

ALPHANET VERSION 2.4 RELEASE NOTES

This document discusses the differences between AlphaNET versions 2.3 and 2.4. The AlphaNET product allows you to tie AMOS-based computers together into serial and Ethernet networks, allowing those computers to share files and resources (such as printing and terminal access).

In addition to these release notes, additional books give installation, programming, and operation information for AlphaNET 2.4:

- *AlphaNET User's Guide*, DSO-00063-00, revision 03 or later.
- *AlphaNET Installation Guide*, DSO-00064-00, revision 03 or later.
- *AlphaNET Programmer's Guide*, DSO-00065-00, revision 03 or later.

The AlphaNET/PC product allows you to connect PCs via Ethernet to an AlphaNET network. (A separate terminal emulation product, such as AlphaLAN 5.0, is required to use the PCs as terminals on the network.) AlphaNET/PC 3.2 is now included with AlphaNET 2.4. For information on that product, see:

- *AlphaNET/PC 3.2 Release Notes and Installation Guide*, DSS-10537-00.

An additional networking product that allows you to connect an AMOS Ethernet AlphaNET network to a PC NETBIOS non-Ethernet (for example, Token Ring) network is the PC Gateway 3.0 product. That product is available separately from AlphaNET. For information on PC Gateway 3.0, see *Installing a PC Gateway on an AlphaNET Network*, DSS-10499-00.

CHANGE IN SOFTWARE LICENSE EASES INSTALLATION

The major difference for AlphaNET 2.4 is that product software licensing has been changed.

As of AlphaNET 2.3, AlphaNET/PC 3.1 was sold separately from AlphaNET, and required a separate user license for each PC. That meant a different serialized diskette had to be installed on each PC on the network. For large networks, this made upgrading AlphaNET/PC a clumsy and time-consuming process.

The AlphaNET/PC software formerly available as a separate product is now included in AlphaNET 2.4 as AlphaNET/PC 3.2. Software licensing is now host-based. A single AlphaNET license per host allows a specific number of Type 2 connections, whether from PCs (via the AlphaNET/PC software) or virtual terminal connections initiated by jobs on other AMOS hosts. When the number of licensed Type 2 connections is exceeded, additional connections are

enabled as Type 1 connections. (Type 1 connections are self-limiting; their lower performance makes only a small number practical to use.)



One advantage of AlphaTCP TELNET connections is that they are not counted as Type 2 connections by the AlphaNET license.

The size of the AlphaNET license purchased should cover the number of Type 2 connections you will want to use at any one time, and cannot be for more users than your AMOS license.

For AlphaNET/PC users, the change in licensing means that a single copy of the AlphaNET/PC software is shipped with each AlphaNET product purchased for an AMOS host computer, and that all PCs on the network can be updated from the single copy of software. However, note that some restrictions apply to how the network is upgraded—see the next section.

COMPATIBILITY

AlphaNET 2.4 consists of a number of programs that must be installed at the same time. All computers on your network should be updated to AlphaNET 2.4, although one AlphaNET 2.4 host can coexist in the short term with AlphaNET 2.3 on another (unless you are using AlphaNET/PC—see the note below).

The following communications products require AlphaNET 2.3 and later: AlphaLAN 5.0 for Windows (when used in Ethernet networks) and PC Gateway 3.0. The AlphaNET/PC 3.2 product requires AlphaNET 2.4 and later.

AlphaNET 2.4 is compatible with AMOS versions 1.4 and 2.2 or later.

If you are installing AlphaNET 2.4 on a computer using AMOS 2.X: If the file FILLOK.RPC[7,34] exists on DSK0: on the computer, it must be version 2.4(108) or later. If you do not have this version of FILLOK, obtain it from your Alpha Micro VAR who can download it from the AMTEC+ electronic bulletin board as patch #SP1658.

If you are using the AM190. NDV Ethernet driver for AM-4000 computers, you must be using AMOS 1.4 (209)-6 or AMOS 2.X (452)-13 or later. Contact your VAR for information on obtaining the proper version of the AMOS monitor.

Important Note for AlphaNET/PC 3.2 Users

AlphaNET/PC 3.2 works *only* with AlphaNET 2.4 and later. This means that *all* AMOS hosts on the network *must* be updated to AlphaNET 2.4 before upgrading the PCs to AlphaNET/PC 3.2.

ALPHANET INSTALLATION

For detailed installation information, see the *AlphaNET Installation Guide*. Before installing AlphaNET 2.4, check that compatible versions of AMOS and AlphaNET (if upgrading from a previous AlphaNET version) are installed on the network computers, as discussed under “Compatibility,” above.

