

# HP DTC Datacommunications and Terminal Controller Family

## Technical Data

**Product Numbers**  
**HP J2060A, J2062A, J2063A,**  
**J2085A, J2070A, J2076A,**  
**J2077A, J2079A, J2080A,**  
**J2120A, D2355A, J2123A**

### Introduction

The DTC solution consists of a family of LAN-based Communication and Terminal Servers as well as a scalable family of network management products.

It is HP's solution for providing asynchronous connectivity to HP and non-HP systems for local and remote devices (terminals or PCs in terminal emulation mode, printers, modems).

It delivers location-independent end-user access to single or multiple HP 3000/900, HP 9000, and any system running the standard Telnet-TCP/IP protocol over several options of LANs and over X.25 networks using PAD services.

The routable implementation of CP/IP within the DTC provides the access through IP routers in extended LAN environments.

Systems are primarily accessed directly via system LAN links or secondarily through system asynchronous ports via the extended switching configuration (back-to-back) for systems that do not implement the Telnet-TCP/IP or HP 3000/900 protocols.

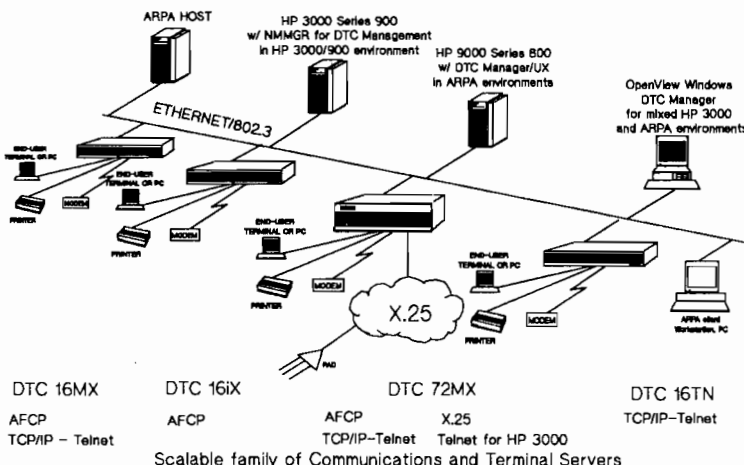
The DTC also supports Telnet-TCP/IP Access and X.25 system-to-system networking for the HP 3000/900 systems.

### Key Features

- Scalable family of terminal servers and network management services.
- Support of standard Telnet-TCP/IP and high performance protocols for demanding OLTP applications on HP 3000/900 and HP 9000 systems.
- Designed for ease of use, and simple system and network integration.
- Location independent access.
- Compatible API with HP 9000 system asynchronous multiplexers.

### HP DTC Family

Scalable network Management Solution



- Managed under HP OpenView Windows environment, or from an HP system (HP 3000/900 or HP 9000/800).
- Supports Telnet Access for HP 3000/900 systems.
- Supports X.25 communications for HP 3000/900 systems.
- Supports remote X.25 PAD access to HP 3000/900 systems and other systems running Telnet-TCP/IP.
- Supports an SNMP agent.
- Provides comprehensive support tools for increased supportability and uptime.

### Content

This data sheet, provides an overview of the DTC products and management capabilities, and serves as a selection guide for the DTC products. It also includes the support and cabling information for the DTC products.

For more information on individual DTC products and on the services supported on each platform, refer to the individual product data sheets:

DTC 16TN:	HP J2060A
DTC 72MX:	HP J2070A
DTC 16iX:	HP J2062A
DTC 16MX:	HP J2063A
DTC16:	HP 2340A
DTC48:	HP 2345A
DTC Management:	HP D2355A
	HP J2120A
X.25 iX Network Link:	HP J2079A
HP 3000 Telnet Access:	HP J2080A

(also included in the Networking Communications Specification Guide).

Also refer to the DTC documentation table at the end of this data sheet.

## The DTC Server Family

### The DTC 16TN: J2060A

The DTC 16TN is a high-performance Telnet Terminal Server for HP 9000 systems and any system running the standard Telnet-TCP/IP protocols. It provides 16 RS-232 or RS-423 asynchronous ports in a "plug and play" pre-configured package. With an industry-standard width of 19-inches, it can easily be installed on a tabletop, be wall-mounted or rack-mounted.

