ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *Tektronix TLA 510* at our website: *Click HERE*

User Manual

Tektronix

92XTerm
DAS System Software

070-8653-03

This document supports DAS 9200 system
software release 3, version 1.10 and above.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Instrument Serial Numbers

Each instrument manufactured by Tektronix has a serial number on a panel insert or tag, or stamped on the chassis. The first letter in the serial number designates the country of manufacture. The last five digits of the serial number are assigned sequentially and are unique to each instrument. Those manufactured in the United States have six unique digits. The country of manufacture is identified as follows:

B010000	Tektronix, Inc., Beaverton, Oregon, USA
E200000	Tektronix United Kingdom, Ltd., London
J300000	Sony/Tektronix, Japan
H700000	Tektronix Holland, NV, Heerenveen, The Netherlands

Instruments manufactured for Tektronix by external vendors outside the United States are assigned a two digit alpha code to identify the country of manufacture (e.g., JP for Japan, HK for Hong Kong, IL for Israel, etc.).

Tektronix, Inc., P.O. Box 500, Beaverton, OR 97077

Printed in U.S.A.

Copyright © Tektronix, Inc., 1993. All rights reserved. Tektronix products are covered by U.S. and foreign patents, issued and pending. The following are registered trademarks: TEKTRONIX, TEK, TEKPROBE, SCOPE-MOBILE, DAS, PRISM, TekDB, KlipChip, and FasTrak.

UNIX is a registered trademark of UNIX System Laboratories Inc.

Sun, Sun-4, and OpenWindows are trademarks of Sun Microsystems Inc. SPARCstation is a trademark of SPARC International Inc., licensed exclusively to Sun Microsystems Inc.

X Window System is a product of the Massachusetts Institute of Technology.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

WARRANTY

Tektronix warrants that this software product will conform to the specifications in the documentation provided with the product, when used properly in the specified operating environment, for a period of three (3) months. The warranty period begins on the date of shipment, except that if the program is installed by Tektronix, the warranty period begins on the date of installation or one month after the date of shipment, whichever is earlier. If this software product does not conform as warranted, Tektronix will provide remedial services as described in the documentation provided with the product. Tektronix does not warrant that the functions contained in this software product will meet Customer's requirements or that operation of the programs will be uninterrupted or error-free or that all errors will be corrected.

In order to obtain service under this warranty, Customer must notify Tektronix of the defect before the expiration of the warranty period and make suitable arrangements for such service in accordance with the instructions received from Tektronix. If Tektronix is unable, within a reasonable time after receipt of such notice, to provide remedial services, Customer may terminate the license for this software product and return this software product and any associated materials to Tektronix for credit or refund.

This warranty shall not apply to any software product that has been modified or altered by Customer. Tektronix shall not be obligated to furnish service under this warranty with respect to any software product a) that is used in an operating environment other than that specified or in a manner inconsistent with the User Manual and documentation or b) when the software product has been integrated with other software if the result of such integration increases the time or difficulty of analyzing or servicing the software product or the problems ascribed to the software product.

THIS WARRANTY IS GIVEN BY TEKTRONIX WITH RESPECT TO THE LISTED PRODUCT IN LIEU OF ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED. TEKTRONIX AND ITS VENDORS DISCLAIM ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. TEKTRONIX' RESPONSIBILITY TO PROVIDE REMEDIAL SERVICE WHEN SPECIFIED, REPLACE DEFECTIVE MEDIA, OR REFUND CUSTOMER'S PAYMENT IS THE SOLE AND EXCLUSIVE REMEDY PROVIDED TO THE CUSTOMER FOR BREACH OF THIS WARRANTY. TEKTRONIX AND ITS VENDORS WILL NOT BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES IRRESPECTIVE OF WHETHER TEKTRONIX OR THE VENDOR HAS ADVANCE NOTICE OF THE POSSIBILITY OF SUCH DAMAGES.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Table of Contents

Preface: GUIDE TO DAS DOCUMENTATION

GENERAL SAFETY SUMMARY vi

Section 1: INTRODUCTION

BASIC INFORMATION 1-1
DAS SYSTEM REQUIREMENTS 1-1
X SERVER REQUIREMENTS 1-2
ABOUT THIS MANUAL 1-2
- Definition of Terms 1-3
- Manual Conventions 1-3
- Other Recommended Documentation 1-4

Section 2: GETTING STARTED

CONFIGURING THE DAS HARDWARE 2-1
- Connecting an RS-232 Terminal 2-1
- Initial DAS Power On 2-2

INSTALLING THE SOFTWARE ON THE DAS 2-3
- Switchable Mode System Software 2-3
- Installing Preliminary Software on the DAS 2-4
- Defining the DAS Operating Mode 2-5
- Install the System Software 2-8

CONFIGURING THE HOST SOFTWARE 2-9
- Transferring the 92XTerm Software to the Host 2-9
- Extracting the 92XTerm Host Software 2-11
- Updating the DAS Hosts File 2-12
- Installing the DAS Fonts on the Host 2-12
- Installing the DAS Start-Up Script and Manual Page 2-13
- Installing the XDas File 2-14
- Defining the DAS Environment Variables 2-14

STARTING THE DAS MENUS 2-15
- 92XTerm Autostart Mode 2-15
- 92XTerm Manual Mode 2-16

CLOSING OR QUITTING THE 92XTERM SOFTWARE 2-18

Appendix A: ERROR MESSAGES AND TROUBLESHOOTING

HARDWARE PROBLEMS A-1
- RS-232 Console Terminal Problems A-1
- DAS Hardware Problems A-2
- DAS System Software Problems A-2

SOFTWARE INSTALLATION PROBLEMS A-3
ERROR MESSAGES A-5
- Error Messages Displayed on the Workstation A-6
- Error Messages Displayed on the RS-232 Console Terminal A-7

SYSTEM ADMINISTRATION PROBLEMS A-8

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Appendix B: DAS CONFIGURATION UTILITY

USER INTERFACE B-1
MAIN MENU B-2
Display Hardware Configuration and Diagnostic Results B-3
Save Image of Current System Software B-4
Restore Image of Saved System Software B-5
Delete Saved Image of System Software B-6
Show Factory Default Network Configuration B-6
Set Operating Mode B-7
Set DAS Network Name B-7
Set DAS Internet Address B-8
Set Network Subnet Mask B-8
Set Gateway Internet Address B-8
Set Default X Server Name B-8
Set Default X Server Address B-9
Set LANPCL Port Number B-10
Set GPIB Port Number B-10
Update Terminal Flash ROM B-10
Leaving the Utility B-14

Appendix C: 92XTERM X RESOURCES

ADJUSTING COLORS IN THE TEK_LA WINDOW C-1
SPECIFYING ALTERNATE CHARACTER SIZES C-3
SPECIFYING KEYBOARD AND MOUSE SCROLL RATES C-4
UPDATING THE XDAS FILE C-4

Appendix D: STARTDAS SCRIPT

INDEX

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

List of Figures

Figure B-1. DAS Configuration main menu.. . . . . B-2
Figure B-2. Configuration Utility: Hardware configuration and Diagnostic results. B-3
Figure B-3. Configuration Utility: Factory Default Network configuration. B-6

List of Tables

Table 2-1 DAS Terminal Port Baud Rate DIP Switch Settings 2-2
Table 2-2 System Software vs Operating Modes 2-4
Table 2-3 Required LAN Parameters for the DAS 2-7
Table 2-4 92XTerm Host Files 2-11
Table 2-5 92XTerm Status Messages 2-18

Table B-1 System Software vs Operating Modes B-7

Table C-1 DAS Colors C-1
Table C-2 DAS Colors (Grayscale) C-2
Table C-3 DAS Colors (Monochrome) C-3
Table C-4 92XTerm Fonts C-3

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Preface: GUIDE TO DAS DOCUMENTATION

The Digital Analysis System (DAS) documentation package provides the information necessary to install, operate, maintain, and service the DAS mainframe and associated application modules.

The DAS documentation consists of the following:

- A **system user manual**, which includes a beginning user orientation, a discussion of DAS system-level operation, and reference information such as installation procedures, specifications, error messages, and a glossary of terms
- A series of **module user manuals** that cover each of the DAS acquisition, pattern generation, and optional I/O modules
- An **on-line documentation** package that includes a location-dependent system of technical notes
- A **programmatic command language user manual** that describes the set of programmatic commands available for remotely controlling the DAS
- A series of **application software user manuals** that describe the application software packages
- A series of **microprocessor support instructions** (designed to accompany the *92A96 & 92C96 Module User Manual* and the *92A60/90 Module User Manual*) that describe the various microprocessor support packages
- A series of **service manuals** that help qualified technicians maintain, troubleshoot, and repair DAS mainframes and application modules. These manuals also contain procedures for performing incoming inspections, verifying performance specifications, and making DAS system adjustments
- A series of **workbooks** that teach concepts about DAS acquisition modules and pattern generation modules

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

GENERAL SAFETY SUMMARY

The general safety information in this summary is for operating and servicing personnel. Specific warnings and cautions can be found throughout the manual where they apply and may not appear in this summary.

TERMS IN THIS MANUAL

CAUTION statements identify conditions or practices that could result in damage to the equipment or other property.

WARNING statements identify conditions or practices that could result in personal injury or loss of life.

TERMS AS MARKED ON EQUIPMENT

CAUTION

CAUTION indicates a hazard to property, including the equipment itself, and could cause minor personal injury.

WARNING

WARNING indicates solely a personal injury hazard not immediately accessible as you read the marking.

DANGER indicates a personal injury hazard immediately accessible as you read the marking.

SYMBOLS AS MARKED ON EQUIPMENT



DANGER
High Voltage



Protective
ground (earth)
terminal



ATTENTION
Refer to
manual

GROUNDING THE PRODUCT

This product is intended to operate from a power source that does not apply more than 250 volts rms between the supply conductors or between either supply conductor and ground.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

WARNING: This product is grounded through the grounding conductor of the power cord. To avoid electrical shock, plug the power cord into a properly wired receptacle. A protective–ground connection by way of the grounding conductor in the power cord is essential for safe operation. (I.E.C. Safety Class I)

DANGER ARISING FROM LOSS OF GROUND

Upon loss of the protective–ground connection, all accessible conductive parts (including knobs and controls that may appear to be insulated) can render an electric shock.

POWER DISCONNECT

The main power disconnect is by means of the power cord or, if provided, an ac power switch.

USE THE PROPER POWER CORD

Use only the power cord and connector specified for your product. Use only a power cord that is in good condition. CSA Certification includes the equipment and power cords appropriate for use on the North America power network. All other power cords supplied are approved for the country of use.

USE THE PROPER FUSE

To avoid fire hazard use only a fuse of the correct type, voltage rating, and current rating.

USE THE PROPER VOLTAGE SETTING

Make sure the line selector is in the proper position for the power source being used.

REMOVE LOOSE OBJECTS

During disassembly or installation procedures, screws or other small objects may fall to the bottom of the mainframe. To avoid shorting out the power supply, do not power up the instrument until such objects have been removed.