After logging into DSK0:[1,2], use the appropriate command to download AlphaNET to the computer. You may choose to download the software from Alpha Micro's software distribution CD-ROM disk (AlphaCD) or from some type of magnetic tape media. To download the software from AlphaCD, use commands similar to these:

```
LOG OPR: [RETURN]  
COPY = ACDn:*. *[] [RETURN]
```

where *n* is the CD-ROM logical device containing AlphaNET 2.4. (The booklet contained in the AlphaCD case contains information on using the CD-ROM disc on an Alpha Micro computer.) If you are downloading from magnetic tape, use commands similar to these:

```
LOG OPR: [RETURN]  
MTURES *. *[] = ALL:*. *[] [RETURN]
```

After copying all files onto the hard disk, use this command (still logged into OPR:) to verify all files copied correctly:

```
VERIFY NET.DIR [RETURN]
```

For information on installing AlphaNET/PC, see the *AlphaNET/PC 3.2 Release Notes and Installation Guide*.

Installing the Product Installation Code

After copying the AlphaNET software onto the computer, you must code that software to run on your specific computer. The Product Installation Code (PIC) is a unique identifier for your computer that should be obtained from your VAR. (For customers upgrading to AlphaNET 2.4: The PIC used for AlphaNET 2.4 is different from the one used for AlphaNET 2.3, so contact your VAR for the new PIC.) The AlphaNET PIC enables a specific number of Type 2 connections.

WARNING:

Once you enter the PIC, the product overlay file is forever modified and will not accept a new PIC. This can be a problem if you enter the PIC incorrectly. To safeguard yourself, make a copy of the AlphaNET overlay file before you enter the PIC. Type:

```
LOG SYS: [RETURN]  
COPY ANT000.SAV = ANT000.OVR [RETURN]
```

To enter the PIC, execute the NETINI program from AMOS command level. The first time you do this you will be prompted for the PIC. Type the PIC carefully, verifying you have entered it exactly as given, and press [RETURN]. After a brief pause, you will be returned to AMOS and you can proceed with the remainder of the installation. If you see the message ?Improper SSD, you must restore the PIC overlay before trying to re-install AlphaNET:

`COPY ANT000.OVR = ANT000.SAV`

Reboot the computer. Now re-install the AlphaNET PIC. If you still receive the error message, check with your VAR to make sure you have the correct PIC. You must successfully complete this portion of the AlphaNET installation before proceeding.

NEW FEATURES FOR ALPHANET 2.4

AlphaNET 2.4 provides significant performance improvements. The major changes for this release are the change in software licensing (see “Change in Software License Eases Installation,” above) and the inclusion of AlphaNET/PC 3.2 in the AlphaNET product. For information on new features for AlphaNET/PC 3.2, see the *AlphaNET/PC 3.2 Release Notes and Installation Guide*.

New features in AlphaNET 2.4 that were not present in AlphaNET 2.3 are:

- AlphaNET 2.4 has been enhanced to support:
 - ◊ Metropolis Type 2 connections
 - ◊ FLip Type 2 connections

Contact your Alpha Micro VAR for information on Metropolis and FLip upgrades that are necessary to take advantage of these enhancements.

AlphaNET 2.4 has also been enhanced to work properly with the Super I/O feature used with AM-359 I/O boards..

- Virtual terminal connections may now access a shared-memory area, rather than forcing all such connections to draw memory from the memory allocated to VTSER. See “Shared Memory Option for Virtual Terminals” below for more information.
- Record I/O handling has been changed to allow a record size of up to 1,024 bytes (the previous limit was 512 bytes). This change was made for compatibility with some user applications that require the larger record size.
- When a remote PC or terminal breaks a Type 2 virtual terminal network connection in an unorthodox manner (such as turning off the PC without disconnecting from the network), a spawned job can be left running on the host, using up system resources. A new command is now available to delete spawned jobs, KTASK. See “Cleaning Up Spawned Jobs,” below, for details.
- Under certain circumstances, the normal broadcast of node IDs that occur on a network can cause problems (for example, when nodes are tied together by modems, and each ID broadcast triggers phone-line charges). Therefore, new commands are now available to turn ID broadcasts on and off. See “Turning ID Broadcasts On and Off,” below.

- An /S option has been added to the CONECT command to provide for special situations in which normal terminal output speed is not desirable. The /S option tells the host to send terminal output more slowly. An example of when this option might prove useful is, a local printer is connected to a terminal which is set to transparent print mode. In this case, the printer is receiving the terminal output, but cannot handle the output as fast as a terminal.

Most of these features are discussed more fully below, and also are documented in the *AlphaNET Installation Guide* and *AlphaNET User's Guide*.