### The DTC 72MX: J2070A

The DTC 72MX is a modular high-performance communication server for HP 3000/900 systems and for multivendor environments including HP 3000/900, HP 9000/800, and any system running the Telnet-TCP/IP protocol.

In the 3 available slots of the industry-standard 19-inch chassis, the DTC 72MX can support a combination of 24-port RS-232 or RS-423 Asynchronous Processor Boards (up to 3), X.25 boards (up to 3) and one Telnet Access Card.

### The DTC 16iX: J2062A

The DTC 16iX is used exclusively in HP 3000/900 standalone environments.

It is a LAN-attached multiplexer-like product and provides 16 RS-232 or RS-423 asynchronous ports in a "plug and play", pre-configured package.

With an industry-standard width of 19-inches, it can easily be installed on a tabletop, be wall-mounted or rack-mounted.

### The DTC 16MX: J2063A

The DTC 16MX is a modular high-performance communication server for HP 3000/900 systems and for multivendor environments including HP 3000/900, HP 9000/800, and any system running the Telnet-TCP/IP protocol. It provides 16 RS-232 or RS-423 asynchronous ports in a "plug and play" pre-configured package. With an industry-standard width of 19-inches, it can easily be installed on a tabletop, be wall-mounted or rack-mounted.

### The DTC16: 2340A

The DTC16 is a communication server for HP 3000/900 systems and for multivendor environments including HP 3000/900 systems, HP 9000/800, plus other systems running the Telnet-TCP/IP protocol. It supports up to 16 RS-232 asynchronous connections plus an optional X.25 link.

---

## The DTC management Software

The DTC products are configured and managed with the use of a DTC Manager application that can run on three different platforms: HP 3000/900, HP 9000/800, or PC OpenView Windows.

- With the DTC host-based management, a simple terminal connected locally or remotely to the HP 3000/900 or HP 9000/800 system is used to manage DTCs. It provides a user interface similar to other system administration tools.
  - The HP 3000/900-based DTC management software provides a means to configure DTCs for use in HP 3000/900 standalone environments. The HP 9000/800-based DTC management software provides a means to configure DTCs in HP 9000 standalone or multisystem Telnet-TCP/IP environments.
- The HP OpenView (PC-based) DTC Manager software provides an easy-to-use graphical user interface, to manage DTCs. It is possible to integrate other management applications of network elements (such as HP X.25 Switches and PADs) on the same OpenView Windows workstation. HP OpenView DTC Manager provides a means to configure DTCs for use to connect to HP 3000/900 or HP 9000/800 systems and to other systems in multivendor environments. It provides powerful network management

features for complex network topologies.

In both host-based and PC-based environments, the DTC software is downloaded from the management platform, allowing easy distribution and control of the DTC software.

### DTC SNMP agent

Besides the services provided by the DTC management platforms, the DTC-based SNMP agent allows customers to take advantage of SNMP-based management applications such as the HP OpenView Network Node Manager (UX based) or the HP OpenView Interconnect Manager/Windows (PC based).

The following features are available with Node Manager:

- Automatic discovery of DTCs.
- Status/Colors management. The DTCs are automatically polled on a regular basis and the status color is reflected on the map.
- MIB loader/browser. It provides display of MIB values in text or graphical form and the capability to modify them if permitted by the DTC
- MIB application builder. It enables users to build applications dealing with DTC MIB objects
- Historical data reporting for troubleshooting and network planning.

The DTC SNMP agent is supported on all DTC hardware and configurable from all the DTC management platforms.

## DTC Family Highlights

### High Performance

Built upon a powerful architecture, the DTC products deliver a high throughput to the end-users. In addition, the DTCs support high performance protocols for demanding commercial applications:

- an optimized High performance protocol (AFCP) for OLTP applications running on the HP 3000/900 system,

### Ease of use

- The DTCs are designed to be quickly and easily installed either in standard 19-inch cabinets or on table-top, or wall-mounted. The DTC 16TN, for example, is customer installable.
- For standard connectivity and low-cost cabling, the DTC 16TN, DTC 16iX, DTC 16MX, and DTC 72MX have RJ-45 connectors.
- The DTC ease-of-use features include:
  - Auto-sensing LAN attachment
  - Automatic default configuration
  - Auto-range power supply
  - Automatic Self-tests
  - Automatic connection establishment to a predefined host, configurable per DTC port
  - Diagnostic tools
  - Self-explanatory DTC user interface

---

### Location-independent access

The DTC family provides location-independent access for end-users.

