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User Guide

REAL/VU[®] Graphical Environment

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MODCOMP



User Guide

REAL/VU[®] Graphical Environment

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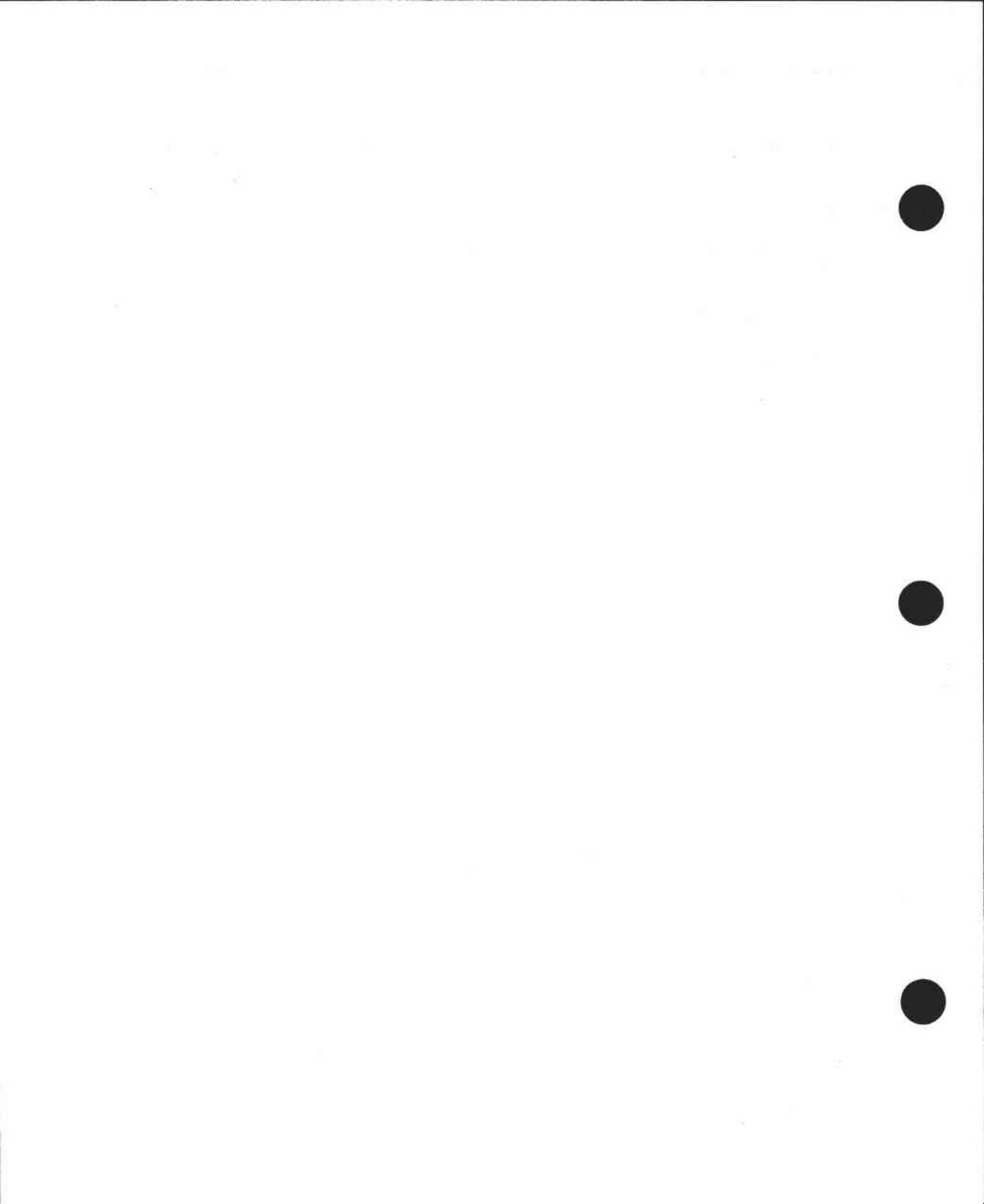
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Manual History

216-860001

REAL/VU Graphical Environment, User Guide

Revisions are listed in reverse chronological order. Detailed summaries are provided for the five most recent revisions.

