
Novell® NetWare® 386 v3.11 Master Disk Program

Technical Data

**Product Number
J2242A (Version 3.11)**

NetWare v3.11

Large organizations are finding significant benefits in purchasing site licenses of networking products. These include the ability to quickly distribute preconfigured servers throughout their organization, reduced maintenance costs by maintaining the same versions of software throughout the organization, and the convenience of ordering at one time.

Hewlett-Packard sells Novell NetWare v3.11 in volumes of 20 servers or more. HP's version of NetWare v3.11 is exactly the same as the version available from NetWare resellers.

NetWare v3.11 is a full-featured, 32-bit network operating system that supports all key desktop operating systems – DOS, Windows, OS/2, UNIX®, and Macintosh – as well as the IBM SAA environment. NetWare v3.11 provides a high performance

integration platform for businesses requiring a sophisticated enterprise-wide network computing solution in a multivendor environment.

NetWare v3.11 offers centralized network management, and is available from HP in 100- and 250-user versions, allowing organizations to standardize on a high performance networking solution regardless of their size.

NetWare v3.11 is ideal for:

- Customers who need multi-client support for office automation applications. These customers need to use the same or similar applications on DOS, Windows, Macintosh, OS/2, and UNIX workstations and still be able to share data files, printers, scanners, disk space, application software, and information.
- Customers who need support for corporate wide applications. To meet their business objectives, these customers must have a network reliable enough to guarantee the availability of key applications.
- Customers who want to standardize on one network operating system to meet the needs of remote office, workgroup, department, corporate, and enterprise-wide network users. This requires flexible pricing and the ability to design systems that vary in capacity, size, and applications.
- Customers who want to protect their investment in current hardware and software or who have outgrown their current system. NetWare v3.11 allows customers who have a significant installed base of host systems, applications, or LANs to protect these investments, providing an integration platform that ties existing and new services together. For customers who began with ELS, Advanced or

SFT NetWare, NetWare v3.11 provides increased capacity, support for additional desktop clients, and the ability to integrate additional communication protocols.

Highlights

- 32-bit, multitasking operating system that runs on 80386 and 80486 hardware.
- Supports DOS, Windows, Macintosh, OS/2 (SE and EE), and UNIX clients.
- Supports separate products that provide AFP, AppleTalk, NFS, OSI, FTAM, communication, and database services.
- Sold in 10-0 and 250-user versions.
- Supports Novell's NetWare Name Service.
- Provides the ability to manage remote servers from a central site.
- Allows users to share files, information, applications, printers, and other peripherals in a multi-client environment.
- Provides built-in internal routing services for IPX and TCP/IP networks.
- Provides a complete selection of LAN, disk, and backup services.
- Allows Novell, third parties, and customers to add new services as they are needed.
- Compatible with thousands of third-party applications and services.
- Designed to be easy to install and use.

Features

- Full 32-bit operating system that takes full advantage of the 80386 and 80486 processors
- 80486-aware. When NetWare v3.11 is installed on an 80486-based machine, special instructions are implemented that allow it to take advantage of 80486 features.
- Optimized to support distributed applications.
- Available in 100-user and 250-user versions.
- Fully compatible and interoperable with previous versions of NetWare.
- NetWare Loadable Module (NLM) architecture allows additional software components to be loaded and unloaded while the server is running. NLMs include drivers, utilities, and applications.
- NetWare v3.11 disk process ensures that volumes are mounted quickly, and enables developers to create drivers for WORM, CD-ROM, and removable media devices.
- Dynamic resource configuration feature automatically calculates internal system resources needed for optimum performance.
- Supports up to 4GB or RAM.
- Supports up to 32 TB of disk storage.
- Supports up to 64 volumes per server.
- Files can be up to 4GB and can span physical drives, enabling the server to store large databases and applications that once could be stored only on minicomputers or mainframes.
- Network volumes and files can span up to 1,024 physical disk drives.
- Interoperates with NetWare v2.x.
- Includes NetWare Remote Management Facility (RMF), enabling network supervisors to manage remote servers from their own workstations over LAN connections or phone lines.
- Supports NetWare Name Service (NNS), a separate product that simplifies network administration by allowing similar user environments to access multiple servers.
- Includes SBACKUP and NBACKUP, backup and restore utilities that provide DOS client-and server-based backup, and backup of multiple name space.
- Provides developers with tools to help them write applications optimized to run on the NetWare v3.11 platform. These tools include the NetWare CLIB, Btrieve v5.15, event notification, and more than 800 documented APIs.

