TSF was enhanced to locate and parse the Java Class Name response file to generate the correct startup information.

- Fix
Closed a window where Terminal Services might lose ADXPIR data. This window only occurred in environments where 2 ADXPIR devices were open and active.

- FIX
changed the flags value on the s_rename() function to allow for string substitution; thus allowing the X: drive to be mapped to ADXRSM0:.

- Enhancement
Add support to the virtual keyboard environment of TSF to allow a Windows application to emulate a virtual ANPOS keyboard.

- Fix
Panic "qGetShortPathNameW" when running java gui on a tablet version of Windows XP. JVM was looking to see if "drwtsn32" had a short name.

- Fix
Terminal Services' virtual keyboard sub-driver was incorrectly mapping A-ENT when in an input state that allowed alphanumeric data.

- FIX
TSF failed to reset the text on the 2X20 display to U007 at shutdown time if two 2X20 displays where attached via the ISS card.

- Fix
Modified TS to support physSerial2="ISS-485" qcdifile entry.

- Fix
Terminal Services would panic with the message "File_op passed zero TermNum" when RPAM client connects with terminal number of zero.

- Enhancement
When running 4690 Java programs on a Windows JVM if the JVM called GetFileAttributesEx() it would cause the system to panic. System now handles calls to GetFileAttributesEx().

- Enhancement
Customer may now force the ADX_ directories to be created under the TSF install path; instead of the default location; which is on the C: drive under the root directory. The following CDI keyword is used to force the ADX_ directories to be created under the TSF install path:

InstallPathAdxDirs="Y"

NOTE: Adding this keyword may adversely affect existing terminal applications, which may assume that local ADX_ directories are always located on the C: drive; under the root directory.

- ENHANCEMENT
TSF now identifies the 4610 TI8 printer to the terminal sales application in the data returned from the ADXSERVE Function 4 API call.

- Fix
Sample CDI file was missing keyword descriptions for supported keywords:
rpamAndisplayFilter, rpamAndisplay2Filter,
rpamSerial1Filter, rpamSerial2Filter, rpamSerial3Filter, and
rpamSerial4Filter,

- Fix
When emulating a native 4610 printer on a NCR printer, Terminal Services would hang on a TCLOSE to the printer in cases where a print hold command had been sent down previously.

- Enhancement
Add support for maintaining and providing the Command Tail information to the terminal application.

- Enhancement
Added support to Terminal Services to allow qcdifiles on the controller to specify the qcdifile.ipl on the terminal in the cdiAppendCDIFileList keyword. This allows the local qcdifile.ipl to specify #defines that can then be used in controller qcdifiles to configure the terminal. In order to take advantage of this enhancement, user must rename their qcdifile.000 a new name, for example to qcdifile.org. The new qcdifile.000 would contain the following:

[CDI]
cdiAppendCDIFileList="qcdifile.ipl,qcdifile.org"

- Fix
Terminal Services panic'd when attempting to run a .386 sales application with a RPAM client. A resource was being freed when the .386 application was started. The RPAM layers then attempted to use the resource at a later time. Modified Terminal Services to ensure that the resource is persistent.

- Enhancement
Add support to allow TCC over IP terminal / controller communications via unicast mode. 4690 OS allows this via multicast mode only. TSF now supports both multicast and unicast modes of TCC over IP. Note that a store controller component is also required to enable unicast TCC over IP.

- Enhancement

Increase the maximum message size for serial devices (pinpads, debit terminals, signature capture devices) from 498 bytes to 1024 bytes to be consistent with 4690 OS Version 5.

- Enhancement
Add support to allow TSF and TC terminals to be loaded via TCC over IP from a uni-cast IP store controller.

- Fix
Customer application was dumping recursively and wrapped the TSF diagnostic (.bi?) files so quickly that we couldn't see what caused the initial dump. These changes improve the dump generation code for at least the observed recursion case.

- Enhance
Allow classpath argument to the Java VM to contain paths with embedded spaces.