This means that most of the services provided to local users connected on a DTC port are also available to remote users accessing the DTC16 or DTC 72MX via the X.25 network.

### Application interface compatible with HP 9000 system multiplexers

The DTC products use standard systems calls to access and control the DTC ports. This presents HP-UX applications with a programmatic interface that is almost identical to the interface to asynchronous systems MUX ports, thus allowing an easy migration from MUX to network environment.

This includes:

- DTC port identification
- Host initiated sessions (printing, programmatic access) to DTC ports via standard device files

### Family Connectivity

#### Asynchronous connectivity

- RS-232 Direct or Modem ports
- RS-423 Direct for long distance cabling
- Line speed up to 38.4kb/s with speed and parity sensing
- DB-25 and RJ-45 female connections
- Xon/Xoff and hardware flow-control on direct ports, and full modem control (CCITT V.24) on modem ports.
- Multisession per port (up to 5)
- Device/printer sharing between multiple HP systems with a queuing mechanism.

#### LAN Connectivity

- ThinLAN, standard 802.3 AUI 15-pin for use with ThickLAN, EtherTwist, 10BaseT, fiber-optic.
- 802.3/Ethernet
- Broadband, FDDI connectivity through external adapters
- Telnet-TCP/IP protocols
- High performance Telnet/OLTP protocol
- Symbolic addressing (DNS and HP-NS)
- IP addressing
- High performance protocol (AFCP) for HP 3000/900 systems.

### X.25 connectivity

- X.25 CCITT-84
- PAD support (incoming calls) to access HP 3000/900, HP 9000, and systems running Telnet-TCP/IP
- Selectable PAD support profiles
- Closed User Group X.25 facility
- Access authorization features
- X.25/PAD support auto-restart on powerfail
- Outgoing X.25 calls via an external PAD (HP 2335A) connected to DTC port(s)
- Remote printer support

### Telnet access to HP 3000/900

The Telnet/iX product based on the optional HP 3000 Telnet Access Card of the DTC 72MX or DTC48, provides end-users on Terminal Servers, PCs, workstations, and systems running Telnet-TCP/IP with access to HP 3000/900 applications.

Based on a protocol conversion between Telnet-TCP/IP and the optimized HP 3000/900 protocol, the Telnet/iX implementation is routable and allows sharing of one Telnet Access Card between multiple HP 3000/900 systems on the same LAN.

- Supported applications:
  - VPlus applications with HP 2392 compatible terminal or terminal emulation,
  - User block mode,
  - Line mode,
  - Character mode.
- Specific features:
  - Binary mode,
  - Simple type ahead.

## Management services

A broad set of management services are available to increase productivity, network uptime and security. They are all available under the HP OpenView (PC-based) DTC manager application, with a subset being provided under Host-based management. Refer to the DTC Management data sheet for details.

The services available include:

- *Configuration management*
- Automatic default configuration
- Copy and Paste function to duplicate configurations
- Dynamic reconfiguration of ports
- DTC download from the management server allowing

centralized software updates

### *Fault management*

- Reset of DTC, boards, port
- Status monitoring
- Event monitoring and logging
- Automatic Alarm reporting

### *Security management*

- Password access to the DTC manager
- Operator security levels
- Enable/Disable switching and multisection on a per DTC port basis
- Pre-defined default host access
- Configurable access for PAD users

## DTC Management platform selection

An "X" in the table indicates that the DTC Management platform can be chosen for the environment listed.

	HP 3000 HP 9000 (in the FOS)	HP 9000 Series 800 J2120A	HP OpenView (PC based) 32054D #201 D2355A
<b>Need access to system(s)</b>			
Single HP 3000/900	X	—	X
Single HP 9000/800	—	X	X
Systems without LAN or Telnet-TCP/IP (back-to-back)	—	—	X
Multiple HP 3000/900 from one DTC	—	—	X
Multiple systems running Telnet-TCP/IP Includes HP 9000 systems (S800, 300, 400, 700) HP 1000 and non-HP systems	—	X	X
Multiple systems Includes HP 3000/900, HP systems (800, 300, 400, 700, HP 1000) and non-HP systems (running Telnet-TCP/IP)	—	X	X
X.25 for HP 3000/900 (PAD Support and system-to-system)	X*	—	X
X.25 PAD Support to multiple systems (HP or non HP running Telnet-TCP/IP)	—	—	X

\* Single system only. For specific management features, refer to the DTC Management data sheet.