DO NOT OPERATE WITHOUT COVERS

To avoid personal injury or damage to the product, do not operate this product with covers or panels removed.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

USE CARE WITH COVERS REMOVED

To avoid personal injury, remove jewelry such as rings, watches, and other metallic objects before removing the cover. Do not touch exposed connections and components within the product while the power cord is connected.

REMOVE FROM OPERATION

If you have reason to believe that the instrument has suffered a component failure, do not operate the instrument until the cause of the failure has been determined and corrected.

DO NOT OPERATE IN EXPLOSIVE ATMOSPHERES

To avoid explosion, do not operate this product in an explosive atmosphere unless it has been specifically certified for such operation.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Section 1: INTRODUCTION

The 92XTerm software allows you to use a Sun-4 Workstation using an X11R4 or OpenWindows server to control the DAS mainframe. The server takes the place of the standard graphics terminal and displays all DAS menus in a window on the server.

BASIC INFORMATION

When the 92XTerm software is installed, the DAS functions basically the same as it would when connected to a color terminal. The main difference is that the DAS menus are controlled from a workstation with a mouse and keyboard interface instead of a terminal.

The 92XTerm software is distributed on a set of floppy disks. The software installation instructions are provided in Section 2 of this manual.

To use this product, you need the following:

- This manual
- A DAS mainframe
- DAS System User Manual and other DAS module user documentation
- A Sun SPARCstation with X server software
- Knowledge of your specific DAS system
- Knowledge of your workstation and general networking concepts
- An RS-232 terminal with 80 characters per line and a 24-line display, such as the 9201T terminal (required for initially powering up the DAS and for installing and configuring the 92XTerm software). This terminal will act as the system console and should remain connected.

DAS SYSTEM REQUIREMENTS

This section describes the DAS system requirements to use the 92XTerm software. The minimum requirements to use the 92XTerm software with a DAS are a DAS mainframe and DAS System Software Release 3, Version 1.10 or higher. The 92XTerm software is not compatible with previous versions of the DAS System Software and mainframes.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

X SERVER REQUIREMENTS

The 92XTerm software requires an X Windows server as the input and output display device. The server must be X11R4 compatible. Servers such as Sun OpenWindows Version 2 or 3 that provide equivalent services will also work with the 92XTerm software.

ABOUT THIS MANUAL

This manual is a reference document that explains how to install and use the 92XTerm software. It is not intended to provide detailed information on the operation of the DAS. Refer to the documentation that came with your DAS product for operating information.

The following paragraphs briefly describe the contents of this manual.

Section 1: Introduction. This section briefly introduces the 92XTerm product and describes some of the prerequisites for using the product. This section also describes some of the conventions used in this manual.

Section 2: Getting Started. This section describes how to install the 92XTerm software on the DAS and the host computer. It also explains how to start using the 92XTerm software.

Appendix A: Error Messages and Troubleshooting. This appendix describes some of the error messages you may encounter while installing or running the 92XTerm software. It also provides information for troubleshooting any problems that may occur while you install the software.

Appendix B: DAS Configuration Utility. This appendix describes the configuration utility used to configure the DAS during the initial software installation procedures.

Appendix C: 92XTerm X Resources. This appendix briefly describes some of the 92XTerm X resources that you can customize for your particular application.

Appendix D: Startdas Shell Script. This appendix lists the shell script for the startdas command.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Definition of Terms

The following list defines some of the terms used throughout this manual.

- 9201T system software—the standard system software that allows you to operate the DAS from a 9201T terminal.
- DAS XP system software—the standard system software that allows you to operate the DAS from an X terminal.
- DAS NT (92XTerm) system software—the system software that allows you to remotely operate the DAS from an X window on a workstation.
- Tek_La window—the window that displays the DAS menus.
- host—a host computer or host workstation that provides the X server display attached to the DAS through a TCP/IP Ethernet network.
- network—a collection of at least two computer systems connected by an Ethernet cable.
- server—a computer or system on a network providing resources to other systems on the network.
- X11R4—a standard interface for graphical display and input devices developed by Massachusetts Institute of Technology and Digital Equipment Corporation. Host-based client programs, such as the DAS 92XTerm software, use this interface to generate graphical user interfaces on X11R4-compliant server devices.

Manual Conventions

The following conventions are used in this manual:

- The term pointer refers to the mouse pointer or mouse cursor when used in the Tek_La window.
- The terms Return or Enter are used interchangeably in this manual in reference to entering a carriage return after entering text.
- References to the DAS mainframe include the TLA 510 or TLA 520 Logic Analyzer unless noted differently.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Other Recommended Documentation

The following list describes additional manuals or documentation that you should refer to for information on using the 92XTerm product.

- *DAS System User Manual*–This manual describes the basic operation of the DAS from a standard DAS terminal. Refer to this manual for procedures for installing the 92XTerm software.
- *TLA 510 & 520 User Manual*–This manual describes the basic operation of the TLA 500 series logic analyzers. Refer to this manual for procedures for installing the 92XTerm software.
- User manuals for your data acquisition module, pattern generation module, or your DAS application software.
- User manuals for your workstation.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Section 2: GETTING STARTED

This section describes the steps you need to follow before you can use the 92XTerm software. These steps include the following:

- Configuring the DAS hardware
- Installing the 92XTerm software on the DAS and on the host
- Configuring the DAS software
- Configuring the software on the host
- Starting the 92XTerm software on the host

The 92XTerm software is shipped on a set of DAS floppy disks. These floppy disks contain all the system software required to run the DAS with the 92XTerm software. All the software must be installed on the DAS. Part of the 92XTerm software includes files that must be installed on the host. You must install the 92XTerm software on a DAS and transfer the 92XTerm host computer files to the host.

CONFIGURING THE DAS HARDWARE

Before installing the 92XTerm software on the DAS, you must ensure that the DAS is configured properly. The 92XTerm software requires that your DAS contain a 92LANSE or 92LAN local area network module (LAN). If your LAN module is not already installed, refer to your LAN module user manual for installation instructions.

Before powering up the DAS, you should verify that your DAS mainframe contains the correct configuration of data acquisition and pattern generation modules. Be sure that the configuration is compatible with the mainframe's power supply and power cord combinations. If necessary, refer to the *DAS System User Manual* for procedures for installing those modules and verifying the power supply configuration.

Connecting an RS-232 Terminal

After verifying the hardware configuration, you must connect an RS-232 terminal to the terminal port to verify that the DAS powers up correctly and all the installed modules pass the diagnostics. You will also need this terminal to complete the software installation procedures; you should leave the terminal connected to the DAS to act as the system console for displaying operating system messages. The terminal should be capable of displaying at least 24 lines of 80 characters each.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

The procedures in this section do *not* require a special terminal such as the 9206XT terminal or terminals with VT100 or ANSI compatibility. You can use any RS-232 terminal capable of operating at one of the baud rates listed in Table 2-1. It may be necessary to set the baud rate of the terminal to match the DAS's baud rate or vice versa. To change the baud rate of the DAS's terminal port, perform the following steps:

1. Face the rear of the DAS and locate the DIP switches mounted on the Controller board (accessible through an opening in the lower right back panel).
2. Set the DIP switches to positions as shown in Table 2-1 to the desired baud rate (DIP switch #1 is the leftmost switch).

Table 2-1
DAS Terminal Port Baud Rate DIP Switch Settings

Switch 3	Switch 4	Baud Rate
Up	Up	38400
Up	Down	2400
Down	Up	1200
Down	Down	Restores the baud rate stored in the DAS's nonvolatile RAM. This is the baud rate as set in the Communications menu.

Initial DAS Power On

After you connect the RS-232 terminal to the DAS, you are ready to power on the DAS. When powering on the DAS to configure it for 92XTerm operations, you must bypass its normal power-on software. Perform the following steps to power on the DAS:

1. Face the rear of the DAS and locate the DIP switches mounted on the Controller board (accessible through an opening in the lower center of the back panel).
2. Place DIP switch #1 (the leftmost switch) in the closed (down) position; leave all other switches in their original positions.
3. Power on the terminal and wait for the cursor to appear.
4. Power on the DAS and observe the messages displayed on the terminal.

The DAS will display information regarding automatic shutdown due to defective or illegally configured hardware. It will also display information on the power usage and power cord requirements. Finally, it will display the BOOT?> prompt.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Note that the DAS will not display any information on the power-on diagnostics when you bypass the normal power-on software. The diagnostic information will be displayed in the Power Up menu in the Tek_La window. You can also use the Configuration utility to obtain information on the power-on diagnostics; the Configuration utility is discussed later in this section and in Appendix B of this manual.

INSTALLING THE SOFTWARE ON THE DAS

Installing the 92XTerm software on the DAS consists of the following steps:

1. Run the Install utility from the floppy disk to install the preliminary software on the DAS.
2. Run the Configuration utility to define the operating mode of the DAS and check or set the LAN parameters on the DAS. You can also save an image of the current system software (if desired for future use).
3. Run the Install utility on the DAS hard disk to install the 92XTerm Base System software, the Optional System software, and the application software.

These steps are described in detail in the following sections.

NOTE

Before installing the 92XTerm software, read the discussion on DAS System Requirements *in Section 1.*

Switchable Mode System Software

There are different versions of system software that you can install on the DAS: the 9201T version, the 9202XT version, and the 92XTerm version. The 9201T version allows stand-alone operation from a 9201T terminal, the 9202XT version allows stand-alone operation from a 9202XT terminal, while the 92XTerm version allows you to operate the DAS on a network from an X window on a workstation. Table 2-2 lists the software versions and the operating modes they support.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Table 2-2
System Software vs Operating Modes

Operating Mode	9201 System Software	9202XT System Software	92XTerm System Software
9201T	X		
9202XT		X	X
92XTerm Manual			X
92XTerm Autostart			X

The Configuration utility on the DAS lets you have more than one version of software loaded on the hard disk at the same time. One software version will be the active version while the other versions are stored on the hard disk for later use. You can use the Configuration utility to switch or swap an inactive version and the active version without having to reload the entire system software from the floppy disks.

If you intend to save an inactive version of the DAS system software for later use, you must save it with the Configuration utility before you install the new system software. Refer to *Defining the DAS Operating Mode* for information on saving and restoring system software images.

Installing Preliminary Software on the DAS

The first step in installing the 92XTerm software is to run the Install utility from the floppy disk to install preliminary software on the hard disk. The file system Install utility installs and verifies the 92XTerm software, Base System Software, Optional System Software, or Application Software on the DAS.

NOTE

When you install the 92XTerm software for the first time, you must use the Install utility from the floppy disk to ensure that you load the most recent version of the utility.

You must use the Install utility to load the 92XTerm software on the DAS's hard disk. Perform the following steps to install the 92XTerm software on the DAS.

1. If you have not already done so, perform the steps under *Initial DAS Power On* earlier in this section.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

2. Verify that the BOOT?> prompt is displayed on the terminal screen, and then insert the INSTALL floppy disk into the DAS's disk drive with the label facing the center of the DAS.
3. At the BOOT?> prompt, type f:/install, and press the Return key. The DAS will display the following menu on the terminal screen:

```
Press "i" to Install Base System Software, Optional
    System Software, or Application Software.
Press "r" to Remove Optional System Software or
    Application Software.
Press "v" to Verify currently installed software.

Selection:
```

4. Type i to start the software installation procedure. The following text will appear on the screen:

```
DAS File System Installation Procedure:
When the "BOOT?>" prompt appears, type "/install"
to continue the installation process, or type "/config"
to adjust the LAN, GPIB, or Operating mode parameters or
save an image of the current system software.
```

NOTE

Do not remove the INSTALL floppy disk until you are told to do so. The installation program copies several files from the floppy disk to the hard disk. When the copy process is complete, the BOOT?> prompt will appear.