- Fix
Panic when first starting TS and TC: "disk support install" This problem was first introduced in TS/TC Release 5.0.0.9 and is most likely to occur on newly installed TS systems and on TC systems that don't locally have access to a \ADX_SPGM directory. The problem only occurred if TS/TC could not find an accessible drive containing directory
\ADX_SPGM.

More information: There is support in TS and TC for locally accessing 4690 files in a stand-alone (no controller) configuration or, with TC, in a configuration where TC is running on a controller such as on a controller running QVS 4690 Controller Services. As part of initialization, TS and TC always scans through the various drive letters, looking for drives that contain \ADX_SPGM. The purpose of this scan is in support of stand-alone mode or combined controller/conc mode and its not required that any such drives be found. 5.0.0.9 inadvertently introduced a bug that required that a drive with \ADX_SPGM be found.

- Fix
While researching the above problem, found that the drive scan was including network drives instead of stopping its scan once a network drive was found. Change was made so the scan stops as intended.

- Enhancement
Added logic to detect abnormal Windows process terminations such as those killed using task manager. CSF/TS/TC resources for the process are cleaned up when possible. This enhancement should prevent some cases where it takes multiple minutes for CSF/TS/TC to shutdown.

- Fix

Improved Windows Exception handling logic for CSF/TS/TC when application using CSF/TS/TC also uses QVS debug libraries (QVSDBG.DLL or QVSDBG1P.DLL). The Windows unhandled exception filter for CSF/TS/TC and for QVSDBB were enhanced to detect any previously installed filter and   call the previous filter. This ensures that both sets of logs get a chance to log exception information and that both subsystems get to know that a process has terminated.

- Fix

When running a Java 2 JVM to support a 4690 Java application the Java application would fail to run. A message indicating an error loading c:\os4690j2.dll was printed on the Java console.   The system was looking for this file on the controller rather than the local machine.

- Fix

Problem running TC Client under a windows user account. Problem was caused by fact that TC RPAM required write access to the root directory
which wasn't allowed for a user account.

- Fix

When processing a state with a function code where data does not precede the function code, IOPROC was not correctly processing data for the pending function code when an invalid function was entered.

- Fix

Terminal Services was prematurely unlocking to the LOCK state in cases where the function code indicated that data may follow the function code and the success action was the LOCK state.

- Fix

While attempting to complete a SmartCard tender payment, the terminal application abends. The JATTACH BASX response message was too large for the data structure to contain. The response message data structure was modified to support response messages up to 550 bytes.

Fix

Customer reported a 4610 printer error message was displaying on the operator display. The 4610 Driver incorrectly incremented the offset in the user's 4610 print buffer when parsing the following 4610 commands:
   1) Set Print Station Address   (0x1B6330nn)
   2) Set Print Station Spacing   (0x1B6331nn)
                2) Set Error Recovery Function (0x1B6334nn)

Fix

Java application (on Java 1.4.2) failed at startup, attempting to open a file on the X: ramdisk. The file was created as a temporary file, before being renamed to the final name. The s_rename() function specified an incorrect flags value, thus preventing string substitution which correctly identified the X: drive. The same application runs successfully on Java 1.1.8.

Enhance

Add support to the virtual keyboard environment of TSF to allow a Windows application to emulate a virtual ANPOS keyboard.

Fix

Starting a Java Application results in a TSF Panic "qGetShortPathNameW()" when running the java gui on a tablet version of Windows XP. JVM was looking to see if "drwtsn32" had a short name.

Fix

Terminal Services' virtual keyboard sub-driver was incorrectly mapping Alt-ENT when in an input state that allowed alphanumeric data.

Fix

TSF failed to reset the text on the 2X20 display to U007 at shutdown time if two 2X20 displays where attached via the ISS card.

Enhance

Terminal Services did not support the Nspecial3 function call that is made by some 4690 Java applications. The specific case seen was a Java application that issued an asynchronous wait to a PRS pipe. The symptom of the problem was an abend of the Java program and Terminal Services and the following panic string in the TSF log:

"Java_com_ibm_OS4690_Native4690_Nspecial3" as the reason for the panic.

Fix

Modified TS to support physSerial2="ISS-485" qcdifile entry.