Shared Memory Option for Virtual Terminals

To enable the use of shared memory for virtual terminal connections with AlphaNET 2.4:

1. Place the SMEM statement immediately following the last SYSTEM statement in the AMOS system initialization command file, specifying the amount of memory you wish to set aside for virtual terminal connections. (Include a K for kilobytes or M for megabytes after the memory amount.) For example:

```
SMEM 1M
```

2. Then when you bring up VTSER, use the /S switch on the VTSER command line to enable shared memory:

```
ATTACH VTSER, VTSER
KILL VTSER
FORCE VTSER
MEMORY 32K
LOG SYSTEM SERVICE
VTSER/S
```

Or, if you use SETJOB, make sure the job initialization file for VTSER specified on the SETJOB command line contains the line:

```
VTSER/S
```



The SMEM shared memory area can also be used by other programs such as AlphaTCP and MULTI, so make sure you set aside enough memory for every process using the area. If you enable shared memory, all virtual terminal connection memory is drawn from that pool, and none from the VTSER job. However, VTSER still needs a certain amount of memory to run. We suggest at least 32KB.

Cleaning Up Spawned Jobs

To use KTASK, log into OPR: and enter KTASK, specifying the job to delete. For example:

```
LOG OPR: 
KTASK TSKAAB 
```



You can use KTASK to delete other types of spawned jobs generated by programs such as AlphaTCP. The names of spawned jobs take the form TSK??? (for example, TSKAAB).



KTASK.LIT 1.0(100) is included in AMOS patch releases 3/95 and later. If KTASK is not included in your version of AMOS, you can obtain it from your Alpha Micro VAR who can download it from the Alpha Micro electronic bulletin board, AMTEC+, as patch SP#1615.

Turning ID Broadcasts On and Off

Use the SET NOBROADCAST and SET BROADCAST commands to turn node ID broadcasts off and on, respectively. Before using these commands, you must log into OPR:. The format of these commands is:

```
SET NOBROADCAST cpuID
```

To turn node ID broadcasts back on, type:

```
SET BROADCAST cpuID
```

where *cpuID* selects the particular node on which you wish to disable or enable ID broadcast.



This feature is supported only by SET.LIT versions 1.2(150) and later. SET.LIT 1.2(150) is included in AMOS patch releases 3/95 and later. If SET.LIT is not included in your version of AMOS, you can obtain it from your Alpha Micro VAR who can download it from the Alpha Micro electronic bulletin board, AMTEC+, as patch SP#1612.

PROGRAMMER'S INFORMATION: BYPASSING TRMSER WITH VIRTUAL CONNECTIONS

For many years, programmers have been able to bypass the AMOS terminal service system (TRMSER) to allow high-speed serial communications between computers, primarily for file transfer applications. With AlphaNET versions 2.4 and later, the COMINT AMOS monitor call is fully supported in both Type 1 and Type 2 Ethernet connections (with the exception of the control signal handler, which is not applicable to Ethernet) to allow your program to bypass TRMSER.

As a result of using the COMINT call, file transfer and other high-speed communications programs written with serial ports in mind can also be used with Ethernet connections, usually without modification. However, there are a few subtle differences between serial and Ethernet connections worth keeping in mind when using the COMINT call, discussed below.

The COMINT call is used with the following parameters:

| | |
|-------------|---|
| Register A1 | Points to the service routine to get the next output character |
| Register A2 | Points to the service routine for incoming characters |
| Register A3 | Points to a service routine to handle serial port control signal changes (such as DCD changing state) |

For details on using the COMINT call, see Chapter 16 of the *AMOS Monitor Calls Manual*.

The Fine Points of Using COMINT with Ethernet Connections

Serial communications are generally point-to-point connections, whereas Ethernet connections are multi-point packet-based connections. The COMINT call is designed to either send or receive a single character over the communications channel—however, in the case of Ethernet, sending a single character at a time can seriously impact overall performance because the Ethernet specification calls for a minimum packet length of 64 bytes.

As a result, COMINT input and output routines will be called by the virtual terminal interface driver (VTSER.LIT for Type 1 connections or ETHNET.IDV for Type 2 connections) multiple times to send or receive a complete packet over the Ethernet.

AlphaNET 2.4 allocates a 1124-byte buffer for both incoming and outgoing data to ensure high performance. This allows a 1024-byte Y or Z-MODEM “packet” to be sent over an Ethernet connection in a single packet with 100 bytes left over and available, if needed.

Additionally, you should be aware of the potential performance bottleneck that can be caused by not having efficient routines to handle the incoming or outgoing characters. In the case of serial communications, a single interrupt from the serial controller is responsible for sending or receiving a single character. In the case of Ethernet, an interrupt from the Ethernet controller could mean a maximum of 1124 (1024 + 100) calls to the send or receive routines, with interrupts locked between successive calls. As a result, it is absolutely critical that the send or receive routines perform their processing and return to the caller (via the RTN instruction) as quickly as possible.