5. The next step is to run the Configuration utility to define the operating mode of the DAS. Type /config when the BOOT?> prompt appears; do not type /install at this time.

Defining the DAS Operating Mode

Refer to Appendix B: DAS Configuration Utility *for detailed information on using the Configuration utility.*

If there is enough additional free space on your DAS's hard disk (approximately 14 Mbytes), you can install the 92XTerm software so you can alternately run the DAS from a Tektronix X terminal or from a workstation. The Configuration utility lets you select the active mode of your DAS. You can use the Configuration utility to save the current system software in a separate directory on the DAS. You can then use the Configuration utility to switch between the 9201T, 9202XT, and 92XTerm modes.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

1. At the BOOT?> prompt, start the Configuration utility by typing /config.
2. When the main menu of the Configuration utility appears, you must decide if you want to save an inactive copy of the current DAS system software for future use. If you want to save an image of the current system software, select the save option from the main menu. Be aware, however, that the Configuration utility does not save user files (such as saved setups, reference memories, trigger libraries) with the system software image.

CAUTION

If you do not save an image of the current system software before you change the system operating mode or install new software, you will be unable to return to the current operating mode without reinstalling all of the DAS system software and applications from the floppy disks.

3. Before you can install the 92XTerm version of the DAS system software, you must configure your DAS for 92XTerm operation. To enable the 92XTerm operation, select option O (Set Operating mode) from the main menu. You will be prompted to select one of the following operating modes:
   - **9201T Mode.** The 9201T mode provides the standard user interface on an older 9201T terminal and keyboard. Refer to the *DAS System User Manual* for details on operating the DAS from an older 9201T terminal.
   - **9202XT Mode.** The 9202XT mode provides stand-alone operation with a Tektronix X (9206XT) terminal. This mode is similar to the 92XTerm Autostart mode; however, it is configured to use the DAS Mainframe as a stand-alone system.
   - **92XTerm Manual Mode.** The 92XTerm Manual mode lets you operate the DAS on a network from a workstation or X display. The manual mode lets you start the application using a shell script from the workstation.
   - **92XTerm Autostart Mode.** The 92XTerm Autostart mode automatically displays the Tek_La window on the default X server when the DAS powers up. The default server name or server address must be specified with the Configuration utility prior to starting the 92XTerm Autostart mode.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Be aware that the 92XTerm Autostart mode will not work properly until you have configured the host for use with the 92XTerm software. If the host has not been properly configured, the DAS will default to the manual mode. However, the autostart mode selection will remain selected as the default start-up mode.

4. Select one of the two 92XTerm modes to enable the DAS to install the 92XTerm version of the software. The 92XTerm manual mode is the recommended mode. If you want to use the 92XTerm Autostart mode, you should complete the software installation procedures while the DAS is in the 92XTerm Manual mode. You can then return to the Configuration utility and select the 92XTerm Autostart mode after you have verified that the DAS and X server are properly configured.
5. After you select the operating mode, you can use the Configuration utility to check and, if necessary, set the LAN parameters for your DAS. Your system administrator must provide you with the Internet address for your DAS and the gateway address and subnet mask for your network.

If your DAS already has the LAN parameters defined, you do not need to reenter the parameters.

The Configuration utility displays a list of parameters with their current values. To change the setting of a parameter, enter the line number or the corresponding letter of the parameter. You will be prompted to enter a new value for the parameter. Table 2-3 lists the parameters that you must enter for the DAS to communicate with the host; other parameters in the Configuration utility are optional.

Table 2-3
Required LAN Parameters for the DAS

Parameter	Description
DAS Network Name	Used as a reference for connecting the DAS to the host.
Internet Address	Assigned by the system administrator. The Internet address is used by the server to communicate with the DAS.
Gateway Address	Assigned by the system administrator. The DAS's LAN system can communicate with machines outside of its own local network by designating a local network system as the gateway to another network. The DAS system cannot be designated as a gateway.
Subnet Mask	Assigned by the system administrator.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

6. After you complete the previous steps, return to the main menu and select option E to exit and save the changes; you will return to the BOOT?> prompt.

Install the System Software

After you define the DAS's startup mode, you must install the Base System software, Optional System software, and any Application Software that you want to use. If you use the DAS with either of the 92XTerm modes, you must install the 92XTerm version of the software.

NOTE

Before continuing with the installation procedures, you must be certain that you have selected the correct operating mode for your DAS. The Install utility will not allow you to install software other than for the current mode.

1. Type /install in response to the BOOT?> prompt, and press the Return key. The DAS will access the hard disk and after a few seconds will display the following message on the terminal screen:

```
DAS File System Installation Procedure:
XXXX Kbytes disk space remaining.
This system is configured for 92XTerm operation.
Insert next floppy disk and press Return.
(When installation is complete press "c")-->
```

2. Remove the INSTALL floppy disk, insert the OPERATING SYSTEM disk, and press the Return key. When the prompt returns, insert the next disk in the sequence, and press the Return key. Continue loading the Base System Software disks in sequence until you have installed all of them.
3. After you finish installing the Base System Software disks, install the optional system software disks and any application software disks.
4. After you have installed the last floppy disk, type c to complete the software installation procedure; the DAS will then power off.
5. Place DIP switch #1 in the open (up) position, and power on the DAS.

In addition to installing all of the software required to run the DAS, the Install utility also installs some 92XTerm software that must be transferred to the host. The host software is temporarily stored in the Temp_Bin directory on the DAS. You will transfer the software to the host later in this section.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

This completes the software configuration and installation procedures for the DAS. Perform the next step to configure the host with the 92XTerm software.

CONFIGURING THE HOST SOFTWARE

You must configure the host software for the workstation prior to using the 92XTerm software for the first time. It is recommended that the following procedures be performed by the system administrator for your X server or workstation. Your system administrator should update the necessary host files with the name and address of your DAS so that the DAS will be recognized as a valid instrument on the network.

The following procedures require communications between the DAS and the host. After updating the host files with the name and address of the DAS, you should verify that the DAS can communicate with the host over the LAN. Your system administrator can verify the LAN communications with either the ping command or with an rsh command. If you are unable to verify the LAN communications, refer to Appendix A of this manual for troubleshooting information.

Transferring the 92XTerm Software to the Host

The 92XTerm software installation disks contain two different kinds of software: the software used by the DAS, and the software used by the host. After installing the 92XTerm software on the DAS, the host files are contained in a single tar file in the /la_files/Temp_Bin directory. You must transfer the tar file to the host using rcp (remote copy) or ftp.

The following procedures describe the basic steps involved in using rcp or ftp to transfer the 92XTerm software to the host.

Using rcp to Transfer the 92XTerm Host Software

You can use the rcp (remote copy) UNIX command to transfer files between the DAS and the host. The following steps show how to transfer the 92XTerm.tar file from the DAS to the host. The name of the DAS in this example is das1.

1. Log on to the host.
2. Move to the directory where you want to place the DAS files.
3. Enter the following command to transfer the 92XTerm.tar file from the DAS:

   ```
   rcp das1:/la_files/Temp_Bin/92XTerm.tar .
   ```


Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

The rcp command will copy the file from the DAS to the current directory on the host computer.

Using ftp to Transfer the 92XTerm Host Software

The following steps show how you can use ftp to transfer the 92XTerm.tar file from the DAS to the host computer. In the following steps, the name of the DAS is das1.

1. Log on to the host.
2. Move to the directory where you want to place the DAS files.
3. Invoke ftp on your host computer by entering the following command:

   ```
   ftp das1
   ```

4. Once connected to the DAS through ftp, the DAS should display a login message on the host. At the prompt, enter a carriage return; the ftp prompt should appear. (On the DAS, ftp automatically starts from the la_files directory as the root directory.)
5. Move to the Temp_Bin directory on the DAS by entering the following command:

   ```
   cd Temp_Bin
   ```

6. Enter the following command to select the binary transfer mode:

   ```
   bin
   ```

7. Use the get command to transfer the tar file from the DAS to the host.

   ```
   get 92XTerm.tar
   ```

8. After successfully transferring the file, quit the ftp program by entering the following command:

   ```
   quit
   ```

The 92XTerm.tar file from the DAS should now be on your host computer in the current directory.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Extracting the 92XTerm Host Software

The 92XTerm.tar file is a tar archive containing the host 92XTerm software. You must extract the files from the 92XTerm.tar file before you can use them. To extract the files, you should use the tar command as follows:

```
tar xvf 92XTerm.tar
```

Table 2-4 contains a list of the 92XTerm host software contained in the 92XTerm.tar file. If you encounter any problems with the installation process, you should verify that your host computer contains all of the files listed in Table 2-4.

Table 2-4
92XTerm Host Files

Files	Description
readme	A text file describing the contents of the 92XTerm.tar file.
XDas	This is an example X11 resource file showing user adjustable X11 resources used by the 92XTerm application. This file can be merged with the .Xdefaults file on the host workstation and edited, as necessary, to use with the 92XTerm application.
hosts	This is a template DAS /etc/hosts file. You must add the names and addresses of your X servers to this file and copy the file to the DAS using rcp.
startdas	The shell script for starting the 92XTerm application from a workstation.
startdas.1	This is the nroff source file for the man page describing the startdas shell script.
startdas.txt	This file is a text version of the startdas.1 man page.
DASFonts	This directory contains the font files used by the 92XTerm application.
DASFonts/ Dasfnt16.bdf	This is the distribution format file for special fonts used by the 92XTerm application. Most X server systems have tools to convert fonts from distribution format to the format required for the server.
DASFonts/ Dasfnt16.snf	This is the compiled version of the DASfnt16.bdf font suitable for use on a Sun-4 workstation with the X11-R4 server.
DASFonts/fonts.dir	This is an X11-R4 list of font files present in the fonts directory.
DASFonts/ Dasfnt16.fb	This is the compiled version of the Dasfnt16.bdf font suitable for use on a Sun-4 workstation with the Sun OpenWindows server.
DASFonts/ Dasfnt16.ff	This is the Sun OpenWindows font family file.
DASFonts/ Families.list	This file is the Sun OpenWindows list of font families present in the fonts directory.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Updating the DAS Hosts File

The hosts file on the DAS contains a list of names and addresses of all potential servers to be used with the DAS. You must add the names and addresses of the servers to be used with the DAS to this file. Since you cannot edit the file on the DAS directly, you must add the required information to the hosts file (which was uploaded in the 92XTerm.tar file) and then return the hosts file to the DAS. The easiest way to transfer the files between the host and the DAS is to use the rcp command.