Enhance

TSF did not support the set MCT command (0x1B4D025504) for defining proportional fonts sizes to the 4610 printer (Thermal Station). This enhancement supports both the definition of the proportional font and the downloading of the corresponding user character set for the Thermal station in both real and virtual modes.

Fix

The module QJPSBRDG.DLL always created trace information on the local hard drive. Turned this tracing off.

Fix

Terminal Services would panic with the message "File_op passed zero TermNum", when the RPAM client connects with terminal number of zero.

Enhance

When running 4690 Java programs on a Windows JVM, if the JVM called function **GetFileAttributesEx,** it would cause the system to panic. System now handles calls to function **GetFileAttributesEx**.

Fix

Java RPAM library was not handling double-high/double-wide VDISPLAY characters correctly. Characters used to draw the big numerals were incorrectly encoded in the Text parameter of the VDisplay event object

Fix

Customer terminal configured with the ISS (RS485) Attachment Card attempted to add an IBM 50 Key Keyboard with integrated MSR and 2X20 display, which is attached to the system unit via Powered USB cable. Customer wants the integrated 2X20 display to be the system display and a 2nd 2X20 display (attached via the ISS card) to be the customer display.

Fix

4690 OS now detects changes to the Generic Terminal Configuration each time a terminal is re-loaded. This eliminates the need to do a "Load Terminal Configuration Data" TCF command after making modifications to a terminal definition which is defined in the Generic Terminal Configuration data base on the Store Controller. Configuration changes to Legacy terminals are not affected by this change.

Enhancement

Customer may now force the ADX_ directories to be created under the TSF install path; instead of the default location; which is on the C: drive under the root directory. The following CDI keyword is used to force the ADX_ directories to be created under the TSF install path:

InstallPathAdxDirs="Y"

NOTE: Adding this keyword may adversely affect existing terminal applications, which may assume that local ADX_ directories are always located on the C: drive; under the root directory.

Fix

Terminal Services panic when the Terminal Sales Application is sending setup commands to the 4610 printer. The is an emulation environment where a NCR 7168 printer is being used to emulate a native 4610 printer.

TSF Version 05.00.00.03 (05/29/2007)

Fix

Code added to the JPOS sub-driver to enhance pin-pad offline/online and error handling in the ISS 485 card environment.

TSF Version 05.00.00.02 (05/22/2007)

Fix

Corrected a bug in the RPAM client code that caused an RPAM client virtual terminal to act differently than a native 4690 terminal when data was being keyed. The RPAM client code would clear the entire 2x20 display to show the keyed data whereas 4690 would only clear the area defined in the input state table as the input area. This made RPAM act like 4690 but unfortunately some client code was written to depend on the old behavior. A new CDI setting called "AnDispOldBehavior" has been added to the [TS] section of the CDI file. Adding the line **AnDispOldBehavior="Y"** to your CDI file instructs the RPAM client code to revert back to the old behavior where the entire 2x20 display is cleared prior to displaying keyed data.

Fix

TSF panic occurs with text "[USU Unexpected identifier]" when a newer NCR 7168 printer was attached. Removed unexpected panic.

Fix

Modified TSF JPOS sub-driver to better manage online and offline device transitions for the Cash Drawer and Line Display(s).

TSF Version 05.00.00.01 (05/11/2007)

Fix

TSF aborts while attempting to erase the User Flash area on a 4610 printer. TSF waited up to 10 seconds for the erase to complete. In this case, the erase User Flash is taking much longer than 10 seconds to complete. TSF now extends the wait time for the Erase User Flash operation to complete on a 4610 printer.

Fix

Modified TSF JPOS sub-driver for the ISS-485 pin-pad interface to manage EC Level Request and Setup commands. Also modified the sub-driver to receive and manage status bytes.

Enhance

TSF now identifies the 4610 TI8 printer to the terminal sales application in the data string returned from the ADXSERVE Function 4 API call.

Fix

Sample CDI file was missing keyword descriptions for supported keywords:
rpamAndisplayFilter, rpamAndisplay2Filter, rpamSerial1Filter, rpamSerial2Filter, rpamSerial3Filter, and rpamSerial4Filter,

Fix

Customer using an NCR 7158/7168 printer to emulate a native 4610 printer reported a problem where Terminal Services would panic on the second signature print. An internal buffer was not being freed for an inline logo print at the completion of the real print.