Revision 000 (Initial Issue) 01/92

Initial issue to document new product.



About This Manual

The REAL/VU Graphical Environment is a comprehensive software product that provides an industry-standard, network-based windowing system, graphical user interface, and graphics development environment. The REAL/VU Graphical Environment is an add-on software product to the REAL/IX Operating System for use on MODCOMP open architecture computer systems.

This manual covers hardware setup, software installation and configuration, terminal setup, starting and exiting a REAL/VU session, and customization. It is written for system administrators, programmers, and installation personnel.

The term "open architecture system", in its simplest form, implies that a user may add a variety of vendors' components to a single system. This is possible when certain industry-accepted standards have been implemented in the system. MODCOMP open architecture systems are based on such software and hardware standards as the UNIX System V operating system, VMEbus and SCSI bus interfaces, and CPUs built around standard microprocessors. By building on these standards, open architecture systems provide computer solutions that are portable and compatible.

The REAL/IX Operating System¹, which runs on all MODCOMP open architecture system hardware platforms, allows applications to be ported easily between traditional UNIX systems and MODCOMP open architecture systems. Furthermore, by using VMEbus and SCSI bus interfaces, MODCOMP open architecture systems ensure compatibility among a wide range of peripheral and I/O devices and the ability to expand as needs dictate. MODCOMP open architecture systems meet networking and communications needs with such industry standards as Ethernet and TCP/IP and have the flexibility to accommodate new standards as they are developed.

The rest of this section lists sources of related information and defines the typographical conventions and special symbols used in this manual.

¹The REAL/IX Operating System, featuring realtime and multiprocessing capabilities, is the MODCOMP implementation of the UNIX System Laboratories UNIX System V operating system.

Related Publications

Refer to the following manuals for additional information. Contact your MODCOMP Sales Representative to order.

REAL/IX Operating System, Software Set Up Guide

Gives instructions for installing the operating system (either for the first time or as an upgrade) and doing the initial set up of the system.

REAL/IX Operating System, System Administrator's Guide

Gives instructions and background information about administering the REAL/IX Operating System.

Volume One: Xlib Programming Manual

Explains how to program for the Xlib C language interface.

Volume Two: Xlib Reference Manual

Describes in detail the functions of the Xlib C language interface.

Volume Three: X Window System User's Guide

Explains how to use the X Window System and describes the standard clients.

Volume Four: X Toolkit Intrinsic Programming Manual

Explains how to program for the Xt Intrinsic library.

Volume Five: X Toolkit Intrinsic Reference Manual

Describes in detail the functions of the Xt Intrinsic library.

OSF/Motif Programmer's Guide

Explains how to program for the OSF/Motif user interface libraries.

OSF/Motif Programmer's Reference

Describes in detail the functions of the OSF/Motif user interface libraries.

OSF/Motif User's Guide



Explains how to use the OSF/Motif user interface.

OSF/Motif Style Guide

Describes a consistent set of behavior guidelines for all OSF/Motif application programmers.

Documentation Conventions

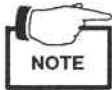
Following are the documentation conventions used in this manual.

Convention	Usage
bold	commands, routines, system call names, file names, literal text in examples Examples: sysadm(1M) , select * from emp, etc/passwd (a number in parentheses [as in sysadm(1M)] denotes the reference section where the related item can be found in the <i>REAL/IX Command and Utilities Reference Manual</i>)
<i><italics></i>	user-supplied variables, variable text in examples Examples: <i><install_directory></i> , <i>usetup oracle <user_id></i>
monospace	system output Examples: Enter employee name, 1 record created
[MONOSPACE]	function name keys Example: [SELECT] refers to the "Select" key
	means to press the key indicated. In this example it is the RETURN key.
 WARNING!	highlights information that, if not observed, could cause bodily injury. Specific warnings are listed in the index.

Convention**Usage**



highlights information that, if not observed, could cause the system or a procedure or practice to fail or could damage existing data on the system. Specific cautions are listed in the index.



highlights relevant information that does not require a warning or caution



identifies material that is indirectly related to the subject matter being discussed. For instance, a procedure may specify one way of doing a task, and the HINT explains why it is done this way or suggests alternative ways to accomplish the same task.

Chapter 1

Introduction

This chapter describes the audience, required product knowledge, the REAL/VU® Graphical Environment product, components, and system requirements.

Audience and Required Knowledge

This manual is written for system administrators, programmers, and installation personnel. Installation personnel should be familiar with `sysadm installpkg` and the REAL/IX® Operating System; programmers should be familiar with X Window System™ and the OSF/Motif™ Graphical User Interface.

Product Overview

The REAL/VU Graphical Environment software is a comprehensive product that provides an industry-standard, network-based windowing system, graphical user interface, and a graphics development environment. It runs under the REAL/IX Operating System on MODCOMP® open architecture systems. Features of the REAL/VU Graphical Environment include:

- REAL/VU Network Display Terminals support
- X Window System support (version 11, release 4)
- Implementation of the OSF/Motif Graphical User Interface standard for application development
- Tools for developing menus, icons, graphical displays, and graphics-based applications, and defining screen graphics
- XRremote protocol for graphic interface support across a serial connection

Components

The REAL/VU Graphical Environment product consists of:

□ Three REAL/VU software modules:

▪ User

This software consists of the standard client programs and associated online manual pages and support files.

There are a number of sample user configuration files in the directory `/usr/lib/X11/userfiles` you can use as templates for customization. See the *README* file in this directory for a description of these files.

▪ Development

This software includes the X Window System and Motif libraries, header files, and library manual pages.

▪ Network Display Terminal Fonts

This software contains the fonts used by the REAL/VU Network Display Terminals. These fonts may also work with other X terminals; see the manual provided with your terminal for more information.



The fonts are contained in the directory `/usr/lib/X11/ncd/fonts`, not `/usr/lib/X11/fonts` as indicated in the vendor manuals. This directory, `/usr/lib/X11/ncd/fonts`, is the default directory accessed by the REAL/VU Network Display Terminals.

□ Unsupported applications

A tape of unsupported clients is provided as a courtesy; using them does not affect operation of the REAL/VU Graphical Environment. For more information see the file `/usr/nosupport/bin/X11/README` and Appendix B.

□ Source code for useful or entertaining programs including Motif demonstration programs

- Vendor manuals for X Windows and OSF/Motif products

Requirements

The REAL/VU Graphical Environment product requires the following:

- A MODCOMP open architecture system with:
 - At least one Intelligent Ethernet controller card (VLAN-E2) to support either Thicknet or ThinNet connections
 - At least one MODCOMP REAL/VU Network Display Terminal (models 4625, 4626, 4627, or an equivalent X terminal) with Ethernet connectors
 - A minimum of 25 megabytes of disk space for the software
- REAL/IX Operating System (Release C.0 or later) with the appropriate VLAN-E2 card and Internet protocols installed and configured



Chapter 2 Hardware Setup

This chapter describes hardware configurations and connections for the REAL/VU Network Display Terminal and the MODCOMP open architecture system.

Components

Table 2-1 provides descriptions of connections shown in figures in the following section.

Table 2-1. Components

Item	Description
1	Standard Ethernet transceiver cable
2	Thin Wire BNC transceiver
2A	Two-port direct connect transceiver, with non-intrusive tap
2C	Two-port direct connect transceiver, with intrusive N-Series tap
2D	Ethernet transceiver, with intrusive N-Series tap
2E	Multiport transceiver (8 ports)
3	ThinNet resistor terminator (50 ohms)
4	ThinNet coaxial cable, RG58 (20 feet)
5	ThinNet BNC T connector
6	RS232C console cable
8	Thick (IEEE 802.3) Ethernet cable

Configurations

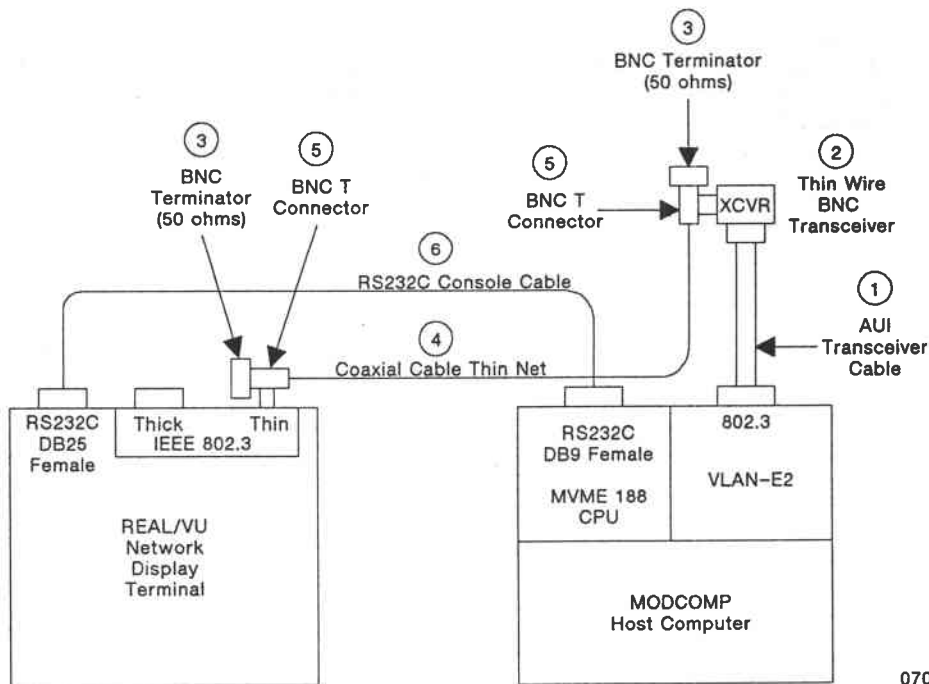
All configurations shown in this section (except the first) are *direct connection* configurations. That is, the REAL/VU Network Display Terminal (or the X terminal) is connected directly to the MODCOMP open architecture system (host computer) using an external transceiver and standard AUI transceiver cables. All configurations show an optional RS232C console cable connection for system console emulation.



REAL/VU Network Display Terminals are PROM-based units that can be used as system consoles. If you are using an X terminal other than a REAL/VU Network Display Terminal, make sure it can function as a system console over a serial interface.

No Existing Network

Figure 2-1 illustrates connections when you do not have to tap into an existing Ethernet/IEEE 802.3 network. This configuration is the simplest and least expensive solution as a direct link (4) can be made between the host computer and the REALVU Network Display Terminal or X terminal using a ThinNet coaxial cable.

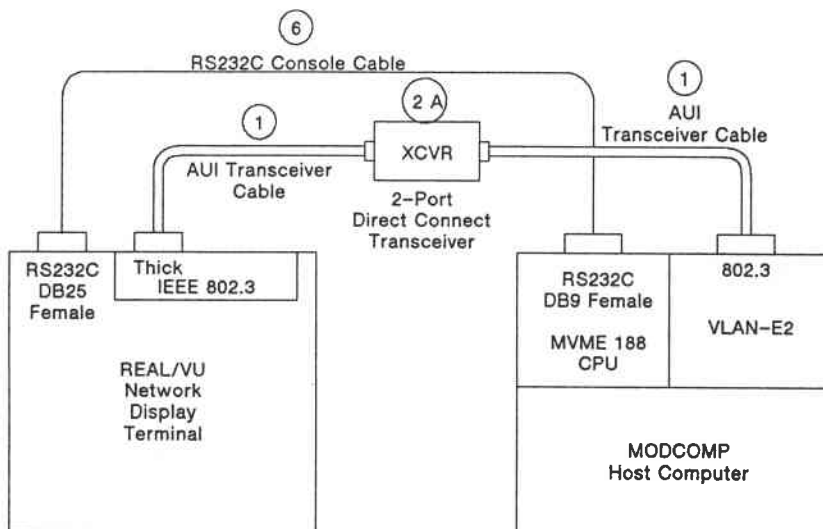


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Figure 2-1 No Existing Network

No Tap

Figure 2-2 illustrates a direct connection using a two-port external transceiver (2A) with no tap connection into the Ethernet network.



07021

Figure 2-2 No Tap