A typical host file contains information regarding the known hosts. For each host, a single line should be present with the following information: the Internet address, the host name, and a descriptive comment. The information in the file should be left-justified, separated by tabs, and should have no blank lines; comments should be preceded by a pound sign character (#). The example below shows typical entries in a host file.

```
123.100.200.100    gnat            # Jim Smith
123.100.200.100    eldar           # Mary Smith
123.100.200.101    joey            # marketing group
```

After adding the names and addresses of the servers to the hosts file, you must transfer the file back to the DAS using rcp. Be sure to place the hosts file in the correct location on the DAS (/etc/hosts). For example, you may want to issue the following command:

```
rcp hosts das1:/etc/hosts
```

Installing the DAS Fonts on the Host

The 92XTerm software has its own special character fonts required by the DAS user interface. The DASFonts subdirectory created when the 92XTerm.tar file was unpacked contains the special font files required by the 92XTerm application. The fonts are provided in the distribution format (bdf) and in the specific formats used by the X11-R4 and Sun OpenWindows servers. You must install the special DASFonts on your workstation before running the DAS 92XTerm software.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

CAUTION

Be careful when copying the character fonts to the workstation or host computer. If you place the character fonts in the wrong location, you could overwrite existing font files causing unpredictable problems with the workstation. If you are unsure of where to place the DAS fonts, consult your system administrator.

1. The first step in installing the DAS fonts is to move the DASFonts directory to a permanent location on your workstation. You should consult with your system administrator to determine an appropriate directory for your workstation. For example, if you wanted to place the fonts directory in an existing workstation directory called /usr/fonts, you should issue the following command:

   ```
   mv 92XTerm/DASFonts /usr/fonts
   ```

The xset command is valid only after Open Windows or the X server is running.

2. When the font directory is in place, you must inform your X server of its location and tell the X server to add the fonts in that directory to its font table. To do this, you can issue the following commands (assuming that the DASFonts directory was placed in the /usr/fonts directory):

   ```
   xset +fp /usr/fonts/DASFonts
   xset fp rehash
   ```

NOTE

If you see the message "Xinit–no DAS fonts loaded in X server," try running the bldfamily tool to update the font family file.

3. The xset commands will remain in effect only for the current X window session. To avoid having to manually enter the xset commands each time you log in, you should add the commands to your .login, .xinitrc, or other command script that is automatically executed each time you log in. If you are unsure how to do this, consult with your system administrator.

Installing the DAS Start-Up Script and Manual Page

The DAS start-up script (startdas) and its accompanying manual (man) page were included as part of the tar file. You must place the startup script in one of the locations searched by your host's PATH environment variable or add the location of the script to the PATH.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

You should add the man page to the man1 directory of your host. The man page provides information on starting the 92XTerm software. The man page is formatted in the “nroff -man” source form (man.1). If you are unsure how to do this, you should ask your system administrator to install the man page for you. After the file is installed, you can type man startdas to view the man page.

Installing the XDas File

The XDas file included in the 92XTerm.tar archive shows the names and default values of the user adjustable X resources used by the 92XTerm application. The resources in this file allow you to change the colors used by the 92XTerm user interface. If you do not want to adjust the colors, you do not need to do anything to this file. Appendix C of this manual provides more information about adjusting the values of these resources.

If you want to adjust the 92XTerm resources, you should copy the contents of the XDas file into your .Xdefaults file. This file is normally located in your home directory. After you have added the XDas resources into the .Xdefaults file, you must tell the X server to reread the file before the new resources take effect. To accomplish this, you can issue the following command:

```
xrdb -load .Xdefaults
```

The X11 systems usually load the .Xdefaults file at initialization; once you have added the XDas resources to this file, you should not need to repeat the xrdb command for subsequent logins.

Defining the DAS Environment Variables

If you will normally use a single DAS with your server you can define an environment variable to use with the start-up script. This will simplify the start-up procedures by not requiring you to enter the name of the DAS each time you start the 92XTerm software. For example, if the name of your DAS is das1, you may want to add one of the following lines to your .profile or .login file depending on the shell used by your host.

If you use sh or ksh, use the following line:

```
DAS9200="das1"; export DAS9200
```

If you use csh, use the following line:

```
setenv DAS9200 das1
```


Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Specifying the –das argument with the DAS start-up script will override the environment variable (refer to *92XTerm Manual Mode* for more information on using the startup script).

You can also set up the DAS9200_DISPLAY environment variable in the same manner. For example, if the name of your X server is eldar and you use sh or ksh, use the following line:

```
DAS9200_DISPLAY="eldar:0.0"; export DAS9200_DISPLAY
```

If you use csh, use the following line:

```
setenv DAS9200_DISPLAY eldar:0.0
```

The :0.0 specifies the X server display and screen to use. Refer to *92Xterm Manual Mode*, later in this section, for more information on specifying the –display argument in the shell script.

STARTING THE DAS MENUS

When the 92XTerm software is properly installed on the DAS and on the host, you can begin using the DAS from your host. You can start the 92XTerm software manually or automatically as previously selected in the Configuration utility.

92XTerm Autostart Mode

The 92XTerm Autostart mode is intended for applications where a specific X server is always used with a specific DAS. In the autostart mode, the 92XTerm software displays the Tek_La window on the specified default X server as soon as the DAS completes its power-on sequence.

If you enable access control on the default X server, you must enable access for the DAS. You can accomplish this with the xhost(1) command; for example:

```
xhost +das1
```


Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

92XTerm Manual Mode

To start the 92XTerm software in the 92XTerm Manual mode, you must run the start-up shell script on a workstation using the following syntax:

```
startdas [-Help] [-das das_name] [-font <name>|-autofont]
         [ -display X_server_name]
```

The –Help argument. This argument displays the syntax and an example (usage); the actual shell script will not be executed when you use the Help argument. You can use one of the following synonyms for the Help argument: HELP, help, H, h, or ?. The help argument (and the synonyms) will be recognized with or without a hyphen.

The –das das_name argument. This argument specifies the name assigned to the DAS. If you do not specify a name, the variable assigned to the environment variable DAS9200 will be used. The –das das_name argument takes precedence over the environment variable if both are present. Either the –das das_name argument or the environment variable must be used and the network name of the DAS must be known by the invoking workstation.

The –font <name> or –autofont argument. This argument specifies the size of the font that displays on your X terminal. The argument overrides XDas resource values. The font files are distributed in the 92XTerm.tar file and must be loaded on the X server.

If you use the -font <name> argument, you can choose from the following fonts:

- Dasfont-16 8 x 16 pixels
- Dasfont-12 6 x 12 pixels
- Dasfont-20 10 x 20 pixels
- Dasfont-24 12 x 24 pixels

If you use the -autofont argument, the largest font that can be displayed on your X terminal is automatically selected.

The –display X_server_name argument. This argument specifies the X server used to display the Tek_La window. The format of the argument conforms to the X11 standard of server_name:display_number.screen_number. The X_server_name is the name of the X server or workstation where the Tek_La window will appear. The display.number is the number of the display for use on the X server (it will normally be 0; however some X servers allow multiple displays). In the case of multiscreen displays, the optional screen_number specifies which screen displays the Tek_La window; if omitted, the value defaults to 0.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

If you do not specify an X server name, the value assigned to the environment variable DAS9200_DISPLAY will be used. You can assign the DAS9200_DISPLAY variable in your .profile or .login file on the host using the same format as the –display X_server_name argument. The –display argument takes precedence over the environment variable if both are present. For example, if your X server is named reptile and you are working with sh or ksh, you could add the following line:

```
DAS9200_DISPLAY=reptile:0.0; export DAS9200_DISPLAY
```

If your X server is named reptile and you are working with csh, you could add the following line:

```
setenv DAS9200_DISPLAY reptile:0.0
```

If you do not specify the –display argument or set the DAS9200_DISPLAY environment variable, the display will be directed to display 0, screen 0 of the invoking workstation.

As an example, if your DAS is named das1, you could start the 92XTerm software by issuing the following command:

```
startdas -das das1
```

To start the DAS named das1 on an alternate X server named reptile, you could start the 92XTerm software by issuing the following command:

```
startdas -das das1 -display reptile:0
```

If the DAS and the workstation are properly configured and available, the command script will start the 92XTerm software with the specified DAS. The Tek_La window will appear on the specified workstation. If any errors occur, the command script will display an error message and exit (with a value of +1). You may want to refer to Appendix A for information on error messages that may appear.

Be aware that if you enable access control for a specified X server display, you must also enable access for the specified DAS. You can accomplish this with the xhost(1) command. In cases where the X server is not explicitly specified and defaults to the invoking workstation, the startdas shell script automatically enables access for the specified DAS; for example:

```
xhost +das1
```


Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Whenever the 92XTerm application starts, ends, or cannot be started, one or more of the messages listed in Table 2-5 will be displayed on the RS-232 console terminal connected to the DAS's Terminal port to show the status of the application. A similar message may appear on the workstation.

While the application is running, any characters entered from the RS-232 console terminal connected to the DAS's Terminal port will be echoed to the terminal. All input will be ignored except for carriage returns (CR) or line feeds (LF). The application will respond to the carriage returns or linefeeds by displaying one of the messages shown in Table 2-5. In each message in the table, the terms user and server will indicate the actual user and server.

Table 2-5
92XTerm Status Messages

Message	Description
Unable to start 92XTerm.	The automatic startup mode could not be started and the application switched to Manual mode.
Starting 92XTerm for user: "user" on X server: "server."	The application successfully started the Automatic or Manual mode.
92XTerm operation is now complete.	The Automatic or Manual mode has ended; usually terminated by the workstation.
This system is configured for 92XTerm operation, but is not in use.	The DAS is in the Manual mode, ready to start.
This system is in use by user: "user" on X server: "server."	The DAS is currently in use by "user" on the server "server."

CLOSING OR QUITTING THE 92XTERM SOFTWARE

You can leave the 92XTerm software in the same manner as you would leave any other application on your workstation. If you are using the 92XTerm Manual or Autostart mode, you can quit the application by moving the pointer to the menu bar, pressing the right mouse button, and selecting Quit. You can also quit the application by simultaneously pressing the Shift–Ctrl–Delete keys while the Tek_La window is displayed. Powering off the DAS will also quit the 92XTerm application.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

If you use the 9202XT mode, you can quit the application by powering off the DAS. You cannot quit the application by closing the Tek_La window in the 9202XT mode. The window will close temporarily and then restart automatically. To close the application, you must select the 92XTerm Manual mode (refer to Section 2, if necessary).

When you quit the application, the DAS does not retain the information displayed on the menus. If you want to save any information on the DAS setups, you must save the setups using the Save/Restore menu prior to quitting the application (refer to the *DAS System User Manual* for information about the Save/Restore menus). The next time that you start the application, you are actually starting the DAS from its default setups.

If you want to change the operating mode of the 92XTerm software, you must use the Configuration utility; refer to Appendix B of this manual for changing the operating mode and for using the Configuration utility.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Appendix A: ERROR MESSAGES AND TROUBLESHOOTING

This appendix describes some of the problems that you might encounter while installing and using the 92XTerm software and provides some solutions for those problems. This appendix also describes some of the error messages that you may encounter while using the product.

HARDWARE PROBLEMS

There are basically two kinds of hardware problems that you may encounter while either installing or using the 92XTerm product: problems with the RS-232 console terminal, and problems with the DAS or the DAS Ethernet interface.