Fix

When emulating a native 4610 printer on a NCR printer, TSF would hang on a TCLOSE to the printer in cases where a print hold command had been sent down previously.

Enhance

Modified TSF in POSWIN keyboard environments to not release the keyboard when TSF loses focus if FlexView is currently in focus.

Fix

In a full screen input state table environment, TS was not displaying input at the correct location when the input field was not defined as Display As Keyed.

Fix

Fixed an issue in rpamfunc.dll where REDISPLAY messages were not always being handled properly.

Enhance

Add support for the Generic Configuration environment to allow for no keyboard definition when the CDI file specifies **physKeyboard="rpamClient".** Before this change, the user saw display message "KEYMAP FILE NOT FOUND" or message "W320 KEYBOARD MUST BE CONFIGURED" when loading the terminal under TSF.

Enhance

Add support for maintaining and providing the Command Tail information to the terminal application.

Fix

Fixed scenario in TS where incorrect 2x20 information was being presented to RPAM clients. The scenario involved a full screen ioproc configuration with single line input prompts.

TSF Version 05.00.00.00 (02/27/2007)

Enhance
A trial version of QVS InSight is included in this release. The main distribution file which contains the full TS installer, the TS .UPD file now includes InSightL.zip. The InSightL.zip file is also installed by the TS installer to directory \tsnt\InSight on the hard drive. Documentation for the InSight product is accessible through a "QVS InSight" start menu shortcut created during TS installation, as well as from InSight.chm and the QVS web site at www.qvssoftware.com.

Enhance
Add support in TS 4610 emulation on NCR printer(s) to support 0x1B2A command.

Enhance
Add support to TS to allow qcdifiles on the controller to specify the qcdifile.ipl on the terminal in the cdiAppendCDIFileList keyword. This allows the local qcdifile.ipl to specify #defines that can then be used in controller qcdifiles to configure the terminal. In order to take advantage of this enhancement, user must rename their qcdifile.000 file to a new name, for example to qcdifile.org. The new qcdifile.000 file would contain the following:

    [CDI]
    cdiAppendCDIFileList="qcdifile.ipl,qcdifile.org"

Fix
TS panic when attempting to run a .386 sales application with a RPAM client. A resource was being freed when the .386 application was started. The RPAM layers then attempted to use the resource at a later time. Modified TS to ensure that the resource is persistent.

Enhance
Add support to allow TCC over IP terminal / controller communications via unicast mode. 4690 OS allows this via multicast mode only. TSF now supports both multicast and unicast modes of TCC over IP. Note that a store controller component is also required to enable unicast TCC over IP.

Enhance
Increase the maximum message size for serial devices (pinpads, debit terminals, signature capture devices) from 498 bytes to 1024 bytes to be consistent with 4690 OS Version 5.

Fix
Modified IOPROC to insure that the cursor is moved to the correct location before displaying input prompt.

Fix
When attempting to load terminal(s) which have the CDI keyword **physKeyboard="rpamClient"** active, the 2X20 shows error message "W320 - Keyboard not configured". Eliminate this error message in environments where the rpamClient manages the keyboard.

Fix
Modified IOPROC to correctly return the current state instead of LOCKED on a S_GET when unlocked in a state that has no input devices allowed.

Fix
SureVision logs a FlexOS exception (ERROR=0x80854009) to the SureVision event log on the Store Controller. Changed the JATTACH driver to ignore a spurious message from the Java Application.

Enhance
Conduct a thorough regression test against multiple IBM 4690 OS Version 5 Store Controllers. Make appropriate enhancements to properly support the IBM 4690 OS Version 5 environment; while also regression testing against multiple IBM 4690 OS Store Controllers with 4690 OS Versions 2.0 to 4.2. Merge TSF Version 3.4.0.0 into TSF Version 5 base code.

Readers' Comments — Let Us Hear from You

Please send your comments to webmaster@qvssoftware.com.