## Documentation

Refer to the following documentation for more information on the DTC:

**To plan DTC usage**  
*D2355-95017* The DTC planning guide

**To install**  
*02340-90001* DTC16 Installation Guide  
*02345-90001* DTC48 Installation Guide  
*5959-4986* DTC 16TN Installation Guide  
*52070-90001* DTC 72MX Installation Guide  
*D2355-90013* DTC Manager Software

**To use**  
*D2355-90001* Using HP OpenView DTC Manager  
*J2120-6200* Using the DTC Manager/UX  
*32022-61005* Using the Node Management Services (HP 3000)  
*32022-9004* Configuring Systems for terminals, Printers and other serial devices  
*B1014-90012* DTC device File Access utilities reference manual  
*D2355-95019* The DTC Technical Reference Guide

## Selecting the DTC for each system environment

The following table shows the possible choices among the different DTC products depending on the system access required or on some specific features.

Select the DTC product and the DTC management platform that support your system environment and any given functionality.

When several DTCs can be used for a particular environment the following factors can be considered in choosing the different products:

- the DTC 16TN is the primary choice for distributed connectivity in HP 9000 and Telnet-TCP/IP environments.
- the DTC 72MX is the high-end of the DTC family supporting high port count concentrations in mixed HP 3000/900 and HP 9000 environments. It is the right choice when X.25 or HP 3000 Telnet Access is required.
- the DTC 16MX is the primary choice of the DTC family in a mixed HP 3000/900, HP 9000 and Telnet - TCP/IP environment
- the DTC 16iX is the solution for low-end HP 3000/900 in single system environments

### DTC Product Selection

An "X" in the table indicates that the DTC product can be chosen for the environment listed.

	DTC 16TN J2060A	DTC 72MX J2070A	DTC 16MX J2063A	DTC 16iX J2062A
<b>Need access to system(s)</b>				
Single HP 3000/900	—	X	X	X
Single HP 9000/800	X	X	X	—
Systems without LAN or Telnet-TCP/IP (back-to-back)	X	X	X	—
Multiple HP 3000/900 from one DTC	—	X	X	—
Multiple systems running Telnet-TCP/IP Includes HP 9000 systems (/800, /300, /400, /700) HP 1000 and non-HP systems	X *	X	X—	X
Multiple systems Includes HP 3000/900, HP systems (800, 300, 400, 700, HP 1000) and non-HP systems (running Telnet-TCP/IP)	X *	X	X	—
X.25 for HP 3000/900 (PAD_Support and system-to-system)	—	X	—	—
X.25 PAD_Support to multiple systems (HP or non HP running Telnet-TCP/IP)	—	X	—	—
<b>Specific capabilities</b>				
Max line speed	38.4 kb/s	38.4 kb/s	38.4 kb/s	38.4 kb/s
RJ-45 connectors (direct connect only)	X	X	X	X
Hardware handshake on direct ports	X	X	X	X
Long distance cabling	RS-423	RS-423	RS-423	RS-423
Full modem support	X	X	X	X
X.25 board: # virtual circuits	—	256 VC/board	—	—
maximum line speed		19.2/64 kb/s	—	—
Binary mode transfer over asynchronous ports	X	X	X	—
Telnet Access for HP 3000/900	—	X	—	—
SNMP agent	X	X	X	X

\* Requires the HP 3000 Telnet Access Card in one DTC 48 or DTC 72 MX for the HP 3000/900 access

\*\*DTC48 with date code less than 3110 requires a DTC upgrade kit (2348A) to be supported from an HP 9000/800 system or to benefit from advanced features of DTC releases after 6.0 of OpenView DTC manager

---

## Support Policy and Installation Responsibilities

### DTC products

The J2060A (DTC 16TN) is customer installable, however HP can install it at HP time-and-materials rates.

Hewlett-Packard will install the HP 2340A (DTC16), J2070A (DTC 72MX), J2063A (DTC 16MX), J2063A (DTC 16iX), and any add-on boards.

Hewlett-Packard will verify the DTC operation by running the selftest, configuring any add on board to the minimum default configuration necessary to verify software and hardware functionality and verifying that the DTC can be used to establish a system connection. Before HP installs the DTC the customer should install all cabling leading to the DTC.

The customer should install all the necessary system software, configure it and run it prior to the DTC installation.

### HP 3000/900 DTC Management

Host-based DTC management on HP 3000/900 systems is part of the fundamental operating system, and is installed and supported as such.

### HP DTC Manager/UX

HP DTC Manager/UX (J2120A) is customer installable. It is the customers responsibility to install updates to J2120A. The HP DTC Manager/UX runs on HP 9000/800 computer systems with HP-UX Release 8.0 or later.

### HP D2355A OpenView DTC Manager

HP D2355A and product updates are customer installable. It is also the customers responsibility to install the HP OpenView Windows Workstation (HP 32054D) or equivalent (see below). HP can perform these services at HP time-and-materials rates.

The following PCs are supported for HP OpenView DTC Manager installations: any HP Vectra 286,386,486; IBM PS/2 model 55 and model 50; COMPAQ DeskPro 386/20.

## Support Services

### DTC managed by the HP OpenView DTC Manager

HP offers a number of support services. With the purchase of these support services, customers are entitled to free updates of HP OpenView DTC Manager software and therefore automatic updating of the code for their entire DTC installed base (PC based management). In addition to support for the HP OpenView DTC Manager itself, each support service is also valid for any amount of terminal switching or X.25 or Telnet iX access in up to 150 DTCs managed by the HP OpenView DTC Manager.

The recommended support services for the HP OpenView DTC Manager are:

**H5355A + 000** hardware support, network support, software assistance, software licence update.

**H5356A + 000** hardware support, network support, software assistance, consulting services, software licence update.

**H2026A + L00 #0JT**

HP BasicLine Vectra

**H2027A + S00 #0JT**

HP Software Materials Vectra

Order H2027A + S00 #0JT (specifying D2355A and any amount of other PC applications eg, AdvanceLink for Windows, etc) plus one of the other three services for the level of support you require. We recommend you buy either ResponseLine or TeamLine.

*Note:* ResponseLine and TeamLine services require a remote support modem

### Remote Support

Remote support of the HP OpenView DTC Manager is provided over Modem lines, X.25 PADs or IP networks. The following devices have been tested :

- HP 2335A
- HP 92205A/B
- Hayes Smartmodem - (1200/2400)
- Multitech 224
- Siemens 2425B DX

### DTC managed by the HP DTC Manager/UX

The HP DTC Manager/UX is supported under the HP 9000 support services.

---

## Supported Configurations

### HP 3000/900 Systems Access

The DTC is supported on the currently supported versions of MPE/iX (starting with 4.0 Release -plus software kit for the DTC 72MX).

### HP 3000/900 Systems Telnet iX Access

Telnet/iX access are supported from HP 9000 System, HP 1000 with RTE and ARPA services.

Also the following non HP systems have been tested:

- DEC VAX (VMS 5.4 and WIN/VMS 5.1)
- SUN SparcServer OS 4.1
- IBM OS2 with TCP and Reflection 1
- APPLE with MACTCP 1.01

Refer to the HP 3000 Computer System Configuration Guide for more information.

### HP 9000 System and ARPA System Access

The DTC supports all HP applications and asynchronous devices supported by the Telnet link on the HP 9000 system. The access through DTC is supported on HP-UX 7.0 and later.

Refer to the HP 9000/800 Systems and Workstations Configuration Guide for detailed information. The DTC conforms to the multivendor standards protocols and has been tested with the following ARPA computers.

- DEC VAX (VMS 5.4 and WIN/VMS 5.1)
- SUN SparcServer OS 4.1
- HP 1000 with ARPA and RTE-A 5.2 or later
- HP 9000/1500 with UXTI 3.3.1

HP also offers a comprehensive program of testing of non HP systems, please contact your local HP representative.