RS-232 Console Terminal Problems

You should seldom see any problems with the RS-232 terminal. The most common type of problem is the BOOT?> prompt (when DIP switch #1 is in the down position) does not display when you start the DAS. The following list describes some of the recommended action for resolving the problems.

1. Verify the RS-232 console terminal is powered on.
2. Verify the RS-232 console terminal is connected to the DAS's terminal port (instead of the host or auxiliary port).
3. Verify that the RS-232 cable is connected to both the terminal and to the DAS.
4. Verify that you do not have a faulty RS-232 cable; if necessary, replace the cable with a known-good cable. (The RS-232 cable provided with the DAS is a pin-to-pin, male-to-female cable. You should use either this cable or a similar cable for connecting the DAS to the console terminal.)
5. Verify that the baud rate of the RS-232 terminal matches the baud rate of the DAS. If necessary, refer to Section 2 of this manual for information on setting the DAS's baud rate with the DIP switches on the back of the mainframe.
6. Verify that the other terminal settings match those of the DAS: 8 bits/character, no parity, one stop bit, and Xon-Xoff flow control.

You may want to refer to the documentation for your RS-232 terminal for troubleshooting suggestions that are not listed here.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

DAS Hardware Problems

The problems that you may encounter with the DAS hardware include: problems caused by illegal DAS configurations, or problems due to diagnostic failures.

If you have an illegal configuration, the DAS can sometimes detect this when you first power on the DAS. If the DAS detects an illegal configuration, it will display a message to the RS-232 console terminal connected to the DAS's terminal port and then shut down. If this occurs, refer the *DAS System User Manual* for information on DAS configuration limitations. If the illegal configuration was due to power limitations, you should also refer to the *DAS System User Manual* for information on the DAS's power requirements.

If you suspect a problem with the power-on diagnostics, observe the RS-232 console terminal as the DAS mainframe powers on. Be sure to observe the "daemon startup" messages to verify that the ftp and rsh daemons start successfully. Before starting the 92XTerm software, use the Configuration utility to display the results of the diagnostics on the RS-232 terminal connected to the DAS's terminal port. Refer to Appendix B of this manual for information on running the Configuration utility.

If the "daemon startup" messages are not displayed, or if the LAN diagnostics indicate failures, the LAN connection is not complete. You should check for proper connections and verify that the Internet addresses on the DAS and on the hosts are valid.

If the DAS powers on successfully and communicates with the host on the Ethernet, you can also view the results of the diagnostics in the DAS's Power Up menu after starting the 92XTerm application.

If any diagnostic errors occur, record all displayed error information and contact your local Tektronix service center or refer to the *DAS Technician's Reference Manual* for recommended actions regarding the diagnostic errors.

DAS System Software Problems

If you suspect that the DAS Operating System may have corrupted files, you should try running the Verify option of the Install utility. Be aware that the Verify tool only verifies the current system software. In other words, you cannot verify the software in a saved image. To verify the saved image, you must use the Configuration utility to restore the saved image and then use the Verify tool with the restored software. The Install utility is located on the second floppy disk of the 92XTerm software. Refer to the *DAS System User Manual* for the procedures on verifying the file system software.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

When you install the new Install utility with the 92XTerm software, the utility places new versions of the utilities on the DAS hard disk. Some of these files may not verify properly with older versions of system software. The newer versions of the Install utility are compatible with older versions of the DAS system software.

Although unlikely, it may be possible to have problems with the DAS's file system that may not be apparent until you initially start the 92XTerm software. The DAS's file system could be corrupted, and it may be necessary to rebuild the DAS's file system using the Make utility (if you rebuild the file system with the Make utility, you should back up all of your user files before doing so; all user files will be destroyed when you run the Make utility).

The Make utility is located on the first floppy disk of the 92XTerm software. The procedures for running the file system Make utility are described in the *DAS System User Manual*. Refer to those procedures if you find it necessary to rebuild or check the file system. You may also find it necessary to run the File System Check procedure. That information is also listed in the *DAS System User Manual*.

SOFTWARE INSTALLATION PROBLEMS

This section discusses some of the problems that you may encounter while installing the 92XTerm software. It is assumed that you have the RS-232 terminal connected to DAS's terminal port and that you have already run the Configuration utility and set the proper parameters.

Problem: The host cannot connect with the DAS using ftp or rcp.

Possible Solutions: There are a few situations that can cause this problem. Check for one of the following possibilities:

1. Verify that the DAS is properly connected to the network. The DAS may be physically disconnected from the network or there could be a loose LAN cable connection.
2. Check the information displayed on the RS-232 console terminal. If the DAS has booted properly in the 92XTerm Manual mode, the console terminal should indicate that the system is configured for 92XTerm operation but not in use. This should indicate that the LAN communication is working between the DAS and the host.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

3. If the message displayed on the RS-232 console terminal indicates an unknown host, have your system administrator verify that the host files contain the name and address of the DAS. If the information is missing, your system administrator should add the information to the respective files.
4. Have your system administrator verify that the DAS is on the network. Your system administrator has tools (such as ping or rsh) to verify this.
5. Make sure that the optional LAN software has not been removed to free up disk space on the DAS's hard disk. You may want to run the Install utility to install the LAN software on the DAS. However, if you do reinstall the LAN software, make sure that you reset the DAS's LAN parameters as assigned by your system administrator.

Problem: The 92XTerm software is installed on the DAS, but the 92XTerm.tar file does not appear to be present on the DAS.

Possible Solutions: There are a few different possibilities that can cause this problem.

1. Make sure that you look for the file in the correct directory on the DAS. If you use ftp to transfer the tar file to the host, the tar file is located in the Temp_Bin directory on the DAS. After you establish the connection to the ftp server on the DAS, change directory (cd) to the Temp_Bin directory on the DAS. If you list the contents of the directory (using the ls command), you should see the 92XTerm.tar file. If you use rcp to transfer the file to the host, you must specify the complete path to the file. If you use rcp, the path to the file is /la_files/Temp_Bin/92XTerm.tar.
2. If you have verified that you are in the correct directory and the file is not there, the tar file could have been deleted by another DAS user to conserve disk space. If this is the case, reinstall the 92XTerm system software to get another copy of the 92XTerm.tar file.

Problem: An error occurs when attempting to transfer the tar file from the DAS to the host.

Possible Solutions: There could be a problem with the permissions on the host. Make sure that you have write-permission in the host directory to which you are transferring the tar file.

Problem: The tar file transfers successfully to the host, but the tar command on the host fails to extract the contents of the tar file.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Possible Solutions: If you get a checksum error, the tar file could have been corrupted during the transfer from the DAS to the host.

1. Try listing the files in the tar file without extracting them. To do this, use the following command:

   ```
   tar tvf 92XTerm.tar
   ```

2. If you still get a checksum error, the tar file could be corrupt. Try transferring the file from the DAS again. If you use ftp to do the file transfer, make sure that before you transfer the file you set the ftp binary mode transfer (by entering the binary ftp command).
3. If you still have a problem, the tar file on the DAS could be corrupt. Try installing the 92XTerm application software again on the DAS and then transfer the new tar file to the host. You can also run the Verify option of the Install utility to verify the file on the DAS (the Verify option will inform you which file is faulty and may need to be reinstalled).

If you get a “permission denied” error message, check for the following:

1. Check the permissions set for the tar file itself. Verify that you have read-permission for the file.
2. Check the permissions set for the current directory. To do this, enter the following command while you are in the directory on the host that contains the tar file:

   ```
   ls -ld .
   ```

On some UNIX systems, the tar command appears to issue a “cannot create” message when creating a directory while it extracts the files from the tar file. In most cases you can ignore this message since the tar command creates the directory despite the message. To make sure, verify that the correct files exist by comparing them against those listed in Table 2-4.

ERROR MESSAGES

Error messages will be displayed on the workstation or on the RS-232 console terminal. This section describes some of these messages. Other error messages generated by the the DAS are documented in the *DAS System User Manual*. Refer to that manual for more information on the system error messages.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Error Messages Displayed on the Workstation

The following error messages can appear on the workstation when you try to start the DAS application with the startdas shell script.

Message: "das_name" is not responding.

Description: The startdas shell script attempted to contact the DAS named "das_name" through the network. There was no response from the DAS within the allotted timeout period.

This problem can occur when the workstation on which the startdas shell script ran does not know the correct Internet address for the specified DAS.

The DAS may not be active on the network due to several reasons. For example:

- The DAS may not be powered on.
- The DAS may not be connected to the network
- The network daemons are not running.
- The Internet address on the DAS may be wrong or missing.

Message: "das_name" is not configured for 92XTerm operation.

Description: The specified DAS is not configured for 92XTerm operation. Run the Configuration utility to configure the DAS for 92XTerm operation (refer to Appendix B for more information on the Configuration utility).

Message: This system is currently in use by user: "user" on X server: "server."

Description: The specified DAS is already in use by another user.

Message: This system is configured for 92XTerm operation, but not in use.

Description: If this message appears on the workstation when attempting to start a DAS with the startdas shell script, it indicates an error. The error occurs after the software exits abnormally and does not have the opportunity to properly clean up. If this error occurs, you should reboot the DAS.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Message: UI init error sys_mgr: Can't open display (NULL display)

Description: The specified display device cannot be opened. This error may be due to the following reasons:

- The display name was specified incorrectly. This may be due to a misspelling or the name may be in the wrong format. A common error is to leave off the ":0" at the end of the name.
- The display name is not present in the /etc/hosts file on the DAS.
- Server access control permission for the DAS is not enabled. Refer to your xhost command documentation and issue the xhost command to enable access control permission.
- No X server internet address is specified in the Configuration utility. Run /config and verify that the internet address is set.

Message: X error in sys_mgr: BadName
errno:: No such file or directory
X error in sys_mgr: BadFont
errno:: Error 0

Description: These errors indicate the 92XTerm software was unable to locate the special font required by the DAS user interface. This font must be installed on the X server and the font path must be set. Refer to *Installing the DAS Fonts on the Host* in Section 2 of this manual for information on installing fonts on the X server.

Error Messages Displayed on the RS-232 Console Terminal

The following messages may appear on the RS-232 console terminal connected to the DAS Terminal port.

Message: LAN database file is unopenable or corrupt.

Description: The DAS file that stores the values of the network parameters set by the Configuration utility is either missing or contains bad data. Check the contents of the file with the Configuration utility, and be sure to leave the utility with the "Exit" selection to save the parameter values in the LAN database file.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Message: Unable to start 92XTerm.

Description: This message may appear when the DAS is configured for the 92XTerm Autostart operating mode. It indicates that the DAS was unable to start the 92XTerm application on the default X server.

This error can be due to one of the following reasons:

- The default X server may have a missing or invalid Internet address.
- The name of the default X server may not be present in the /etc/hosts file on the DAS.
- The default X server could be off-line.

Message: Unable to start 9202XT.

Description: This message may appear when the DAS is configured for the 9202XT operating mode. It indicates that the DAS was unable to start the application on the 9202XT X server.

This error can be due to one of the following reasons:

- The 9202XT server is not running or the network connection is missing.
- The X server address specified in the Configuration utility is different than the internet address set in the 9202XT display.