Workstation Support

- Includes the DOS Client Shell v3.01, which includes extended and expanded memory options.
- Is fully compatible with Microsoft® Windows 3.0 and Quarterdeck's DESQview.
- Supports workstations running DOS 3.x, 4.x and 5.x.
- A preferred server option enables users to specify which default server they will be attached to when they log in. Users may attach up to 8 servers at a time.

- Includes the NetWare Requester for OS/2 v1.31, which enables OS/2 workstations to interoperate on a NetWare network. The NetWare requester for OS/2 supports OS/2 Standard and Extended Editions.
- The NetWare Requester for OS/2 supports server-based applications. Support for both DOS and OS/2 Named Pipes is included. (Support for OS/2 V.2 is also provided as an option).
- When used with the appropriate add-on services, NetWare v3.11 allows Apple Macintosh, NFS, and OSI FTAM clients to access NetWare services from their native environments.

Security

- Network access is based on user profiles assigned by the network supervisor. The five access levels are password, trustee, file, directory, and file rights.
- The MONITOR server application locks the console keyboard until a password is typed.
- Expiration dates and resource usage limits can be assigned to user accounts.
- System supervisors can limit the amount of disk storage available to a user. Storage limitations can be placed on specific directories as well.
- Allowable login days, time of day, physical locations, and number of incorrect login attempts can be limited for each user account.
- Half-hour security checks determine whether a user can

log in (or is permitted to be logged in) during that time period, whether a user's account has expired or been disabled, and whether a user's account has run out of funds.

- Unauthorized or overdrawn user accounts are automatically logged out every half hour (following a five-minute warning).
- A resource accounting feature allows network supervisors to charge users for connection time, bytes read or written to disk, use of storage space on disks, or the number of requests made by a workstation. Rates can vary by the hour and by the day. Supervisors can assign credit limits and have the system monitor users account balances and log them off if they exceed their credit limits.

Reliability

- Read-after-write verification capabilities allow NetWare v3.11 to ensure that data is readable at the time it is written.
- Hot Fix provides disk media defect detection and correction. When a bad block is detected, the data is moved to a safe area of the disk and the bad block is marked as unusable.
- Duplicate directory structures and file allocation tables ensure data integrity.
- Disk mirroring allows NetWare v3.11 to maintain redundant disk drives on the same channel. If the primary disk fails, the secondary (mirror image) takes over automatically with no loss of

data. NetWare v3.11 supports up to eight mirrored disks.

- Disk duplexing allows NetWare v3.11 to maintain redundant disk channels in a server. If a disk drive, controller, or host interface fails, automatic recovery and log entry occur without loss of operation or data.
- TTS (Transaction Tracking System) allows NetWare v3.11 to track changes to critical files. If a system failure occurs during such a transaction, NetWare v3.11 will back out of the transaction and leave the files as they were before the transaction began.
- A UPS (uninterruptible power supply) monitoring feature allows servers to monitor an attached uninterruptible power supply. When power failure occurs, NetWare v3.11 will notify all current users. After a configurable timeout, the system will log out any remaining users, close any open files, and shut itself down.

Application Support

- Includes server-based version of Btrieve v5.15 for database applications.
- Supports other programming interfaces, including resource accounting, queue management, network diagnostics, and security.
- Coexists with OS/2 distributed applications. When used with the NetWare Requester for OS/2, which is bundled with the operating system, NetWare 386 networks can support OS/2 server-based applications, such as the Microsoft/Sybase SQL

Server and Oracle Server for OS/2, running in applications servers.

Communications

- Provides the platform for NetWare communication Services products, Novell's LAN-to-host, LAN-to-LAN, and remote-to-LAN connectivity solution.
- Supports a variety of network hardware, including Ethernet, Token-Ring, Arcnet, and other familiar network adapters.
- Internal routing capability allows up to 16 network adapters to be installed per server, with fully transparent internetwork routing.
- Includes a source routing NLM that enables NetWare IPX packets to be routed through IBM source routing bridges.
- Includes NetBIOS support.
- Provides the TCP/IP transport protocol.

Product Requirements

Required Hardware

NetWare v3.11 requires a network server computer, workstations, and network adapters that have been properly installed and connected. In the server, NetWare v3.11 requires a minimum of 4 MB of RAM. More memory may be required, depending on the number of users, the load they put on the server, the number of NLMs loaded, and the size of the network hard disks. (More than 70 MB of disk storage requires additional memory.) NetWare

v3.11's dynamic resource configuration feature notifies the network supervisor when more memory will improve server performance. To load the software, servers must be equipped with high-capacity floppy disk drives (5.25-inch, 1.2 MB or 3.5-inch, 1.44 MB). For a complete list of servers certified to work with NetWare v3.11, contact your HP Sales Representative or a Novell Gold or Platinum Reseller.

IBM PCs, XTs, ATs and compatibles, and all models of the IBM PS/2 family of computers can be used as network workstations as well as the Macintosh II family and the Macintosh SE, Plus, and 512Ke. Contact your HP Sales Representative or a Novell Gold or Platinum Reseller for an up-to-date list of compatible workstations.

The type of network adapter used depends on the type of computer used as a server or workstation. In 32-bit Micro Channel servers on Ethernet networks, Novell recommends using the NE/2-32. The 32-bit bus of the NE/2-32 allows users to gain the full performance potential of NetWare v3.11 by increasing the amount of data that can be moved on and off the network and into server memory. For Extended Industry Standard Architecture (EISA) servers on Ethernet networks, Novell recommends the NE3200, a 32-bit bus master adapter.

Following is a list of adapter drivers bundled with NetWare v3.11. Novell will provide additional drivers in future versions of NetWare v3.11. Third-party adapter manufacturers will also supply adapter drivers.

Server Drivers

ISA Bus

NE1000

NE2000

Novell Turbo RX-Net (Arcnet) RPL, including source routing support

IBM Token-Ring (16Mbit/s and 4Mbit/s)

3Com 3C505

3Com 3C503

IBM PC Network Adapter II and PC Network Adapter II/A

Micro Channel Bus

Novell NE/2

Novell NE/2-32

RPL, including source routing support

IBM Token-Ring (16 Mbit/s and 4Mbit/s)

2Com 3C523 (twisted pair and thin coaxial)

EISA Bus

Novell NE3200

Workstation Open Data-Link Interface (ODI) Drivers

ISA Bus

NE1000

NE2000

Novell Turbo RX-Net (Arcnet)

IBM Token-Ring (16 Mbit/s and 4 Mbit/s, including RPL for IBM diskless workstation)

3Com 3C501

3Com 3C505
3Com 3C503
EXOS 205
IBM PC Network Adapter II/A

MicroChannel Bus

Novell NE/2
Novell NE/2-32
Novell RPL (for IBM diskless workstations – Token-Ring)
IBM Token-Ring (16 Mbit/s and 4Mbit/s)
EXOS 215T
3Com 3C523

EISA Bus

NE3200

Required Software

NetWare v3.11 contains all the software necessary to install and operate the Network server and connect up to 100 or 250 DOS, OS/2, or Windows workstations to the network, depending on the version purchased.

Options

The NetWare operating system can be used with every other product Novell provides. For example, NetWare functions as a platform for Novell's NetWare Communication Services products, which include NetWare for SAA, NetWare Communication Services Manager, and the NetWare 3270 LAN Workstations for DOS, Macintosh, and Windows. The NetWare Access Server, NetWare Link products, and NetWare SQL 386 also run with NetWare v3.11.

Add-on services can be purchased that enable Apple Macintosh, NFS, and OSI FTAM clients to connect directly to the NetWare v3.11 server. NetWare Name Service provides simplified internetwork administration by enabling the network supervisor to designate groups of servers, called domains. With NNS, users access may be more easily managed across multiple servers.

Users may need to purchase the Supplemental Driver Kit to use some network adapters. Novell supports a variety of network adapters, but only bundles drivers for the most widely used adapters with NetWare operating systems.

To purchase these options, contact a Novell Gold or Platinum Reseller.

Specifications

Logical users supported
– 100 or 250
Concurrent open
– 100,000
Directory entries per volume
– 2,097,152
Volumes per server
– 64
Logical drives per volume
– 32
Maximum disk storage capacity
– 32 TB*
Maximum RAM
– 2GB *
Maximum file size
– 4GB

* Maximums listed are individual limits. Users may not be able to use these specifications at maximum levels at all times. They may have to purchase additional equipment to achieve some of these maximums. Some maximums may not be available with current hardware technology. Advancements in current hardware technology may be required to achieve stated maximums.)

Novell-Certified Servers

For a complete list of certified servers, contact an HP Sales Representative or a Novell Authorized Reseller.

Installation and Support

Installation

Novell NetWare v3.11 is a customer installable product. However, the customer can purchase installation from HP if desired.

Hardware Support Services

Provides customers with standard hardware support for their HP 9000, HP 3000, HP 1000, and HP PC hardware.

HP Software Support Services

Software Product Materials

Vectra PC – Entitles the customer to receive updated software and documentation for any revisions to the product up to but not including the next upgrade.

HP BasicLine Software Support – Provides customer with self-support through right-to-use updates and access to electronic database.

HP ResponseLine Software Support – Provides all the services of HP BasicLine Software Support plus unlimited access to the Response Center for problem resolution assistance.

HP TeamLine Software Support – Provides all the services of HP ResponseLine Software Support plus a local account-assigned HP Service Engineer, who will assist the customer with proactive planning and other support needs.

Network Support Services

HP WireTest – Verifies the suitability of the customer's existing twisted-pair cabling for their network. By utilizing sophisticated tests, which quickly and accurately evaluate existing cabling, the customer can potentially save a substantial investment that would be required for rewiring.

Network Planning and Design – Provides customers with a comprehensive network strategy that supports their business objectives. HP Network consultants analyze the customer's communication requirements and create a detailed network design based on these requirements.

Network Startup – Provides customers with quick implementation of their network, a simplified service interface, verified network operation, and assured ongoing supportability. Please refer to the HP Network Startup data sheet for more information.

NetAssure – Provides customers with fault isolation and assistance with problem resolution anywhere on their networks. Please refer to the HP NetAssure data sheet for more information.

PCLAN – Provides Novell Customer with a single source of support for NetWare and HP PC-based local area networks and personal computers and peripherals attached to the network.

Ordering Information

J2242A Master Copy Disk for Netware v3.11

J2242A UBD Manuals, Disks and 1 100-user server license

J2242A UD6 Manuals, Disks and 1 250-user server license

J2242A UCU Right-to-copy 1 100-user server license

J2242A UCV Right-to-copy 1 250-user server license

Customers may purchase either 100- or 250-user licenses. A minimum order of 20 units is required. Customers must order 1 and only 1 of option UBD if they are ordering 100-user servers and 1 and only 1 of option UD6 if they are ordering the 250-user servers. The remainder of the licenses

must be ordered using options UCU or UCV. The total of all options must be 20 or more. Add-on orders must also be in units of 20 or more.

Customers will receive server and client software on both 3.5" and 5.25" discs.

Documentation

Novell NetWare 386 v3.11 Master Disk Program includes the following documentation:

Related Products

B1823A HP ARPA Services 2.1/Novell

D1819A HP Network Services 2.1/Novell

Various HP NewWave Office Products

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