### Extended switching (back to back configuration)

The DTC has been tested and is supported with the following HP and non HP systems:

- HP 3000 MPE V System with:
  - HP ATP (Pass 3, 5, or 6) or ATP/M
  - MPE V, release V-delta-7 or later
  - HP 9000 Series 800 system with a Channel I/O asynchronous multiplexer
- DEC VAX system with:
  - DMF-32, DZV11 multiplexers, or
  - DECServer 200 terminal server (DSRVB-M)
- VMS, release 5.2 or later-Cable: DEC BC22E 25-pin/25-pin m/f

## Supported devices

### Modems

The DTC supports a wide range of asynchronous modems based on the V22bis standard. The following modems have been tested.

- HP 37212A, HP 35016A, HP 35141A, HP 92205A, HP 92205B, HP 92205J
- BELL 212A
- Hayes Smartmodem 1200
- Hayes Smartmodem 2400
- Racal-Milgo MPS 1222
- AJ 1212 AD1
- Multitech V32 MT932EF
- Alcatel MD9633 T110



## End user Access with statistical multiplexers

The DTC (with X.25 Board) has been tested with the following HP statistical multiplexer:  
 - HP 2335A and HP 2334A  
 Plus X.25 Multiplexer, version 4.0 or later

## Supported LAN Devices

All HP LAN devices such as Repeaters, Hubs, bridges, and routers are supported for transfer of data across LAN.

### Notes:

- \* The DTC does not support transfer via level 2 bridges losing more than 1% of large (1500-byte) packets.
- \* One DTC manager is needed per LAN segment when using routers.

HP has tested the following non HP devices:

- VITALINK TransLAN III and 350
- Siecor EOT-322 Fiber Optic Transceiver
- CISCO Gateway Server
- Proteon P9100+ Router

## Data switches and PBXs

The following data switches and PBXs have been tested with the DTC:

- MICOM INSTANET
- EQUINOX DS15
- GANDALF PACX 2000
- AT&T System 85
- NTI Meridian SL-1

Technical information in this document is subject to change without notice.

Copyright © Hewlett-Packard Company 1993. All rights reserved. Reproduction, adaptation, or translation without prior written permission is prohibited, except as allowed under the copyright laws.

Printed in the U.S.A.

## DTC Supported devices

The DTC has been tested with the following devices and cables

DTC16TN, 16iX, 16MX, 72MX		
RS232/ DB25 Modem	RS232/ DB25 Direct	RS232/ DB25 Modem

DEVICE	CABLE	
HP2392A/93A/94A/97A	40234A	40242Y
HP700/22/32/43/45	40234A	40242Y
HP700/92/94/96/98	40234A	40242Y
HP150X	40234A	40242Y
HP 3081A,3082A/B	40234A	40242Y
HP2622A/23A/24B/27A	N/A	13222Y
HP2625A/24B (port2)	40234A	40242Y
Portable +	92221M	92221M

### HP Vectra (9pins)

24540B /ptA	24542M	24542M
24541B/ptA	24542M	24542M
C2401A	40234A	40242Y
C2402A	40234A	40242Y
C1010J	40234A	40242Y
C1010T	40234A	40242Y

### Printers and Plotters

P7550A	17355D	17355D
HP2227A,28A,76A,77A	40234A	40242Y
HP2562A,63A/B/C,64A/B/C	40234A	40242Y
HP2932A,33A,34A	40234A	40242Y
HP2684A/P,86A/D	40234A	40242Y
HP 33440A/F,47A/F,49A,59A	40234A	40242Y
41063A	40234A	40242Y
C1200A	40234A	40242Y
C1202A	40234A	40242Y

### Modems

40233A	N/A	
40233A	N/A	N/A

### Extended switching

HP2334A,35 PADs to - terminal	40221A	40221A
- printer	40220A	40220A
HP2342A HP TS8	30062B	30062B
HP 3000 ATP,ATPM (25pin)	40233A	40233A
HP 9000 Mux	40233A	40233A
HP 3000 ATP,ATPM (3pin)	40230A	40230A

The DTC16TN/16iX/16MX and DTC72MX also provide RJ-45 connections compliant with ATT 356A. The DTC16TN/16iX/16MX and DTC72MX RS423 connections are available on DB25 and RJ-45. Other RS232C devices may be attached to the DTC. HP does not guarantee proper operation of the device, however you may contact your local HP representative for special support agreement. You may refer to the "HP DTC Cabling and Racking Guide" for more details.