SYSTEM ADMINISTRATION PROBLEMS

Some of the problems that you may encounter may be due to your particular host. It may be necessary to contact your system administrator for recommended actions.

Check with your system administrator for help on resolving some of the following problems:

- Missing or Bad fonts
- Improper read or write permissions
- Internet address and host name assignments
- Network connection difficulties

You should also refer to your workstation’s documentation for help.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Appendix B: DAS CONFIGURATION UTILITY

Use the Configuration utility to check or set the various parameters for operating the system. In most cases, you will use this tool to check or set the network addresses used to enable communications between the instrument and the host or color terminal. Use the utility to set the operating mode and save, restore, or delete system software images. You can also use the utility to check the results of the power-on diagnostics.

The utility loads onto the hard disk when you initially install the system software. To start the utility, power on the instrument with DIP switch #1 in the down position and type /config at the BOOT?> prompt.

USER INTERFACE

The Configuration utility is mainly intended for use with network systems or with systems with X terminals. However, a console terminal is recommended to display status or error messages while using the utility. You can also use the Serial window of an X terminal for this purpose if you do not have an external console terminal.

The utility does not make use of any special characteristics of any terminal. The utility assumes that the terminal can display 80 characters per line and at least 24 lines per screen. No special character positioning or highlighting is used.

The Configuration utility is required under the following conditions:

- When you change networking parameters
- When you change the logic operating mode
- When you need to update the terminal's Flash ROM
- When you need to check the results of the DAS power-on diagnostics and configuration (if the DAS menus do not display)

The basic utility consists of a main menu and several submenus. Each menu has a list of selections to choose from and lists the current values of the parameters. A Help selection is also available for each menu item.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

MAIN MENU

The Main menu displays as soon as you start the utility. Figure B-1 shows an example of the main menu. To select an item in the main menu, enter the character enclosed in parenthesis following the line number of the item you are interested in, and press the Return key. You can also enter the line number, and press the Return key.

To display help information on any one of the selections, type the letter h, a space, the line number or letter of the item you are interested in, and press the Return key. A help message displays on the screen.

Configuration Utility:

```
 1. (C) Display Hardware [C]onfiguration and Diagnostic Results.
 2. (S) [S]ave image of current system software.  Available: 9202XT
 3. (R) [R]estore saved image of system software. Available: None
 4. (D) [D]elete saved image of system software.
 5. (T) Show Fac(t)ory Default Network Configuration.
 6. (O) Set [O]perating Mode.                      Current: 9202XT
 7. (N) Set DAS Network [N]ame.                    Current: das1
 8. (A) Set DAS Internet [A]ddress.                Current: 123.123.125.2
 9. (M) Set Network Subnet [M]ask.                 Current: 255.255.255.0
10. (G) Set [G]ateway Internet Address.            Current: 123.123.125.14
11. (F) Set De[f]ault X-server Name.               Current: eldar:0.0
12. (X) Set Default [X]-server Internet Address.   Current: 123.21.1.0
13. (L) Set [L]ANPCL Port Number.                  Current: 10999
14. (P) Set GPIB [P]ort Number.                    Current: 2
15. (E) Save changes and [E]xit to BOOT? prompt.
16. (U) [U]pdate 9202XT Flash ROM and Exit to BOOT? prompt.
17. (Q) Discard changes and [Q]uit to BOOT? prompt.
18. (H) [H]elp.
```

Please make a selection:

Figure B-1. DAS Configuration main menu. Values of previously defined parameters will appear in the menu. Undefined parameters will be blank.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Display Hardware Configuration and Diagnostic Results

The Configuration utility allows you to check the results of the power-on diagnostics for each module installed in the DAS Master mainframe and Expansion mainframe(s). It also lets you view the contents of each slot and the configurations of the modules in the mainframe(s). The configuration and diagnostic information is listed when you select item C in the main menu.

Figure B-2 shows an example of the configuration display listing. The listing looks similar to the Power Up menu of the DAS. For each installed card or module, the diagnostic results are displayed. If a diagnostic failure exists, the resulting error code displays. The diagnostic results are those that were recorded as of the last normal system power-on. A value of No S/W indicates that the corresponding hardware could not be tested because the Optional System Software for that hardware was not installed.

To view the hardware configuration or diagnostic results of any of the Expansion mainframes, press the Return key. Pressing any other key returns you to the main menu.

```
                              CURRENT CONFIGURATION

System Software Release 3 Version 1.40
Previous Shutdown: Normal

Slot                                Card                                Diagnostic
  0     Controller/92LANSE Network Controller                             PASS
  1                                                                       ----
  2                                                                       ----
  3     92C96XD     96 Channels/10 ns Acquisition, 128K Deep              PASS
  4     92C96XD     96 Channels/10 ns Acquisition, 128K Deep              PASS
  5                                                                       ----
  6                                                                       ----
  7     92S32T      36 Channels/20ns Pattern Generation                   PASS
  8                                                                       ----

Press <CR> to see next chassis, or any other key to return to Main Menu
```

Figure B-2. Configuration Utility: Hardware configuration and Diagnostic results.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Save Image of Current System Software

Selecting item S from the main menu lets you save a nonexecutable image of the current system software in a different location on the hard disk. This is useful when you plan to change the operating mode of the system. You can save an image of the system software for the current mode of operation before installing new software. If you later decide to return to the original mode of operation, you can restore the previously saved image from the DAS hard disk. If you plan to switch modes often, you can alternate between saved images rather than reloading software from floppy disks.

You must have an image saved on the hard disk before you attempt to restore an image; if not, the current image will be lost. Once you save an image, you cannot use the image. You have to restore an image before you can use it.

User-created files, such as saved setups, reference memories, and trigger libraries remain in place when you save or restore an image. The files do not become part of the saved image and are not replaced when you restore an image. This means that when you convert a system from one mode of operation to another by saving then restoring or installing new system software, existing user files that were present in the original mode will still be present in the new mode. It is not necessary to save the user files separately when switching modes, (although doing a backup before such a major change is always a good idea). Likewise, saving a system software image does not make a copy of the user files and is not a substitute for a backup.

Be aware that saving an image of the current system software causes the software to be removed. Therefore, you must install new software following a Save operation before returning to normal operation. You can install new software either from floppy disks or by restoring a previously saved image.

Saved images of system software vary in size according to the amount of optional system software and application software installed. The minimum size is approximately 14 Mbytes. If there is insufficient room on the hard disk to save the complete image, the save operation will abort, leaving the current system software intact. Saving an image takes approximately three minutes.

The Available: field at the right end of the save entry in the Main menu shows the type of system software that is currently installed and available for saving, if any. The value None signifies that the DAS system software has not been installed, or has been removed as the result of either a save or operating mode change.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

You will be prompted to verify your actions before the save operation occurs. If the save operation cannot be carried out, you will be returned to the main menu.

Restore Image of Saved System Software

Selecting item R from the main menu lets you restore a previously saved image of system software. This is useful when you plan to change the operating mode of the system. You can save an image of the system software supporting the current mode of operation before installing new software. If you later decide to return to the original mode of operation, all that is necessary is to restore the image from the hard disk. If you will be switching modes often, you can alternate between saved images rather than reload software from the floppy disks.

NOTE

You must have an image saved on the hard disk before you attempt to restore an image; if not, the current image will be lost.

User-created files, such as saved setups, reference memories, and trigger libraries remain in place when you save or restore an image. The files do not become part of the saved image and are not replaced when you restore an image. This means that when you convert a system from one mode of operation to another by saving then restoring or installing new system software, existing user files that were present in the original mode will still be present in the new mode. It is not necessary to save the user files separately when switching modes, (although doing a backup before such a major change is always a good idea). Likewise, saving a system software image does not make a copy of the user files and is not a substitute for a backup.

Be aware that a saved image of system software can only be restored once. After it is restored, the saved image no longer exists. Therefore, if you alternate between different versions of system software, you must resave the current system software before each restore operation. Restoring an image takes about two minutes.

The Available: field at the right of the Restore entry in the Main menu shows the type of system software that is currently saved and available to restore, if any. The value None signifies that there are no saved images present on the hard disk.

You will be prompted to verify your actions before the restore operation occurs. If the restore operation cannot be carried out, you will be returned to the main menu.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Delete Saved Image of System Software

Selecting item D deletes saved images of the system software that you no longer need. The Available: field at the right of the Restore entry in the Main menu shows which saved images are present on the hard disk. Each image occupies approximately 14 Mbytes of hard disk space.

You will be prompted to verify your actions before the delete operation occurs. If the delete operation cannot be carried out, you will be returned to the main menu.

Show Factory Default Network Configuration

Selecting item T lets you see or change the factory default network configuration in a single step. The proper network settings guarantee the proper configuration for stand alone operation when no other network devices are attached to the network cable that connects the DAS and the terminal.

A menu similar to Figure B-3 will be displayed. Items in the Current column are the current settings shown in the main menu. Items listed in the Factory column show the settings that allow the DAS to operate in the stand-alone mode.

If you want to use the default factory settings, enter Yes or Y at the prompt. The utility will load the default settings. If you do not want to use the default settings, enter No or N at the prompt, and you will be returned to the main menu.

```
                Factory Default network configuration:

NETWORK OPTIONS              Current         Factory
---------------              -------         -------
DAS Network Name.            das1            Tek_La
DAS Internet Address.        123.123.125.2   10.0.0.1
Network Subnet Mask.         255.255.255.0   255.0.0.0
Gateway Internet Address.    123.123.123.14  0.0.0.0
X Server Name.               eldar:0.0       DAS_DISPLAY:0.0
X Server Internet Address.   123.21.1.0      10.0.0.2

Do you want to use the Factory settings? Yes/[No]:
```

Figure B-3. Configuration Utility: Factory Default Network configuration.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Set Operating Mode

Select item O to set the operating (start-up) mode for the DAS system or 92XTerm software.

There are three different operating modes for the DAS: 9202XT, 92XTerm Manual, and 92XTerm Automatic. The available operating modes depend on the system software. The 9202XT mode is for use with the color X terminals, while the two 92XTerm modes are for use with work station X server displays.

Table B-1 lists the software versions and the operating modes they support.

Table B-1
System Software vs Operating Modes

Operating Mode	DASXP System Software	DASNT System Software
9202XT	X	X
92XTerm Manual		X
92XTerm Autostart		X

Enter an X for the 9202XT operating mode, an M to select the 92XTerm Manual operating mode, or an A to enter the 92XTerm Autostart operating mode. To retain the current operating mode, press the Return key without entering any characters.

Set DAS Network Name

Selecting item N from the main menu lets you set the system (network) name for your DAS. Some applications refer to network devices by a name. The Internet address and name of the DAS must be entered in the appropriate tables on your host so that the system name of the DAS can be converted to the correct Internet address. The name can be up to eight alphanumeric characters long.

To set or change the name, enter a new name, and press the Return key. To retain the current name, press the Return key without entering any other characters. You will be returned to the main menu.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Set DAS Internet Address

The Internet address is not the same thing as the Ethernet address (set at the factory).

Selecting item A from the main menu lets you set the Internet address for your DAS. The Internet address is the IEEE802 network address for your DAS. This Internet address must be set to an address other than 0.0.0.0 to permit communication between the DAS and other network devices. The Internet address is normally assigned by your system administrator.

Enter the new value in the format XXX.XXX.XXX.XXX (where each XXX represents a decimal number in the range of 0 to 255), and press the Return key. To retain the current address, press the Return key without entering any numbers.

Set Network Subnet Mask

Selecting item M from the main menu lets you set the subnet mask for your DAS. The subnet mask specifies the portion of an Internet address that is common to all node addresses on a particular subnet. The subnet mask determines which other network devices the DAS may address directly and which ones it must access through a gateway. A value of 0.0.0.0 turns off subnet support. The subnet mask is normally assigned by your system administrator.

Enter the new value in the format XXX.XXX.XXX.XXX (where each XXX represents a decimal number in the range of 0 to 255), and press the Return key. To retain the current value, press the Return key without entering any numbers.

Set Gateway Internet Address

Selecting item G from the main menu lets you set the gateway Internet address. This is the IEEE802 gateway address for the local network. The value must be set to an address other than 0.0.0.0 to permit communication between the DAS and other devices not on the same subnet. This number is normally assigned by your system administrator.

Enter the new value in the format XXX.XXX.XXX.XXX (where each XXX represents a decimal number in the range of 0 to 255), and press the Return key. To retain the current value, press the Return key without entering any numbers.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Set Default X Server Name

Selecting item F from the main menu lets you specify the system name of the X server that will display the Tek_La window in the 9202XT or 92XTerm Autostart operating mode. In this mode, the DAS automatically initiates an X window display on the Default X Server when the DAS is powered on. Most X servers have only one display and one screen, so server_name:0.0 is the most common entry.

Enter the new value in the format server_name:d.s, where server_name is the system name of the X server device, d is the single digit number of the display on that device, and s is the single digit number of the screen on that display. The display number is required; however, the screen value will default to .0 if not specified. To retain the current name, press the Return key without entering any numbers.

This name is only for informational purposes, unless the default X server address parameter is set to Use Name. In this case, there must be an entry in the DAS /etc/hosts table that associates this name with an X server address.

If the operating mode is set to something other than 9202XT or 92XTerm Autostart, this parameter has no affect. Your system administrator should provide you with the correct name for your default X server.

Set Default X Server Address

Selecting item X from the main menu lets you specify the default X server address. The default X server address specifies the Internet address of the X server that displays the DAS window in the 9202XT or 92XTerm Autostart operating modes. In this mode, the DAS automatically initiates an X window display on the default X server when the DAS is powered on. If this parameter is set to the special value of Use Name, then the default X server name is used instead of the address. In this case, the default X server name and address must be entered in the DAS /etc/hosts file.

If the operating mode is set to something other than 92XTerm Autostart or 9202XT, this parameter has no affect. Your system administrator should provide you with the correct Internet address for your default X Server.

Enter the new value in the format XXX.XXX.XXX.XXX (where each XXX represents a decimal number in the range of 0 to 255), or enter –1 to select the Use Name option, and press the Return key. To retain the current address, press the Return key without entering any numbers.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Set LANPCL Port Number

Selecting item L from the main menu lets you set the service number assigned to the DAS LAN PCL (LANP) service. This number is used by host software requesting LAN PCL services from the DAS. The legal range of values for this entry is 1025 to 65535. Host software provided by Tektronix assumes that this service is assigned the value 10999. If you specify a different value, you must also change the host-based software.

Enter a new value in the range of 1025 to 65535, or press the Return key without entering an number to retain the current value.

Set GPIB Port Number

Selecting item P from the main menu lets you set the GPIB port address assigned to the DAS when it is used in a GPIB network. Legal values are Off line and addresses 0 through 30. When the value is set to Off line, the DAS is prevented from responding to any GPIB activity. There are no secondary GPIB addresses for the DAS.

Enter a new value in the range of 0 to 30 or –1 for Off Line. Press the Return key to retain the current value.

Update Terminal Flash ROM

If you have a Tektronix X terminal, you can use the Configuration utility to update the terminals internal Flash ROM. Updating the Flash ROM is only necessary when the terminal's software or fonts require updating with a new version. You may also need to update the Flash ROM as a result of any service work done to the terminal. If you desire to update the Flash ROM, you first must set the network configuration parameters for the instrument using the Configuration utility.

NOTE

You do not need to update the Flash ROM in the terminal to change the Internet address. Use the other selections in the Configuration Utility Main menu to update the internet information for the DAS. Update the terminal internet information in the Boot Monitor. Internet addresses and other networking parameters are normally assigned by your system administrator.

After setting the parameters, select item U to begin updating the Flash ROM. You will be asked to confirm your actions before starting the operation. Enter y to confirm your actions.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

A series of messages will be displayed on the screen. When the operation is ready to load the X terminal software, instructions appear on the screen. Follow the instructions as outlined on the screen. The following steps assume that you have an 9202XT terminal; the procedure is similar for other TekXpress X terminals.

Read the entire Flash ROM procedure on the screen before continuing. To redisplay the procedure on the screen, press the Return key.

NOTE

If your X terminal is not a 9202XT or 9203XT Terminal (XP17 or XP18) skip to Step 2.

1. Before starting the Flash Update procedure, information regarding the software compression is displayed. Follow the instructions on the screen to make the appropriate selections for your Flash ROM configuration.
2. Information about Step 1 of the Flash ROM procedure is displayed. Read the information carefully before proceeding.
3. The configuration parameters that you specified for the DAS are displayed on the terminal. Write these parameters down; you need to enter the parameters in the Boot Monitor (the parameters will not be visible after you reset the terminal). Do not continue with the instructions on the terminal screen until you have completed steps 4 through 16 of the following instructions.

NOTE

The boot path information is case sensitive. Be sure to copy the boot path exactly as displayed. The terminal will not boot properly if the boot path is wrong.

4. Reset the terminal by pressing the Control, Alt, and Delete keys simultaneously.
5. When the Boot Monitor appears on the screen, press the space bar to stop the boot process. This prevents the terminal from completing the boot process before the parameters are set.

NOTE

Some NVRAM parameters cannot be set at the Boot Monitor. If you have problems with the Flash procedure, try restoring the terminals factory settings by issuing the NVFACTORY command and then returning to this procedure.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

6. Enter the Internet address for the terminal. For example:

   ```
   IADDR 123.21.1.0
   ```

7. Enter the Internet address for the DAS. For example:

   ```
   IHOST 123.123.125.2
   ```

8. Enter the Network Subnet Mask. For example:

   ```
   IMASK 255.255.255.0
   ```

9. Enter the Gateway Internet address (if required). For example:

   ```
   IGATE 123.123.125.14
   ```

10. Enter the boot path name of the boot file. If you have a 9204XT or a 9205XT terminal, enter:

    ```
    BPATH /XP300/os
    ```

    If you have a 9202XT or 9203XT Terminal, enter:

    ```
    BPATH /XP10/os
    ```

11. Enter the boot method parameter that the X terminal will use after the Flash ROM update is complete by typing:

    ```
    BMETHOD ROM
    ```

12. Save the entries in the terminal's nonvolatile memory by typing:

    ```
    NVSAVE
    ```

13. Enter the BOOT command to use for the Flash ROM update process by typing:

    ```
    BOOT TFTP
    ```

NOTE

Do not continue with the following steps until the terminal has rebooted. The boot process is complete when the Serial window appears (the word "Connected" is displayed in the window).

14. After the Serial window appears, press the Return key. The following messages appear on the screen:

    ```
    Answering NO to this question will return you to STEP 1.

    Terminate the Flash procedure and return to the DAS boot
    prompt? Yes/[No].
    ```


Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

15. Press the Return key until the following text appears:

    ```
    Are you ready to continue to STEP #2?
    ```

16. Enter y in response to the prompt. The text for Step 2 will appear on the screen.

When you start the Flash Update process, the X terminal will write the parameters to the Flash ROM. The process will take approximately 10 minutes. When the terminal boots, the Flash ROM monitor displays the following message: FLASH UPDATE IN PROGRESS. If the message does not appear, the Flash Update process failed. Follow the suggestions displayed on the screen to identify any problems.

17. When you are ready to start the Flash Update process, enter y in response to the prompt on the screen. Verify that the Flash Update In Progress message is displayed.



Disturbing the terminal or the instrument can cause the Flash ROM Update process to fail. Do not move the terminal or the mainframe or press any keys unless instructed to do so. If the screen blanks out or goes dark, you can move the mouse or press one of the Shift keys to reactivate the display without disturbing the update process.

18. If the Flash Operation Completed message is displayed, enter y in response to the next prompt on the screen. The text to Step 3 of the Flash Update procedure is displayed; carefully read this information. Entering n at the prompt returns you to Step 1 of the Flash Update procedure to restart the entire process.
19. Press the Control, Alt, and Delete keys simultaneously to reset (boot) the terminal from the Flash ROM. Verify that the Serial window appears after the boot process is complete.
20. If the Serial window does not appear, restart the Flash Update procedure again from the Configuration Utility Main menu.
21. If the Serial window appears, boot the DAS normally, and verify that the Tek_La window displays on the terminal.

Typing the final command will exit the Configuration utility and you will be returned to the BOOT?> prompt.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Leaving the Utility

There are two ways to leave the Configuration utility: by saving the changes, or by discarding the changes. Either way, you will be returned to the BOOT?> prompt.

Select item E to save any changes and exit to the BOOT?> prompt. This would be the normal way to leave the utility. All changes will be saved and will take affect when the DAS 9200 returns to normal operation.

Select item Q to discard the parameter modifications (except the operating mode changes). Major operating mode changes, such as converting from 9202XT mode to 92XTerm mode or vice versa, will remain in effect. System changes resulting from the save, restore, or delete options will also remain. If you performed the restore operation, you should use the Exit option to save the current parameter values in place of the values that were part of the restored image.

After quitting the Configuration utility, you will return to the BOOT?> prompt, from which you can enter /install to install new software, or reset the DIP switch, restart the DAS, and return to normal operation.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Appendix C: 92XTERM X RESOURCES

This appendix discusses some of the 92XTerm resources that you can customize for your particular application. The following resources are described:

- Adjusting colors in the Tek_La window
- Specifying alternate character sizes (fonts)
- Specify keyboard and mouse scroll rates

ADJUSTING COLORS IN THE TEK_LA WINDOW

The color palette used by the 92XTerm application is specified by a set of X resources shown in Table C-1.

Table C-1
DAS Colors

XDas Resource Name	Default Value
XDas.Color.Black:	black
XDas.Color.White:	white
XDas.Color.Red:	red
XDas.Color.Orange:	orange
XDas.Color.Yellow:	yellow
XDas.Color.Blue:	blue
XDas.Color.Grey:	gray60

There are seven colors used by the DAS. The 92XTerm software allows you to redefine any of the seven colors to any of the colors available on your workstation. Table C–1 shows the XDas resource names and default values used by your 92XTerm software.

The XDas resource name (for example, XDas.Color.Black:) identifies the DAS color being defined. The default values are the names of the default colors assigned to each of the resources by the 92XTerm application.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

The list of acceptable color names that you can substitute for the default values can typically be found in one of the following files:

/usr/lib/X11/rgb.txt on X11 systems

or

/usr/openwin/lib/rgb.txt on OpenWindows systems

Notice that the name for the Grey definition is gray60. You can vary the intensity of the gray to fine-tune gray levels for producing monochrome hard copies. The default value, as shown in the table is gray60, which is slightly more than halfway between gray0 (black) and gray100 (white).

Table C-2 shows lists recommended settings for grayscale operation. You can vary the color settings depending on the monitor and display hardware.

Table C-2
DAS Colors (Grayscale)

XDas Resource Name	Recommended Value
XDas.Color.Black:	black
XDas.Color.White:	white
XDas.Color.Red:	gray60
XDas.Color.Orange:	gray55
XDas.Color.Yellow:	gray90
XDas.Color.Blue:	gray45
XDas.Color.Grey:	gray60

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Table C-3 shows lists recommended settings for monochrome operation.

Table C-3
DAS Colors (Monochrome)

XDas Resource Name	Recommended Value
XDas.Color.Black:	black
XDas.Color.White:	white
XDas.Color.Red:	black
XDas.Color.Orange:	white
XDas.Color.Yellow:	white
XDas.Color.Blue:	black
XDas.Color.Grey:	black

SPECIFYING ALTERNATE CHARACTER SIZES

The character sizes (fonts) used by the 92XTerm application are specified by a set of X resources shown in Table C-4.

Table C-4
92XTerm Fonts

Resource Name	Font Size
Dasfont-16 (default)	8 x 16
Dasfont-12	6 x 12
Dasfont-20	10 x 20
Dasfont-24	12 x 24

The default font size is based on a 8 x 16 pixel font that is the typical size used with most Sun workstations. However, other platforms may require different font sizes to improve readability. Table C-4 shows the names of the fonts and their sizes.

You can specify the font in the XDas file so it is available each time you start the application. For example, to specify the 6 x 12 font, change the XDas.font line to the following:

```
XDas.font: Dasfont-12
```


Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

SPECIFYING KEYBOARD AND MOUSE SCROLL RATES

The automatic repeat rate for scrolling data in the windows is set at a fixed rate in each application. In some cases, the fixed repeat period may be too slow. The 92XTerm software allows you to select the repeat period with an X resource. Two resources define the initial time for the first automatic repeat and the period of successive repeats. The repeat times apply to both mouse and keyboard functions.

The XDas.RepeatWait resource sets the initial wait period, in milliseconds, before the first automatic repeat. The XDas.RepeatPeriod resource sets the repeat period for subsequent repeats. The resolution of both periods is approximately 200 ms. A repeat period of 0 for both resources allows current applications to determine the delays to be used. Setting the period to a small value, such as 1, causes the fastest possible repeat. Application processing, such as display filtering, may also impact the accuracy of the repeat rates.

UPDATING THE XDAS FILE

If you want to adjust the X resources used when you invoke the 92XTerm application, you can edit the resource values in the XDas file contained in the 92XTerm.tar file (see Section 2). The resource values specified in this file will override the 92XTerm defaults if you install the file in the X resource database on your X server. You can do this by merging the edited XDas file into your .Xdefaults file as described in Section 2 of this manual.

You can also copy the edited XDas file to the DAS root directory. This has the effect of changing the default values for the specific DAS. Each DAS in an area can be assigned a different color scheme to make it easier to discriminate between multiple 92XTerm displays on a single workstation.

To copy the edited file to the root directory of the DAS named das1, use the following command:

```
rcp XDas das1:
```

If you prefer your own X resource values for your 92XTerm application, you can override the modified XDas defaults on the DAS by setting the resource values in your X server resource database as described earlier.

Be aware that an error in the resource name of any individual color or other 92XTerm resources in the XDas file (either on the DAS or in the X server resource database) will cause the 92XTerm application to use the internal default setting for that resource value. An invalid value will also cause 92XTerm to use its internal default value and generate an error message on the console terminal.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Appendix D: STARTDAS SCRIPT

This appendix contains a listing of the startdas shell script used to start the DAS application.

```
#!/bin/sh
#*****************************************************************************
#*
#* (C) Copyright 1992 Tektronix, Inc., P.O. Box 4600, Beaverton,
#* Oregon, 97075.  Licensed material - program property of Tektronix.
#* All rights reserved.
#*
#* Description:  This script is used to remotely start the 92XTerm version of
#*         the DAS9200 system software.
#*
#*         The DAS9200 to be used can be specified via the '-das' flag
#*         on the command line, or via the $DAS9200 environment variable.
#*         If both are specified, the command line argument has precedence.
#*
#*         The X_server to be used can be specified via the -display flag
#*         on the command line, or via the $DAS9200_DISPLAY environment
#*         variable. If both are specified, the command line argument has
#*         precedence. If neither are specified, display 0, screen 0 on
#*         the invoking workstation will be used.
#*
#*   example: startdas -das gumby -display eldar:0.0
#*
#*****************************************************************************

#Search command line args for values for "das" and "display"
#Collect all other arguments into "other_args" for passing on to the DAS
while test $# -ne 0
do
    case $1 in
          [hH?]) HELP=TRUE; break ;;
          [hH]elp) HELP=TRUE; break ;;
          HELP) HELP=TRUE; break ;;
          -[hH?]) HELP=TRUE; break ;;
          -[hH]elp) HELP=TRUE; break ;;
          -HELP) HELP=TRUE; break ;;
          -das) das=$2; shift ;;
          -display) display=$2; shift ;;
          -d) display=$2; shift ;;
          *) other_args="$other_args $1" ;;
    esac
    shift
done
```


Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

```
#If das wasn't specified on command line, use $DAS9200
if test "$das" = ""
then
    das=$DAS9200
fi

#If user asked for Help or didn't specify which DAS9200 to use, show
#usage and example.
if test "$das" = "" -o "$HELP" = "TRUE"
then
    echo "usage:   $0 [Help] [-das DAS9200_name] [-display
server:display.screen]"
    echo "example: $0 -das eldar -display reptile:0.0"
    exit 1
fi
#If the specified DAS is not accessible, give error message and exit.
xtest='rsh $das ls /92XTerm 2>&1'
if test $? != 0
then
    echo $das is not responding.
    exit 1
fi

#If the specified DAS is not configured for 92XTerm operation, give error
#message and exit.
case $xtest in
    /92XTerm) break
          ;;
    *)    echo $das is not configured for 92XTerm operation.
          exit 1
          ;;
esac

#If display wasn't specified on command line, use $DAS9200_DISPLAY
if test "$display" = ""
then
    display=$DAS9200_DISPLAY
fi

#If display is still unknown, use this host, display 0, screen 0
if test "$display" = ""
then
    display='hostname':0.0

    #Tell DAS that it's ok for it to use this X server for display. This
    #is only applicable if user has access control turned on, but does no
    #harm if not.
    xhost +$das
fi

#Start the specified das and direct the output to the specified display
#Pass along any other command line arguments for interpretation on the DAS
rsh $das xinit -display $display -user 'whoami' $other_args
```


Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

INDEX

Symbols

$DAS9200, 2-14

$DISPLAY, 2-14

Numbers

92XTerm Autostart mode, starting, 2-15

92XTERM host files, 2-11

92XTerm Manual mode, starting, 2-16–2-18

92XTERM software, starting, 2-15

B

base system software, 2-4, 2-8

baud rate
- DAS, terminal port, 2-2
- RS-232 terminal, 2-2

C

color definitions, errors, C-4

color terminal, 1-1

colors
- default, C-1
- gray shading, C-2
- monochrome, C-3

Configuration utility, 2-3
- DAS network name, B-7
- gateway address, B-8
- GPIB port number, B-10
- help information, B-2
- internet address, B-8
- LAN PCL port number, B-10
- operating mode, B-7
- restoring saved system software, B-5
- saving current system software, B-4
- setting start-up modes, 2-5
- start-up mode, B-7
- subnet mask, B-8
- switchable system software, 2-5
- X server address, B-9
- X server name, B-9

current system software, B-4

D

DAS
- base system software, 2-4
- fonts file, 2-12
- hardware configuration, 2-1
- hosts file, updating, 2-12
- initial power on, 2-2
- network name, B-7
- software installation, 2-3–2-6
- system name. *See* DAS 9200 network name
- system requirements, 1-1
- system software version, 1-1
- terminal port baud rate, 2-2

DAS directories, Temp_Bin, 2-8

DAS Environment variable
- $DAS9200, 2-14
- $DISPLAY, 2-14

default X server address, B-9

default X server name, B-9

display colors, definitions, C-1

E

error messages, at start-up, A-5

errors
- color definitions, C-4
- X resources, C-4

F

file system Install utility. *See* Install utility

file system Make utility. *See* Make utility

file transfers, 2-9
- ftp, 2-10
- rcp, 2-9

floppy disks
- Install disk, 2-5
- Operating System disks, 2-8

fonts
- DAS, 2-12
- DASFonts directory, 2-13
- default, C-3
- installing on the workstation, 2-13

ftp
- examples of, 2-10
- troubleshooting, A-3–A-4

G

gateway address, B-8

GPIB port number, B-10

gray shading, C-2

H

hardware configuration, 2-1

hosts file
- on the DAS, 2-12
- on the server, 2-6

I

Install utility, 2-4

internet address, B-8

L

LAN PCL port number, B-10

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

M

Make utility, A-3

manual page, 2-13

monochrome color settings, C-3

O

operating mode
  9202XT mode, B-7
  92XTerm Autostart mode, B-7
  92XTerm Manual mode, B-7

P

PCL port number, B-10

power-on diagnostics, A-2

power-on diagnostics, 2-3

R

rcp (remote copy command)
  examples of, 2-9
  troubleshooting, A-3–A-4

restoring system software, B-5

RS-232 Terminal, connecting to the DAS 9200, 2-1

S

saving current system software, B-4

server
  default server, 2-6
  hosts file, 2-6

software installation problems, A-3–A-5

start-up command script, 2-13
  directory, 2-13

start-up error messages, A-5

start-up modes
  9201T mode, 2-6
  9202XT mode, 2-6
  92XTerm Autostart mode, 2-6
  92XTerm Manual mode, 2-6

startdas command script, 2-16

subnet mask, B-8

system requirements, DAS, 1-1

T

tar file, extracting files, 2-11

Tek_La window, 2-6
  starting in 92XTerm Autostart mode, 2-15
  starting in 92XTerm Manual mode, 2-16

Tel_La window, 2-3

terminal, color, 1-1

troubleshooting
  checksum errors, A-5
  ftp, rcp problems, A-3
  host permissions, A-4
  software installation problems, A-3–A-5
  system administration problems, A-8
  tar command, A-5

U

utility
  Install, 2-4
  Make, A-3

W

window, Tek_La, 2-3, 2-6

X

X server
  See also server
  address, B-9
  compatibility, 1-2
  name, B-9

XDas file, 2-14
  colors, C-1–C-3
  fonts, C-3–C-5
  repeat period, C-4–C-6
  repeat rate, C-4–C-6

XDas resources, C-1–C-4

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP