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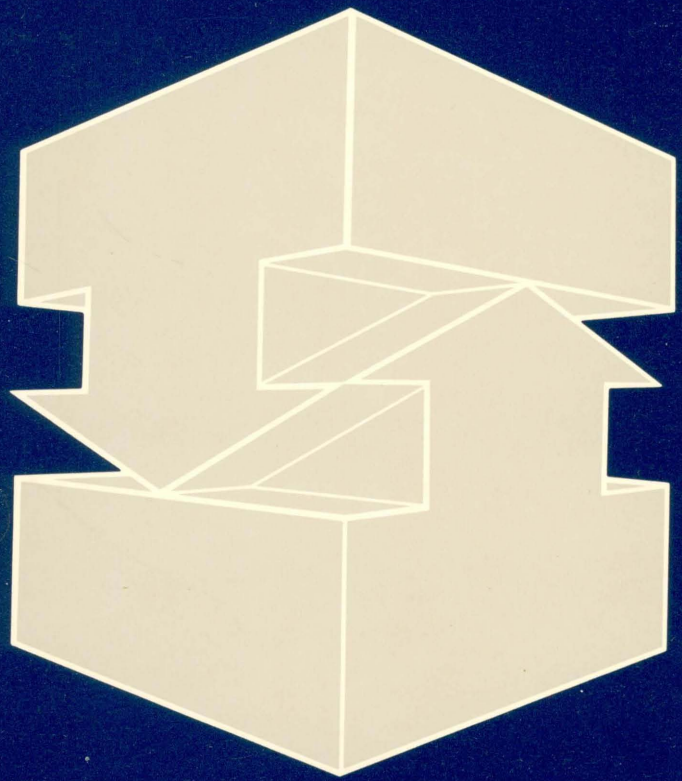
iDIS™ INSTALLATION AND CONFIGURATION GUIDE



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1 INTRODUCTION

1.1 Introduction

iDIS™ Release 2.0 is an integrated set of software applications connected with an easy-to-use hierarchical menu system that masks the XENIX* command language from non-technical users. The base iDIS product provides a menu-driven environment for system administration, network administration, and feature installation as well as user applications and productivity tools such as electronic mail, personal calendar, data conversion tools, and on-line help facilities.

This installation manual provides the instructions for installing and configuring the iDIS base (iBASE) software and any iDIS features on Intel commercial supermicrosystems. The instructions include the loading procedures as well as any configuration that you may have to perform to make a system operational. The loading and installation of the iDIS software and features for a standalone system are covered in Chapter 2. Also, there are additional procedures for incorporating non-Intel software into the iDIS menu system. The instructions for installing or adding to an iDIS network are included in Chapter 3.

This manual does not contain XENIX operating system, XENIX Networking Software, or hardware installation instructions. For those instructions, refer to the *System Administrator's Installation Guide* which also includes iDIS installation instructions. You may perform the installation using either those instructions, or the instructions contained in this manual.

NOTE

If you are using an older version of the iDIS software, and you are going to upgrade to iDIS Release 2.0, do NOT use these instructions. Refer to the *iDIS™ R2.0 Software Conversion User's Guide* to perform that procedure.

1.2 Hardware Requirements

iDIS Release 2.0 can be installed on any Intel System 286/310, 286/310AP, or 286/380 that has a minimum of 40 MB hard disk storage

*XENIX is a trademark of Microsoft Corp.

and at least 1 MB of RAM memory for reasonable operation and user space.

If you are incorporating your iDIS system into an OpenNET Local Area Network, you must also have the iSBC™ 552 Ethernet controller board in your system.

In order for you to use any of the host communication products, you must either have an 88/45 communication board (for the i3270SNA88 product) or the standard terminal controller, iSBC 188/48 for the VPM 188 binary synchronous host communication products.

1.3 Supported Terminals

The following terminals are supported by the iDIS product.

Televideo 950	Lear Siegler Adm 12
C. Itoh 414	C. Itoh 467
Liberty Freedom 100	IBM-Compatible Personal Computers
Kimtron 100	DEC VT100
Wyse 50	Wyse 75
Wyse 350	Zentec Cobra and Zen30

1.4 Supported Printers

C. Itoh CI-300	C. Itoh CI-3500
C. Itoh CI-600	C. Itoh F10-40
C. Itoh F10-55	Mannesmann Tally 440L
Silver Reed EXP500	Silver Reed EXP550
Silver Reed EXP770	Smith Corona D-200
Smith Corona D-300	Smith Corona Fastext 80

1.5 Supported Modems

Asynchronous	Synchronous
Racal-Vadic 2400/2400PA/2400PA AT	Racal-Vadic 4840
Hayes Smartmodem 1200	Bell 208A/B
Multitech MT212	Kinex 4800

1.6 Software Requirements

To install the iDIS iBASE Release 2.0 product, you must have the XENIX Release 3.4 operating system or later. If you are in a Local

Area Network, you must use the XENIX Networking Software Release 2.0 and iNA Version 1.3 or later.

1.7 Software Features

The application software for the System 310 includes Intel and non-Intel packages. The Intel-supported applications provide a complete set of office automation and communication tools. Each package may be installed through iDIS menus. The Intel packages include:

- iWORD Word Processor—Latitude* by LatiCorp
- iDB Database Manager—Empress* Database by Rhodnius
- iPLAN Spreadsheet—Multiplan* by Microsoft
- iDESK Office Tools—SYNC* by LatiCorp
- iBPC Personal Computer Terminal Emulation/File Transfer Software
- iMENU Menu Development Software—/menus* by Schmidt Associates

iDIS also provides for numerous non-Intel software packages that can be incorporated into the iDIS menu system. These packages must be installed using the installation programs supplied with the software (do NOT attempt to install non-Intel packages with the iDIS Feature Installation). The iDIS Menu system is already set up to provide a menu interface to the following applications:

- MCBA Accounting**
- Cost Master
- File-It!**
- Informix**
- Graffhopper**
- High Tech Business Graphics**
- PBG 200**
- Trajectories

*Latitude is a registered trademark of LatiCorp, Inc.; Empress is a trademark of Rhodnius, Inc.; Multiplan is a trademark of Microsoft Corp.; SYNC is a trademark of LatiCorp, Inc.;/menus is a trademark of Schmidt Associates.

**MCBA Accounting is a registered trademark of MCBA, Inc.; File-It! is a trademark of Relational Database Systems, Inc.; Informix is a registered trademark of Relational Database Systems, Inc.; Graffhopper is a registered trademark of Data Business Vision, Inc.; High Tech Business Graphics is a trademark of LatiCorp, Inc.; PBG 200 is a trademark of Pacific Basin Graphics.

- Lyrix*
- Q-OFFICE*

Other application software can be incorporated into the iDIS menu system with the Distributed Resource Management facilities in the iDIS administration menus. Use the installation instructions provided with the software package, then refer to the *iDIS™ System Administration Reference* to incorporate it into the iDIS menu system.

1.8 Notational Conventions

Throughout this manual, the following notation is used:

< **cr** >	indicates that the user should enter a carriage return in response to a prompt or after a command.
< **CTRL** > **-*char***	indicates that the Control key must be held down as the indicated key (*char*) is struck.
`user input`	will be shaded in interactive examples.
user input	will be in the typeface shown here when embedded in text.
`terminal output`	will be in the typeface shown here.
variables	will be in italics; variables indicate that the proper name or value be substituted for each specific situation.

1.9 Reference Manuals

iDIS Release 2.0 Manuals

Getting Started with iDIS™, Order Number 136972.

Getting Started with iPLAN, Order Number 137763.

Getting Started with iDB, Order Number 137765.

Getting Started with iWORD, Order Number 137767.

Getting Started with iMENU, Order Number 137761.

Getting Started with iPC, Order Number 138044.

*Lyrix is a registered trademark of Santa Cruz Operation, Inc.; Q-OFFICE is a registered trademark of Quadratron.

iBASE User's Reference, Order Number 137724.

iPLAN User's Reference, Order Number 137764.

iDB User's Reference, Order Number 137766.

iDB Developer's Reference, Order Number 137769.

iWORD User's Reference, Order Number 137768.

iMENU Developer's Reference, Order Number 137762.

iDESK User's Reference, Order Number 137996.

iPC-iDIS™ Installation and User's Reference, Order Number 138045.

Key Operator Tutorial, Order Number 138267.

Key Operator User's Reference, Order Number 138268.

iDIS™ Installation and Configuration Guide, Order Number 138270.

iDIS™ System Administration Reference, Order Number 138269.

Host Communication Manuals

SNA 3270 Emulation Installation Manual, Order Number 138653.

SNA 3270 Emulation User's Manual, Order Number 138652.

3270 BSC 188 Binary Synchronous Communication Emulation Software Administration Manual, Order Number 138380.

3270 BSC 188 Binary Synchronous Communication Emulation Software User's Manual, Order Number 138381.

VPM 188 Virtual Protocol Machine Administration Manual, Order Number 138362.

RJE 188 Remote Job Entry Workstation Emulation Software Administration Manual, Order Number 138369.

RJE 188 Remote Job Entry Workstation Emulation User's Reference, Order Number 138370.

Related Publications

OpenNET™ Planning and Design Guide, Order Number 138444.

System Administrator's Installation Guide, Order Number 135823.

iDIS™ R2.0 Software Conversion User's Guide, Order Number 470030.

2 STANDALONE iDIS™ INSTALLATION

2.1 Introduction

This chapter provides instructions to install the iDIS software in the standalone environment (not in a network). It provides step-by-step instructions for installing the iDIS base software (iBASE), and any iDIS features that you may have. It also is a guide for all configuration and administration duties that you have to perform to establish an operational system.

NOTE

If you are establishing a network, do NOT use the procedures in this chapter, use the procedures in Chapter 3.

This procedure assumes that you are installing on a new system that has not been in use. If you are installing iDIS on a system for which you have already created users, you should consider either converting the users to iDIS users or creating a new user ID after iDIS installation for those existing users that will want to use iDIS. Refer to section A.4 for more information.

The feature installation section in this chapter provides complete information for installing the iDIS features, except for the iWORD package which requires additional printer configuration (covered in Appendix B) and the host communication software packages which have separate installation manuals.

Non-Intel application software should be installed using the installation programs provided with the software.

2.2 Installation Requirements

You must have sufficient hard disk storage space for the iDIS products and additional room for data and user files. The disk space requirements are listed below for the base iDIS and iDIS features:

Software	Number of Diskettes	Disk Space Required
iBASE	11 diskettes	4.2 Megabytes
iWORD	3 diskettes	1.0 Megabytes
iDB	8 diskettes	3.0 Megabytes
iPLAN	1 diskette	.2 Megabytes
iDESK	2 diskettes	.6 Megabytes
iMENU	1 diskette	.4 Megabytes
iBPC	1 diskette	.3 Megabytes
3270 BSC	1 diskette	.2 Megabytes
SNA	2 diskettes	.5 Megabytes
VPM 188	2 diskettes	.2 Megabytes
HASP 188	3 diskettes	.8 Megabytes (shared with RBTE 188 if present)
RBTE 188	3 diskettes	.8 Megabytes (shared with HASP 188 if present)

It is recommended that you maintain 15% free disk space per file system. If you have additional file systems on your computer, we recommend that you keep all user files on the separate file system. This provides efficiency in disk space usage and efficiency in recovery if a hard disk fails.

NOTE

The iDIS software that you have is Release 2.0. In order for you to install this version of iDIS you must have XENIX Release 3.4—Update 1 or later. If you have an older version of XENIX, update it to the current 3.4 before installing iDIS.

The 3270 SNA host communication product requires the use of the iSBC™ 88/45X printed circuit board. Refer to the *SNA 3270 Emulation Installation Manual* for further configuration details.

The other host communication products require the use of the iSBC 188/48 printed circuit board, with special jumpering on the ports used for host communication. Refer to the *VPM 188 Virtual Protocol Machine Administration Manual* for jumpering and installation information.

2.2 iDIS™ BASE Installation

The following installation of iBASE will take about 45 minutes to complete. Be sure that the XENIX 3.4 operating system is installed

before installing iDIS. (See Chapters 2 and 3 of the *System Administrator's Installation Guide.*)

NOTE

You MUST run the system configuration program in the XENIX installation procedure in order for the iDIS resource management to set up automatically. After running the configuration, shut down the system.

1. Reset the system and enter maintenance mode. If you went into multi-user mode, log in as root and enter the following command at the XENIX prompt:

   ```
   cd /<cr>
   shutdown 0 su<cr>
   ```

   After several minutes the system will prompt you to enter < **CTRL** > **-D** or the root password. Enter the root password (or < **cr** > if there is no root password) to go into maintenance mode.

2. In maintenance mode, invoke the installation program:

   ```
   instlsys<cr>
   ```

   You will be prompted for the system date and time. You must at least update the time to continue.

3. After entering the date and time, the idisk menu appears. Select item **c** to install additional Intel software.

4. The imedia menu will then appear. Select item **b** to install from diskettes. You will then see the prompt:

   ```
   Insert media into /dev/dvf0 and type a <CR> when ready.
   ```

5. Insert the iBASE diskette labeled "1 of 11" and press < **cr** >. You will be asked to verify the time and date. If they are correct, press < **cr** >; otherwise, enter the correct time and date. Note that it IS important to have the correct time and date on system files in order to ensure a reliable installation.

   After entering the time and date, the system will finish loading from the diskette, then the following message will appear:

   ```
   The OpenNET software was not found on this system. Do you wish to use
   this system as a standalone system (y or n):
   ```

   Enter **y** < **cr** >. The following prompt will display:

   ```
   Insert the next volume of the iBASE R2.0, V1.0 installation
   media, then press RETURN
   (type 'no' if there are no more volumes to be installed):
   ```

   Perform the disk loading as instructed. After inserting each of the 11 iBASE diskettes, install any iDIS update diskettes that

you have. After the update diskettes (if any) have been loaded, answer **no** < **cr** >. When the files have been loaded from the diskettes, the following message will appear:

```
iBASE R2.0, V1.0 extraction complete

============================================================
Starting configuration of iBASE R2.0, V1.0
Date and time
============================================================

Installing iBASE on a Stand-alone System

Moving iBASE executables into place (takes from 10 to 45
minutes)...
```

6. Next the system user IDs will be created. When the installation has completed, it will indicate that you should press < **cr** > to continue to the idisk menu.
7. Select **q** to quit the installation program. The root prompt will appear.
8. If you have not already done so, you should establish a password for root before entering multi-user mode. Enter:

```
passwd root<cr>

New password:
Re-enter new password:
```

   It is essential that you DO NOT FORGET this password. If the root password is lost, you may have to reinstall the XENIX operating system on your system.

9. Next, enter multi-user mode:

```
<CTRL> D
```

   You will be prompted for the current date and time. Verify that it is correct, and if so enter < **cr** >. If not, enter the correct date and time, then a < **cr** >. The login prompt will appear.

10. It is recommended that you establish passwords for the following login IDs: idis, iDIS, ikey, idev, ademo, and shutdown.

    Log in as idis and from the Top menu enter **:a c** < **cr** >. You will be asked to enter the login ID that you want to change the password on. You will be prompted for the root password. If the root password is entered correctly, you will then be prompted for the new password of the login ID that you need to change.

    Next, perform the Feature Installation procedures.

2.3 iDIS™ Feature Installation

The installation time required for each of the iDIS Features varies, depending on the size of the application package. In general, 3–5 minutes per diskette loading time and 10–30 minutes integration time is sufficient. The following iDIS application software packages are installed with the Software Feature Installation menu:

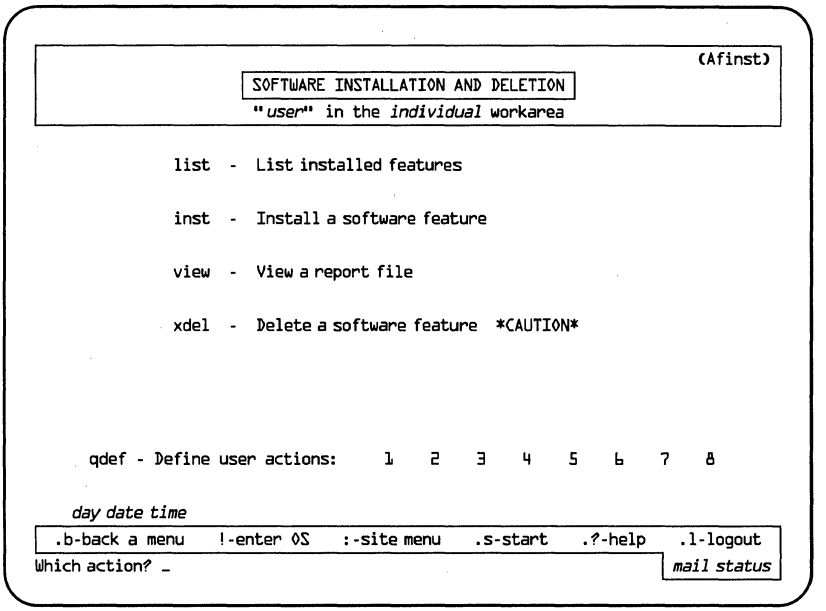
iPLAN Spreadsheet	1 diskette
iWORD Word Processor	3 diskettes
iDB Database Management System	8 diskettes
iBPC Personal Computer Software	1 diskette
iDESK Office Automation Tools	2 diskettes
iMENU Menu Development	1 diskette
SNA 3270 Emulation	2 diskettes
3270 BSC Emulation	1 diskette
VPM 188	2 diskettes
RJE 188	6 diskettes

NOTE

You must install the iWORD software feature before installing the iDESK feature.

1. Enter < **CTRL** > **-D** to enter the multi-user mode (if you have not done so already) and log in as idis.
2. Select the following from the Top menu to display the Feature Installation menu:

   s 1<cr>



PPS1-638

3. In the Feature Installation menu, select **i** to install a feature. The message will appear:

   Please insert diskette no. 1 of the feature you wish to install and press <RETURN> or enter c <RETURN> to cancel feature installation.

   After inserting the diskette and pressing < **cr** >, the diskette will be loaded. If there are additional diskettes, the next message will be:

   Please mount volume id: ***feature #X*** **of** ***X*** **and press RETURN**

   Insert the diskette requested and press < **cr** >. Repeat until all the diskettes for that feature are loaded.

Repeat step 2 to install each feature on your system. If you installed the iWORD feature, refer to Appendix B to complete configuration for that package. When you have completed installing the features, go to section 2.7 to set up the system resources. Be sure to read your mail (by entering **:m r** < **cr** >) after installing the software features. Both error messages and status messages regarding installation are stored in mail.

2.4 User Administration

The next step in installation is initializing the user IDs. This provides each user a secure workarea. You must first determine the type of each user. The iBASE software provides four user templates, each providing access to different software.

iDISuser	may access all of the iDIS feature software and all non-Intel applications accessible through iDIS, but is restricted from the administration menus, the development menus, and the XENIX operating system.
iDISdeveloper	may access all iDIS features, all non-Intel applications accessible through iDIS, the menu development software (iMENU), and the XENIX operating system.
XENIXuser	may not access the iDIS menu system, but can perform XENIX development and access application software.
keyoperator	may access all iDIS features, all non-Intel applications accessible through iDIS, and the key operator functions that allow printer administration, archiving, and terminal maintenance, but is restricted from menu development, and administration menus.

If the four types provided do not fit your needs, you may create a new template with the USER TEMPLATE MAINTENANCE function. (See the *iDIS™ System Administration Reference,* sections 4.11 and 4.12, for specific instructions.) For example, you may change the default editor from vi to iWORD, Q-OFFICE, or Lyrix by altering the default user profile (see section 4.12.2 in the above manual). You may also deauthorize menu selections, such as password maintenance, by altering the default deauthorization file (see section 4.12.3.2.1 in the above manual).

Once you have determined who the users are and their templates, perform the user initialization procedures in section 4.9 of the *iDIS™ System Administration Reference.*

2.6 Group and Public Workareas

In many instances it is useful to allow some users to share files. There are two ways to allow users to share files in iDIS, with group workareas and public workareas. With group workareas a designated group manager determines who may access the group workarea, while

all users may access a public workarea. First determine if you need groups and group workareas, and how many. Then perform the group initialization procedure in section 4.13 of the *iDIS™ System Administration Reference.*

2.7 Setting Up Resources

Many of the hardware and software features that iDIS uses are defined as resources. These resources are under the control of the system administrator through the Distributed Resource Management (DRM) menus that are a part of the iBASE product. In order for users to access them, the resources must be specified and then assigned to users. Any of the resources (such as flexible disk drives, tape drives, and printers) that are entered in the system configuration program (scp) are automatically set up and assigned by default to all users. Some resources require input to achieve operational status. Those resources include:

Resource Name as Recognized by iDIS DRM	Description
3271BSC-gate HASP188-gate RBTE188-gate	Intel host communication package that emulates an IBM 3271 Cluster Control Unit supporting up to seven 3277 display devices and a 3287 printer emulation. Requires the VPM 188 software package. Refer to section 6.19 in the *iDIS™ System Administration Reference.*
3274SNA-gate	Intel host communication package that emulates an IBM 3274 Systems Network Architecture, a 3274 Model 51C Control Unit supporting up to sixteen 3278 display stations and a 3287 printer. Refer to section 6.19.1 in the *iDIS™ System Administration Reference.*
application	any application software package other than those already provided for in the iDIS menus (listed in Chapter 1 of this manual). Refer to section 6.16 in the *iDIS™ System Administration Reference.*
directory	the part of a file system that you want to use for archive operations. Files in the archive directory will be written in the XENIX tar format. Refer to section 6.12 in the *iDIS™ System Administration Reference.*

Resource Name as Recognized by iDIS DRM	Description
menudev	access to menu systems through the iMENU menu development software. You may specify new menu systems or the iDIS menu system (to customize the iDIS menus to fit your specific application). Refer to section 6.17 in the *iDIS™ System Administration Reference.*
vpm188	Virtual Protocol Machine software using the 188/48 terminal communication board. Refer to section 6.19.2 in the *iDIS™ System Administration Reference.*
vt-phone	terminal emulation access to other systems via a modem and phone line. The configuration and phone number must be set up in the /etc/remote file. Refer to section 6.18.1 in the *iDIS™ System Administration Reference.*
vt-remote	if you want to allow only certain users to access specific remote systems via modems, use the vt-remote resource entry. Refer to section 6.18.2 in the *iDIS™ System Administration Reference.*

If you performed the procedures listed above for each individual resource, you assigned it to certain users. The resources that were set up automatically, however, were assigned to everyone by default. If you want to restrict the access to a resource, you will have to revise the resource assignment form. Refer to the resources assignment form in Chapter 2 of the *iDIS™ System Administration Reference* for information on changing the assignments.

This completes the installation and configuration procedures. The system should be ready to use for all users that have been initialized. Note that the user must select the desired printer or backup device using the "adm" selection on the site menu.

3 INSTALLING AN iDIS™ NETWORK

intel

3.1 Introduction

Before installing the iDIS network, you must carefully plan the network. Refer to Appendix C to determine how many nodes will be included in the network, how the nodes will be organized into sub-networks, and if any public server nodes will be included. Also plan how many printers, terminals, modems, and backup devices will be necessary and which nodes will have access to these resources. Be sure you have enough hard disk storage space to support the features you wish to install, and be sure there are enough OpenNET buffers to support your applications.

Refer to the *OpenNET™ Planning and Design Guide* for more information about network planning.

3.2 Installation Procedures

Nodes in an iDIS network can be configured in several different ways. The following is a brief definition of the different types of nodes in an iDIS network.

Logical network master node: A logical network master node is used by the network administrator to create and maintain the sub-networks and public server nodes within the logical network.

Public server node: A public server node holds resources available to every user in the network. Often, common printers, modems, and host communication software are resources of this node.

Sub-network master node: A sub-network master node maintains sub-network synchronization by controlling the master network files for the sub-network of which it is a part. The master network files include the master /net/data, /net/ulist, /etc/passwd, and /etc/group. Sub-network master nodes are also configured to control mail between sub-networks.

Sub-network node: These nodes make up the sub-network and are often the nodes on which the users do their work. There are two types of sub-network nodes: iDIS execution and iDIS user nodes. iDIS execution nodes hold the iDIS software and features. iDIS user

nodes are designed to store all the user's files while the iDIS software they execute is obtained across the network from an iDIS execution node.

PC node: This is simply a Personal Computer included in a sub-network.

Install iDIS on the network nodes in the following order for the most efficient installation in the shortest time.

1. The logical network master node **must** be installed first. This node also functions as the sub-network master node for the first sub-network of the logical network. This node is used to control the public servers and sub-network master nodes. Instructions for installation of the logical network master node are in section 3.2.1.
2. Next install iDIS on the public server nodes (if present). The resources on these nodes are available to all other nodes in the network. Instructions for this installation are in section 3.2.2.
3. Next install any additional sub-network master nodes. Again, if the network consists of only one sub-network, this has already been done in the first step. For networks with multiple sub-networks, instructions for installing a sub-network master node are in section 3.2.3.
4. Finally, install the individual sub-network nodes. Sub-network nodes may be added any time after the logical network master node and the sub-network master node have been established. Installation instructions for iDIS execution nodes and iDIS user nodes are in section 3.2.4; installation instructions for PC nodes are in section 3.2.5.
5. After this, determine on which nodes the software features are to be installed and follow the instructions in section 3.2.6 to do so.
6. Initialize users and groups, as described in sections 3.3 and 3.4. Also, initialize node resources that are not set up automatically. These resources are described in section 3.5. Finally, update the personnel directory by logging in as ilna on the logical master node and entering **s l d** < **cr** > .

3.2.1 Logical Network Master Node Installation

To install the logical network master node, perform the following:

1. Install XENIX Release 3.4 and XENIX Networking Software Release 2.0 as described in Chapters 3 and 4 of the *System Administrator's Installation Guide.* When the system configuration is complete, shut down the system, reboot, and enter maintenance mode.

2. When the XENIX prompt appears, perform the following:

```
mkself<cr>

Enter machine name: logical master node name<cr>
Enter machine password: any 5-12 characters<cr>
Enter subnet master node name (or <cr> for default of
local node)
Enter subnet master node name: <cr>
Enter subnet master passwd path (or <cr> for default of
//logical master node/etc/passwd)
Enter subnet master passwd path: <cr>
Enter subnet master group path (or <cr> for default of
//logical master node/etc/group)
Enter subnet master group path: <cr>
Enter subnet master nameserver path (or <cr> for default of
//logical master node/net/data)
Enter subnet master nameserver path: <cr>
Enter subnet master ulist path (or <cr> for default of
//logical master node/net/ulist)
Enter subnet master ulist path: <cr>
```

The information you entered is displayed for verification followed by the prompt:

```
Would you like to change any of the information?
```

Enter n < cr > unless you made an error in entering the data. Record the machine name, machine password and Ethernet address; you will need this information at a later time.

3. When the operating system prompt reappears, enter:

```
mkns<cr>
```

A `Service Requested:` prompt will appear. Enter:

```
addname<cr>

Input entity name: logical master node name/nfc<cr>
Input entity type: xenix<cr>
Do you want to enter address information now? (y/n): y<cr>
PORT ID:8100<cr>
Do you want to use the default NETWORK ID? (y/n): y<cr>
```

Enter the twelve-character Ethernet address for the node.

NOTE

If you do not know the Ethernet address, exit the mkns utility (< **DEL** >) and enter the **i552info** command at the XENIX prompt. Record the Ethernet address and re-enter mkns.

When the `Service Requested:` prompt reappears, enter:

```
addname<cr>
```

```
Input entity name: logical master node name/nfs<cr>
Input entity type: xenix<cr>
Do you want to enter address information now? (y/n): y<cr>
PORT ID:8000<cr>
Do you want to use the default NETWORK ID? (y/n): y<cr>
```

Enter the 12-character Ethernet address for this node.

```
Service requested: done<cr>
```

4. When the operating system prompt reappears, enter:

```
mkcon<cr>

Are you adding a service or a consumer (s/c)? c<cr>
Enter consumer node name: logical master node name<cr>
Enter node password: logical master node password<cr>
Enter list of service types:
1 2<cr>
```

NOTE

The logical master node password entered here must match the machine password entered in step 2.

5. If you wish to install the virtual terminal software, refer to section 4.7 of the *System Administrator's Installation Guide* for VT 2.0 installation instructions. When the VT installation is complete, shut down the system, reboot, and enter maintenance mode.

6. Activate the network software:

```
nfc on<cr>
nfs on<cr>
```

7. If you have not already done so, it is recommended that you assign a password to the root login ID. Enter:

```
passwd root <cr>
```

Answer the prompts displayed.

NOTE

This password will be used on the logical network master node and any public server nodes.

8. Run the installation program once more to install iDIS:

```
instlsys<cr>
```

9. When the idisk menu appears, select **c** to install the additional Intel software.

When the imedia menu appears, select **b** to install from diskette.

10. Insert the iBASE diskette labeled "1 of 11" and press <cr>. You will be prompted for the date and time. Press <cr> if the date and time are correct to continue.

    ```
    Is this the master node for all of the sub-networks (yes|no)
    ```

    Enter **yes** <cr>.

    A message indicating the extraction is starting is displayed, followed by:

    ```
    Insert the next volume of the iBASE R2.0, V1.0 installation media,
    then press RETURN (type 'no' if there are no more volumes to be
    installed)
    ```

    Perform the disk loading as instructed. After inserting each of the 11 iBASE diskettes, install any iDIS update diskettes that you have. After the update diskettes (if any) have been loaded, answer **no** <cr>. When the files have been loaded from all the diskettes the message will appear:

    ```
    iBASE R2.0, V1.0 extraction complete

    Moving iBASE executables into place (takes from 10 to 45 minutes)
    ```

    Next the system user IDs will be created. When the installation has completed, it will indicate that you should press <cr> to continue. When you press <cr>, the idisk menu reappears.

11. Enter **q** <cr> to quit the installation program.

12. Press <**CTRL**>-**D** to enter multi-user mode and enter the date and time.

13. Log in as idis and enter **:m r** <cr> to read mail. Make sure no errors occurred.

14. It is recommended that you establish passwords for the idis, iDIS, ikey, idev, ademo, shutdown, neton, and netoff login IDs. While logged in as idis enter:

    ```
    :a c<cr>
    ```

    You will be asked to enter the login ID that you want to change the password on. You will be prompted for the root password. If the root password is entered correctly, you will then be prompted for the new password of the login ID that you need to change.

15. It is recommended that you assign a password to the ilna login ID. Log in as ilna and enter:

    ```
    :a c <cr>
    Please enter loginid for which to change password - ilna<cr>
    ```

    Respond to the prompts displayed.

3.2.2 Installing a Public Server Node in the Network

A public server node is a system that provides resources such as printers, modems, host communication, etc., to all nodes in the network. Using the public server nodes lets users share files and resources across sub-networks. To install a public server node, perform the following steps at the new node:

1. Install XENIX Release 3.4 and XENIX Networking Software R2.0 as described in Chapters 3 and 4 of the *System Administrator's Installation Guide.* When the system configuration is complete, shut down the system, reboot, and enter system maintenance mode.

2. When the XENIX prompt appears, perform the following:

```
mkself<cr>

Enter machine name: public server node name<cr>
Enter machine password: any 5-12 characters<cr>
Enter subnet master node name (or <cr> for default of local node)
Enter subnet master node name: <cr>
Enter subnet master passwd path (or <cr> for default of
//public server node/etc/passwd)
Enter subnet master passwd path: <cr>
Enter subnet master group path (or <cr> for default of
//public server node/etc/group)
Enter subnet master group path: <cr>
Enter subnet master nameserver path (or <cr> for default of
//public server node/net/data)
Enter subnet master nameserver path: <cr>
Enter subnet master ulist path (or <cr> for default of
//public server node/net/ulist)
Enter master ulist path: <cr>
```

   The information you entered is displayed for verification followed by the prompt:

```
Would you like to change any of the information?
```

   Enter **n** < **cr** > unless you made an error in entering the data. Record the machine name and Ethernet address displayed; you will need this information later.

3. When the operating system prompt reappears, enter:

```
mkns<cr>
```

   A `Service Requested:` prompt will appear. Enter:

```
addname<cr>

Input entity name: public server node/nfc<cr>
Input entity type: xenix<cr>
Do you want to enter address information now? (y/n): y<cr>
```

```
PORT ID:8100<cr>
Do you want to use the default NETWORK ID? (y/n): y<cr>
```

Enter the 12-character Ethernet address for the node.

NOTE

If you do not know the Ethernet address, exit the mkns utility (<DEL>) and enter the **i552info** command at the XENIX prompt. Record the Ethernet address and re-enter mkns.

When the Service Requested: prompt reappears, enter:

```
addname<cr>

Input entity name: public server node/nfs<cr>
Input entity type: xenix<cr>
Do you want to enter address information now? (y/n): y<cr>
PORT ID:8000<cr>
Do you want to use the default NETWORK ID? (y/n): y<cr>
```

Enter the 12-character Ethernet address for this node.

```
Service requested: done<cr>
```

4. When the operating system prompt reappears, enter the following to allow all nodes to access public server node resources:

```
mkcon<cr>

Are you adding a service or a consumer (s/c)? c<cr>
Enter consumer node name: *<cr>
Enter node password: *<cr>
Enter a list of service types:
1<cr>
```

5. If you wish to install the virtual terminal software, refer to section 4.7 of the *System Administrator's Installation Guide* for VT 2.0 installation instructions.

6. If you have any host communication products for this public server node, install them now. Refer to the appropriate host communication installation manual for installation procedures.

7. Mount the /usr partition and activate the network software; enter:

```
mount /dev/usr /usr<cr>
nfs on<cr>
nfc on<cr>
```

8. If you have not already done so, it is recommended that you assign a password to the root login ID. Enter:

```
passwd root <cr>
```

Answer the prompts displayed.

NOTE

When the public server initialization is complete, the root password will be the same as that on the logical network master node.

Repeat steps 1 through 8 for all public server nodes being added to the network. Next, go to the logical network master node, log in as ilna, and perform the following:

NOTE

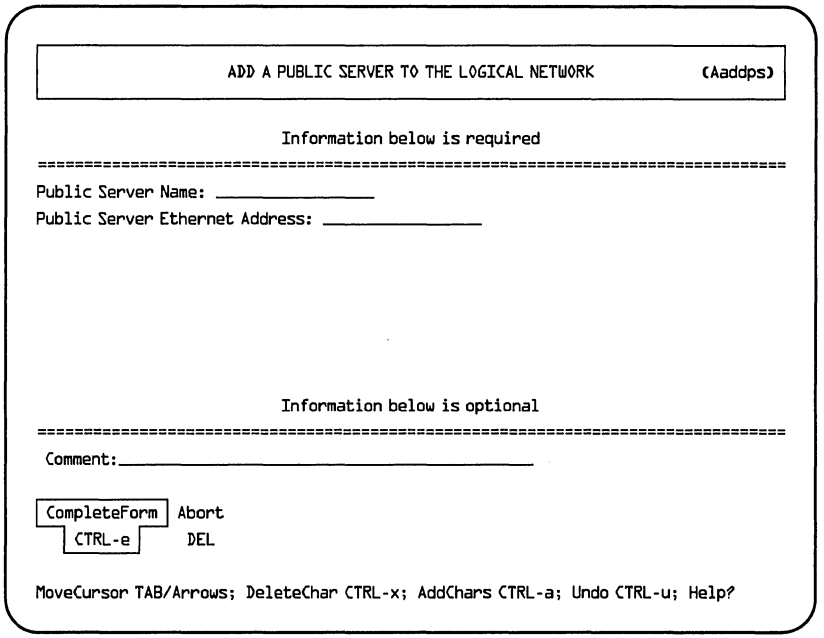
You must be the only one logged in as the ilna user to perform these procedures.

1. From the Top menu, enter **s l** <**cr**> (this is using type ahead for **s**et from the Top menu and **l**net from the Asettop menu). The message will appear:

   ```
   Please re-enter the 'ilna' password:
   ```

   When the password is entered (press <**cr**> if there is no password) the Logical Network Maintenance and Setup menu appears.

2. Make the **ips** selection. The Add a Public Server to the Logical Network form will appear.



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Enter the following information:

Public Server Name:	The name you entered when you performed mkself on the public server node.
Public Server Ethernet Address:	The 12-character address for the public server node. If you do not know this number, enter the operating system on the public server node and enter **i552info** < **cr** > to display the address.
Comment:	Optional entry.

3. When the form is complete, enter < **CTRL** > **-e**. A message will appear asking if you have a valid licensing agreement with Intel. A response of **y** < **cr** > indicates that you have such an agreement. If you respond with "yes", the following prompt displays:

   Please enter the "root" password for the node *node name* when asked...
   Password:

   If you created a password, enter it; otherwise, enter < **cr** >.

4. When the initialization of the public server node is complete, you will be asked if you want to set up another public server (it is most efficient to set up all of them at once, if possible). If other

public servers are to be added, enter **y** < **cr** >, and repeat steps 1–3 for each public server added.

5. Select **upd** from the Logical Network Maintenance and Setup menu. Either enter **y** < **cr** > and schedule the time when the network will be updated with the new public server data, or **n** < **cr** > to update immediately.

6. When all public servers have been added, check the mail (by entering **:m r** < **cr** >) to see if any errors occurred. If errors occurred, check the network connections and reinitialize the public server nodes that failed.

The installation and initialization of the public server nodes is now complete. Resources such as printers will automatically be specified and assigned for network users to access on the public node.

3.2.3 Sub-network Master Node Installation

The sub-network master node is where the sub-network administrator performs the sub-network control functions.

1. Install XENIX Release 3.4 and XENIX Networking Software R2.0 as described in the *System Administrator's Installation Guide,* Chapters 3 and 4. When the system configuration is complete, shut down the system, reboot, and enter maintenance mode.

2. When the XENIX prompt appears, perform the following:

```
mkself<cr>

Enter machine name: sub-network master node name<cr>
Enter machine password: any 5-12 characters<cr>
Enter subnet master node name (or <cr> for default of local node)
Enter subnet master node name: <cr>
Enter subnet master passwd path (or <cr> for default of
//sub-network master node/etc/passwd)
Enter subnet master passwd path: <cr>
Enter subnet master group path (or <cr> for default of
//sub-network master node/etc/group)
Enter subnet master group path: <cr>
Enter subnet master nameserver path (or <cr> for default of
//sub-network master node/net/data)
Enter subnet master nameserver path: <cr>
Enter subnet master ulist path (or <cr> for default of
//sub-network master node/net/ulist)
Enter subnet master ulist path: <cr>
```

   The information you entered is displayed for verification followed by the prompt:

```
Would you like to change any of the information?
```

Enter **n** < **cr** > unless you made an error in entering the data. Record the machine name, machine password, and Ethernet address displayed; you will need this information later.

3. When the operating system prompt reappears, enter:

```
mkns<cr>
```

A Service Requested: prompt will appear. Enter:

```
addname<cr>

Input entity name: subnetwork master node/nfc<cr>
Input entity type: xenix<cr>
Do you want to enter address information now? (y/n): y<cr>
PORT ID:0100<cr>
Do you want to use the default NETWORK ID? (y/n): y<cr>
```

Enter the 12-character Ethernet address for the node.

NOTE

If you do not know the Ethernet address, exit the mkns utility (< **DEL** >) and enter the **i552info** command at the XENIX prompt. Record the Ethernet address and re-enter mkns.

When the Service Requested: prompt reappears, enter:

```
addname<cr>

Input entity name: subnetwork master node/nfs<cr>
Input entity type: xenix<cr>
Do you want to enter address information now? (y/n): y<cr>
PORT ID:0000<cr>
Do you want to use the default NETWORK ID? (y/n): y<cr>
```

Enter the 12-character Ethernet address for this node.

```
Service requested: done<cr>
```

4. When the operating system prompt reappears, enter:

```
mkcon<cr>

Are you adding a service or a consumer (s/c)? c<cr>
Enter consumer node name: sub-network master node name<cr>
Enter node password: sub-network master node password<cr>
Enter list of service types:
1 2<cr>
```

5. If you wish to install the virtual terminal software, refer to section 4.7 of the *System Administrator's Installation Guide* for VT installation instructions.

6. Mount the /usr partition and activate the network software:

```
mount /dev/usr /usr<cr>
```

```
nfc on<cr>
nfs on<cr>
```

7. If you have not already done so, it is recommended that you assign a password to the root login ID by entering:

   ```
   passwd root<cr>
   ```

   and answering the prompts displayed.

Repeat steps 1 through 7 for all sub-network master nodes being added to the network. Next, go to the logical network master node to add the sub-network master nodes to the network.

1. Log in as ilna on the logical network master node.

NOTE

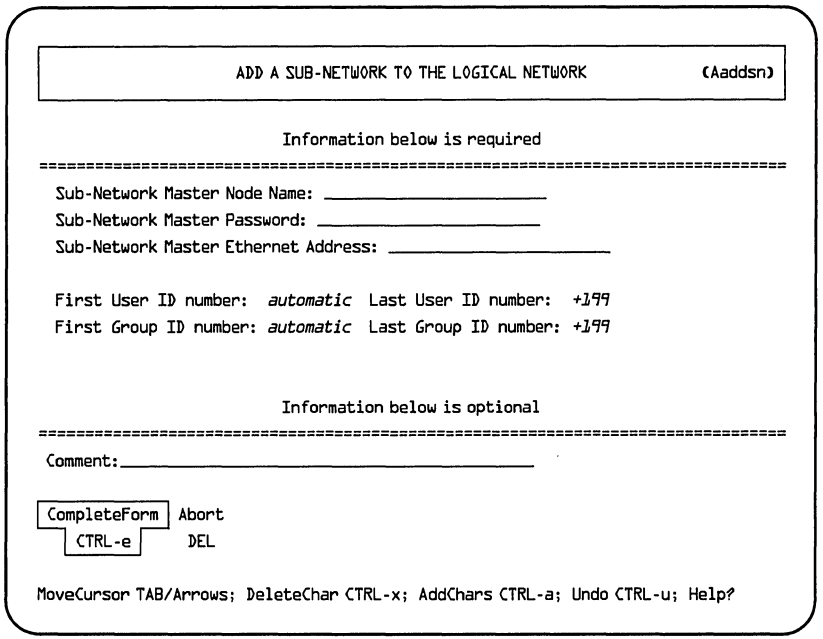
You must be the only one logged in as the ilna user to perform these procedures.

2. From the Top menu, enter **s l** < **cr** > (this is using type ahead for **s**et from the Top menu and **l**net from the Asettop menu). The message will appear:

   ```
   Please re-enter the 'ilna' password:
   ```

   When the password is entered (press < **cr** > if there is no password) the Logical Network Maintenance and Setup menu appears.

3. Make the **sni** selection. The Add a Sub-network to the Logical Network form will appear.



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Enter the following information:

Sub-Network Master Node Name:	The name you entered in the mkself command on the sub-network master node.
Sub-Network Master Node Password:	The password you entered during mkself on the sub-network master node.
Sub-Network Master Node Ethernet Address:	The 12-character address for the sub-network master node. If you do not know this address, login as root on the sub-network master node and enter the command **i552info** < **cr** > to display the address.
First User ID number:	The first user ID number that will be used when users are initialized on the new sub-network. The default entry is "automatic" which allocates the next available entry.

Last User ID number:	You may either enter the last acceptable user ID number (which must be larger than the first user ID number) or a relative number of user IDs (begins with +) starting at first user ID number. The default entry is 199 user IDs relative to first user ID (+ 199). Using the default, you may have up to 160 sub-networks before running out of user ID numbers. If you are planning a larger network, refer to the *OpenNET™ Planning and Design Guide* before implementing a numbering strategy.
First Group ID number:	The first group ID number that will be used when groups are initialized on the new sub-network. The default entry is "automatic" which allocates the next available entry.
Last Group ID number:	You may either enter the last acceptable group ID number (which must be larger than the first group ID number) or a relative number of group IDs (begins with +) starting at first group ID number. The default entry is 199 group IDs relative to first group ID (+ 199). Under most circumstances, the default setting will be appropriate.
Comment:	Optional entry.

3. When the form is complete, enter <**CTRL**>**-e**. A message will appear asking if you have a valid licensing agreement with Intel to legally copy the iDIS software to the sub-network master node. A "yes" response indicates that you have purchased the software for that node.

4. If you answered "yes" to the previous prompt, the following prompt will display:

   Please enter the "root" password for the node *node name* when asked...
   Password:

   If you created a password for the root user, enter it; otherwise, enter <**cr**>.

5. When initialization of the sub-network is complete, you will be asked if you want to set up another sub-network master (it is most efficient to set up all of them at once, if possible). If other sub-network master nodes are being added, enter **y** < **cr** >, and repeat steps 1–4 for each one added.

6. Select **upd** from the Logical Network Maintenance and Setup menu. Either enter **y** < **cr** > and schedule the time when the network will be updated with the new sub-network master data, or **n** < **cr** > to update immediately.

7. When all sub-network masters have been added, check the mail (by entering **:m r** < **cr** >) to see if any errors occurred. If errors occurred, check the network connections and reinitialize the sub-network master nodes that failed.

8. It is recommended that you establish passwords for the following login IDs: idis, iDIS, ikey, idev, ademo, shutdown, neton and netoff.

   Log in as idis and from the Top menu enter:

   ```
   :a <cr>
   ```

   You will be asked to enter the login ID that you want to change the password on. You will be prompted for the root password. If the root password is entered correctly, you will then be prompted for the new password of the login ID that you need to change.

The sub-network master nodes will be initialized at the completion of this step. Resources such as file systems (for setting up work-areas), backup devices (such as flexible disk), and printers will automatically be specified and assigned for sub-network users to access on the sub-network master node. However, you may have other resources in the sub-network not set up automatically. These resources will have to be specified by the sub-network administrator. Refer to the *iDIS™ System Administration Reference,* Chapter 6, for information on setting up additional resources.

3.2.4 Initializing Sub-network iDIS Execution and iDIS™ User Nodes

To install iDIS execution and iDIS user nodes, at the new node, perform the following:

1. Install XENIX Release 3.4 and XENIX Networking Software R2.0 as described in the *System Administrator's Installation Guide,* Chapters 3 and 4. When the system configuration is complete, shut down the system, reboot, and enter maintenance mode.

2. When the XENIX prompt appears, perform the following:

   ```
   mkself <cr>
   ```

```
Enter machine name: sub-network node<cr>
Enter machine password: any 5-12 characters<cr>
Enter subnet master node name (or <cr> for default of local_node)
Enter subnet master node name: sub-network master node<cr>
Enter subnet master passwd path (or <cr> for default of
//sub-network master node/etc/passwd)
Enter subnet master passwd path: <cr>
Enter subnet master group path (or <cr> for default of
//sub-network master node/etc/group)
Enter subnet master group path: <cr>
Enter subnet master nameserver path (or <cr> for default of
//sub-network master node/net/data)
Enter subnet master nameserver path: <cr>
Enter master ulist path (or <cr> for default of
//sub-network master node/net/ulist)
Enter subnet master ulist path: <cr>
```

The information you entered is displayed for verification followed by the prompt:

```
Would you like to change any of the information?
```

Enter **n** < **cr** > unless you made an error in entering the data. Record the machine name, machine password, and Ethernet address; you will need this information later.

3. When the operating system prompt reappears, enter:

```
mkns<cr>
Do you want to update the local /net/data only? (y/n) y<cr>
```

You must enter **yes** to this prompt, otherwise an error will occur.

A `Service Requested:` prompt will appear. Enter:

```
addname<cr>

Input entity name: sub-network node name/nfc<cr>
Input entity type: xenix<cr>
Do you want to enter address information now? (y/n): y<cr>
PORT ID: A100<cr>

Do you want to use the default NETWORK ID? (y/n): y<cr>
```

Enter the 12-character Ethernet address for this node.

NOTE

If you do not know the Ethernet address, exit the mkns utility (< **DEL** >) and enter the **i552info** command at the XENIX prompt. Record the Ethernet address and re-enter mkns.

```
Service requested: addname<cr>

Input entity name: sub-network node name/nfs<cr>
Input entity type: xenix<cr>
```

```
Do you want to enter address information now? (y/n): y<cr>
PORT ID: 8000<cr>

Do you want to use the default NETWORK ID? (y/n): y<cr>
```

Enter the 12-character Ethernet address for this node.

```
Service requested: done<cr>
```

4. If you wish to install the virtual terminal software, refer to section 4.7 of the *System Administrator's Installation Guide* for VT 2.0 installation instructions.
5. If you have any host communication products for this node, install them now. Refer to the appropriate host communication installation manual for installation procedures.
6. Mount the /usr partition and activate the network software by entering:

```
mount /dev/usr /usr<cr>
nfs on<cr>
nfc on<cr>
```

7. If you have not already done so, it is recommended that you assign a password to the root login ID by entering:

```
passwd root<cr>
```

and answering the prompts displayed.

NOTE

When the node initialization is complete, the root password will be the same as that of the sub-network master node.

Repeat steps 1 through 7 for all iDIS execution and user nodes in the sub-network. Next, go to the sub-network master node, log in as idis, and perform the following:

NOTE

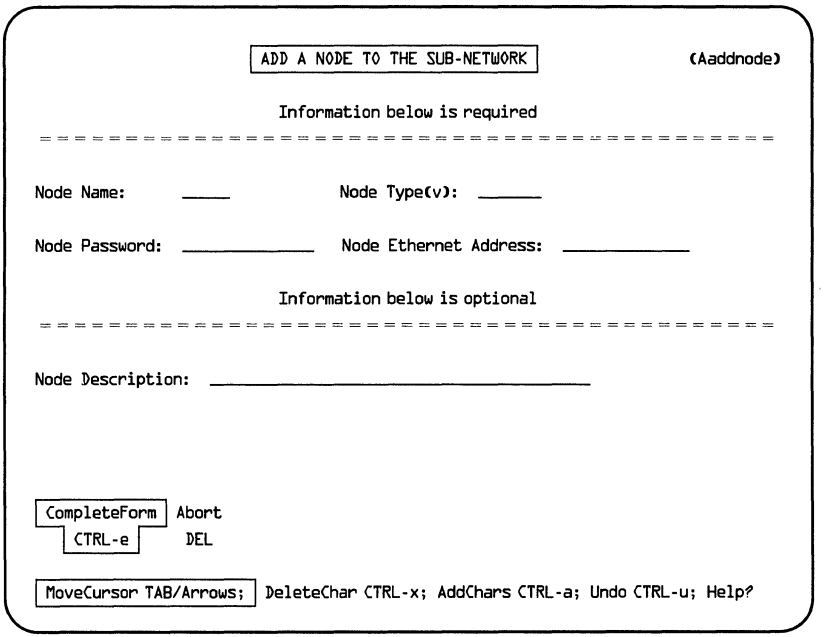
You must be the only one logged in as the idis user to perform these procedures.

1. From the Top menu, enter:

```
s n<cr>
```

The Sub-Network Node Maintenance and Setup menu appears.

2. Make the **init** selection. The Add a Node to the Sub-Network form will appear.



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Enter the following information:

Node Name:	The name you entered when you performed mkself on the sub-network node.
Node Type (v):	Press the < **SPACE BAR** > until the appropriate entry appears. (iDIS execution or iDIS user depending on the type of node you are initializing.)
Node Password:	Enter the same password entered during mkself on the sub-network node.
Node Ethernet Address:	The 12-character address for the node. If you do not know the address, log in as root on the node for which you need the Ethernet address and enter **i552info** < **cr** > to display the Ethernet address.
Node Description:	Optional entry.

3. When the form is complete, enter < **CTRL** > **-e**. A message will display asking if you have a valid licensing agreement with Intel.

A "yes" response indicates that you have such an agreement. If you respond with "yes", the following prompt appears:

```
Please enter the "root" password for the node node name when asked...
Password:
```

If you created a password, enter it; otherwise, enter <cr>.

4. Repeat steps 1–3 for any other sub-network nodes you are adding to the sub-network.
5. When all sub-network nodes have been added, enter the following from the Sub-Network Node Maintenance and Setup menu:

   ```
   t s<cr>
   ```

   You will be prompted if you want to apply the transaction immediately or schedule it for later. Enter **n** <**cr**> to apply the transaction now.
6. After the transaction completes, enter **:m r** <**cr**> to read mail. If an error occurred during the batch transaction operation, you will receive a message indicating the problem in your mail. If an error did occur, repeat the initialization for those nodes with error messages indicated in the mail.

This completes the basic initialization on sub-network nodes. Refer to the Feature Installation procedures in section 3.2.6 to add iDIS application software. Additional procedures that will be required are user, group, and public workarea initialization (Chapter 4 of the *iDIS™ System Administration Reference*), resource specification, and assignment of any resources not automatically set up during initialization (see Chapter 6 of the same manual).

3.2.5 Installing PC Nodes in the Network

The next step in initialization of the network is setting up the PC nodes in the network. Perform the following at the PC node to set up the network software:

1. Install the network software as instructed in section 4.8 of the *System Administrator's Installation Guide.*
2. Install the iBPC software as instructed in the *iPC-iDIS™ Installation and User's Reference.*

Repeat these two steps for each PC in a sub-network. When complete, go to the sub-network master node and perform the following:

1. Log in as idis. When the Top menu appears, enter:

   ```
   s n<cr>
   ```

2. The Sub-Network Node Maintenance and Setup menu appears. Make the **init** selection.

3. When the Add a Node to the Sub-Network form appears, enter the following:

Node Name:	The PC Node name.
Node Type (v):	personal-computer.
Node Password:	*PC Node password*
Node Ethernet Address:	Refer to the *System Administrator's Installation Guide,* section 4.4.1, to get the 12-character Ethernet address for the PC node.
Node Description:	Optional Entry.

4. When you have completed the form, enter <**CTRL**>**-e**. The system will indicate that the node information is getting built.

   When complete press <**cr**>. When the Anettop menu reappears, repeat steps 2 and 3 for each additional PC node that you are adding to this sub-network.

5. When the Anettop menu reappears, select:

   t s<cr>

   This selection applies the transaction to the rest of the nodes in the sub-network. Either enter **y** to schedule the transaction at a later time, or **n** to apply the transaction immediately.

When complete your PC node(s) should have access to all nodes in the sub-network as determined by the PC user's access rights.

3.2.6 Software Feature Installation

Before installing the iDIS features, it is a good idea to verify your installation. Log in as idis and go to the Anettop menu (by entering **.s s n**) and select "disp". The names of the public servers, the logical network master, the sub-network masters, the iDIS execution node, the iDIS user nodes, and the PC nodes will be listed. If everything is correct, proceed to the feature installation.

After the sub-network master node and the iDIS execution nodes have been initialized, the software features need only be installed once. They may then be loaded via the network to any node desired. Consider configuring two or more iDIS execution nodes in a sub-network with the same software features. This allows the duplicate nodes to act as backup nodes in the event that one of the nodes goes down.

Follow this procedure to install any iDIS features:

NOTE

You must install the iWORD feature before installing the iDESK feature.

1. Log in as idis at the sub-network master node.
2. Select **s i** < **cr** > from the Top menu.
3. When the Feature Installation menu appears, select **i** to install a feature. The message will appear:

   ```
   Please insert diskette no. 1 of the feature you wish to
   install and press <RETURN> OR enter c <RETURN> to cancel
   feature installation.
   ```

   Follow the instructions to load the first diskette. If there are additional diskettes, the message will appear:

   ```
   Please mount volume id: feature 2 of # and press RETURN
   ```

   Insert the diskette as requested and press < **cr** >. Repeat until all diskettes have been loaded.
4. When the loading is complete a dynamic list of node names will appear. Select any iDIS execution nodes licensed for the software package. When all nodes have been selected press < **cr** >. The software will be installed on each selected node.
5. When the installation of the feature is complete, enter **:m r** < **cr** > to read mail. Verify that no errors occurred during the installation of the feature. If an error occurred, remove the feature with the xdel selection on the Afinst menu, then perform steps 1–4 again to reinstall the feature.

Repeat these steps for each software package to be installed.

3.3 User Administration

The next step in installation is initializing the user IDs. This provides each user a secure workarea. You must first determine the type of each user. The iBASE software provides four user templates, each providing access to different software.

iDISuser — may access all of the iDIS feature software and all non-Intel applications accessible through iDIS, but is restricted from the administration menus, the development menus, and the XENIX operating system.

iDISdeveloper — may access all iDIS features, all non-Intel applications accessible through iDIS, the menu development software (iMENU), and the XENIX operating system.

XENIXuser — may not access the iDIS menu system, but can perform XENIX development and access application software.

keyoperator — may access all iDIS features, all non-Intel applications accessible through iDIS, plus the key operator functions that allow printer administration, archiving, and terminal maintenance, but is restricted from menu development, and administration menus.

If the four types provided do not fit your needs, you may create a new template with the USER TEMPLATE MAINTENANCE function. (See the *iDIS™ System Administration Reference,* sections 4.11 and 4.12, for specific instructions.) For example, you may change the default editor from vi to iWORD, Q-OFFICE, or Lyrix by altering the default user profile (see section 4.12.2 in the above manual). You may also deauthorize menu selections, such as password maintenance, by altering the default deauthorization file (see section 4.12.3.2.1 in the above manual).

Once you have determined who the users are and their templates, perform the user initialization procedures in section 4.9 of the *iDIS™ System Administration Reference.* The sub-network administrator (idis) should perform these procedures at each sub-network.

3.4 Group and Public Workareas

In many instances it is useful to allow some users to share files. There are two ways to allow users to share files in iDIS: group workareas and public workareas. With group workareas a designated group manager determines who may access the group workarea, while all users may access a public workarea. First determine if you need groups and group workareas, and how many. Then perform the group initialization procedure in section 4.13 of the *iDIS™ System Administration Reference.*

Creation/deletion of the groups, group workareas, and public workareas is effective only within a sub-network and should be performed by the idis login at each sub-network.

3.5 Setting Up Resources

Many of the hardware and software features that iDIS uses are defined as resources. These resources are under the control of the system administrator through the Distributed Resource Management (DRM) menus that are a part of the iBASE product. In order for users to access them, the resources must be specified and then assigned to users. Any of the resources (such as flexible disk drives, tape drives, or printers) that are entered in the system configuration program (scp) are automatically set up and assigned by default to all users. Some resources require additional input to achieve operational status. Those resources include:

Resource Name as Recognized by iDIS DRM	Description
3271BSC-gate HASP188-gate RBTE188-gate	Intel host communication package that emulates an IBM 3271 Cluster Control Unit supporting up to seven 3277 display devices and a 3287 printer emulation. Requires the VPM 188 software package. Refer to section 6.19 in the *iDIS™ System Administration Reference.*
3274SNA-gate	Intel host communication package that emulates an IBM 3274 Systems Network Architecture, a 3274 Model 51C Control Unit supporting up to sixteen 3278 display stations and a 3287 printer. Refer to section 6.19.1 in the *iDIS™ System Administration Reference.*
application	any application software package other than those already provided for in the iDIS menus (listed in Chapter 1 of this manual). Refer to section 6.16 in the *iDIS™ System Administration Reference.*
directory	the part of a file system that you want to use for archive operations. Files in the archive directory will be written in the XENIX tar format. Refer to section 6.12 in the *iDIS™ System Administration Reference.*
menudev	access to menu systems through the iMENU menu development software. You may specify new menu systems or the iDIS menu system (to customize the iDIS menus to fit your specific application). Refer to section 6.17 in the *iDIS™ System Administration Reference.*

Resource Name as Recognized by iDIS DRM	Description
vpm188	Virtual Protocol Machine software using the 188/48 terminal communication board. Refer to section 6.19.2 in the *iDIS™ System Administration Reference.*
vt-phone	Terminal emulation access to other systems via a modem and phone line. The configuration and phone number must be set up in the /etc/remote file. Refer to section 6.18.1 in the *iDIS™ System Administration Reference.*
vt-lan	Terminal emulation access to other nodes in the network. You must have the virtual terminal software to configure. Refer to section 6.18.3 in the *iDIS™ System Administration Reference.*
vt-remote	If you want to allow only certain users to access specific systems via modems and/or vt-lan connections, use the vt-remote resource entry. Refer to section 6.18.2 in the *iDIS™ System Administration Reference.*

If you performed the procedures listed above for each individual resource, you assigned it to certain users. The resources that were set up automatically, however, were assigned to everyone by default. If you want to restrict access to a resource, you will have to revise the resource assignments. Refer to the resource assignment form in Chapter 2 of the *iDIS™ System Administration Reference* for information on changing the assignments.

This completes the installation and configuration procedures. The network should be ready to use for all users that have been initialized. Note that the user must select the printer and backup device they wish to use with the "adm" selection on the site menu.

A INSTALLATION TROUBLESHOOTING

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This appendix provides an explanation of what occurs during the execution of the installation shell script and some general guidelines for correcting problems that may have occurred. Also included are "recovery" procedures in case of installation failure.

A.1 Installation Information

When the iBASE product is installed on a system, the installation program automatically makes all required changes to the system. The installation program is contained in two files: INSTALL and configure.idis. INSTALL executes first, then runs configure.idis for completion. The installation program performs the following steps:

1. Checks for correct directory structure.
2. Activates a process to copy installation status to the /usr/update/zaplog file.
3. Verifies with installer that system time and date are correct.
4. Verifies that the XENIX version 3.4 operating system is installed by checking the /sys/conf/xenixconf file.
5. Verifies that the iDIS group workarea (iDISgw) device driver is installed and activated in /sys/conf/xenixconf.
6. Checks to see if XENIX Networking Software has been installed. If it has, asks if this is the logical network master node.
7. Creates the required directories.
8. Uses the tar xvf /dev/dvf0 command to read in the diskettes.
9. Updates the system configuration file /usr/intel/scp/configurations/current to indicate iDIS has been installed.
10. Verifies that old iDIS software is not present.
11. Creates the iDIS directories and sets the appropriate permissions.
12. Takes the configuration information in the file /usr/intel/scp/configurations/current and uses that to build the resource files /etc/drm/finder.rsrc and /etc/drm/finder.assign so that the configured resources are automatically set up and assigned in iDIS. The program also copies the current file (before changing

it) to a file called current.bidis to record the configuration information before iDIS was installed.

13. If this is a network installation, all the iBASE files are copied from the master node to the target installation node.
14. Creates a new lpr command designed for printing with iDIS.
15. Performs network synchronization and makes sure that the system name is established.
16. Sets up the network mail file and configuration.
17. Sets up the user ID and group ID numbers that this node is allocated to use.
18. Creates the new idis system and network users (idis, ilna, ikey, idev, iuser, ademo if the system is part of a network), the "samples" public workarea and the Personnel directory (/etc/Personnel).
19. Creates the file called /usr/iDIS/version.nums and inserts the iBASE installation, time, date, and version number.

Note that this is not a complete list of all events of the installation, but a general overview of what the program is doing. You should not modify any of these system files; they are required for proper system operation.

A.2 iDIS™ Files

The following list includes the directories and files added to the file system when installing iBASE. Note that subdirectories and files under the listed directories are not shown. This list is only for the purpose of making a quick check to verify that the basic files were loaded on the system.

iBASE Files

Five directories are created that contain the iBASE software:

/iDISboot
/etc/drm
/etc/Templates
/usr/iDIS
/usr/iDISbin

Home directories are added for system login IDs to the /usr directory:

/usr/idev
/usr/idis

/usr/ikey
/usr/iuser
/usr/ilna (for Networked systems only)
/usr/ademo

In addition, a Personnel file is created in /etc. The /etc/passwd and /etc/group files are modified to include the idis system login IDs.

A.3 iDIS™ Feature Installation

The iDIS software features add the following directories:

iWORD	/usr/iDIS/wp
iPLAN	/usr/iDIS/ss
iDB	/usr/iDIS/lcldbms

If you are having trouble installing an iDIS feature, error messages will display that will allow you to solve most problems.

During the feature installation process, status and error messages are generated and placed in the installation report file that can be helpful when an installation problem occurs. If you are having problems during or after installation, use the following steps to correct the problem:

1. After the software has been loaded on the system, three messages will appear:

   Message 1:

   ```
   Building authorization file ...
   ```

   During this message, the system is modifying the select.dat file to update the menu selection file to reflect the menu changes caused by the installation of the new software. If you have an error message during this process, then the file permissions on that file are most likely wrong. To correct, enter XENIX (! < cr >) and enter:

   ```
   cd /usr/iDIS/idis/develop<cr>
   l select.dat<cr>
   ```

   The following should appear:

   ```
   -rw-rw-r--  1 idis     idis   size  date select.dat
   ```

   If the owner or group name is other than idis, you need to know the superuser (root) password to correct it. Enter:

   ```
   su<cr>
   ```

   The system will ask

   ```
   Password:
   ```

Enter the root password, and press < **cr** >. Then enter:

```
chown idis select.dat<cr>
chgrp idis select.dat<cr>
<CTRL-d>
```

If the permissions (-rw-rw-r--) are different than shown, enter:

```
chmod 664 select.dat<cr>
```

Proceed to step 2 if no other errors appeared.

Message 2:

```
Building selection and image files ...
```

During this message the installation program is modifying two files called deauth.dat and login.dat. If an error message occurs immediately after this message, most likely there is an error in the permission settings of these two files. To correct, enter XENIX (! < **cr** >), and perform the following:

```
cd /usr/iDIS/idis/control<cr>
l *.dat<cr>
```

The following should appear:

```
-rw-rw-r--  1 idis     idis    size  date deauth.dat
-rw-rw-r--  1 idis     idis    size  date login.dat
```

If the owner or group name is other than idis, you will need to know the superuser (root) password to correct it. Enter:

```
su<cr>
```

The system will ask

```
Password:
```

Enter the root password and press < **cr** >. Then enter:

```
chown idis *.dat<cr>
chgrp idis *.dat<cr>
<CTRL-d>
```

If the permissions (-rw-rw-r--) are other than shown, enter:

```
chmod 664 *.dat<cr>
```

Proceed to step 2 if no other errors appeared.

Message 3:

```
Validating the menu file ...
```

The third message appears when the program is checking the contents of the select.dat file against the available selections of the menu files. If an error occurs after this message, you will

have to resolve the differences between the two files. Some typical error messages that may occur are:

```
Unable to open menu image file
```

This message results if a file is missing or file permissions are wrong. If the permissions are wrong, perform the same steps described in Message 2.

You may also see an error message with a specific menu name and selection name. This indicates that the selection file and the menu file are not consistent.

To correct these types of errors you must resolve the differences between the two files. First, enter the operating system (! < **cr** >) and perform the following:

```
cd /usr/iDIS/idis/develop<cr>
```

```
vi select.dat<cr>
```

When the file is displayed, enter:

```
/menuname<cr>
```

The menu name should appear as the first entry on the line. If not repeat the command. When the menu name appears as the first entry (entries are separated by semicolons), it will be repeated on 9 to 16 lines. The second entry on each line is the menu selection. Record each selection for that menu name. Two example lines are shown:

```
Top;   asw;     Aswtop;  ;
Top;   iDIS;    iDIS;    ;
```

Exit the select.dat file by entering **:q** < **cr** > . When the XENIX prompt appears, view the menu file:

```
vi menuname.mnu<cr>
```

When the file is displayed, make sure that the number of entries, and the spelling of the entries is exactly the same. If they are not the same, edit either the menu file or the select.dat file so that they are identical. If you do not know the correct selection, you can view the menu in the menu reference chapter of the applicable user reference manual. If information is missing from the select.dat file, you may have to call your Intel Service Representative. When complete, go to step 2.

2. After resolving the discrepancies in XENIX (as the idis user) perform the following to generate a new run-time file:

```
cd /usr/iDIS/idis<cr>
MDHOME=/usr/iDIS/menus/md<cr>
export MDHOME<cr>
#MDHOME/genmcf.ss<cr>
```

As the generation is proceeding, verify that no error messages display.

A.4 Converting Users to iDIS™

If you have a system that has been operational using applications and the XENIX operating system, and you are adding the iDIS software package, you may want to convert a XENIX user to an iDIS user. You may use the following procedures to perform that conversion.

NOTE

This does not include the conditions and conversion you must make in a network environment. If you are going to convert iDIS users in a network environment, contact your Intel Service Representative.

1. Log in as root.
2. Save the user's mail file from /usr/spool/mail/*user* into a temporary file.
3. Make sure the user's files are backed up and move them to a temporary directory:

   ```
   copy -or /usr/user /usr/tmpuser<cr>
   ```

   Remove the old files by entering:

   ```
   rm -r /usr/user/*<cr>
   rm /usr/spool/mail/user<cr>
   ```

4. Perform the XENIX rmuser command to remove the user.
5. Log out and log in as idis.
6. Create the user in iDIS using the same user name. Refer to the procedures in Chapter 4 of the *iDIS™ System Administration Reference* to initialize the user.
7. Log out of iDIS. Log in as root.
8. Change to the temporary directory where the user's files are stored and change the file ownership:

   ```
   cd /usr/tmpuser<cr>
   chown user *<cr>
   chgrp group *<cr>
   ```

   If the user has any directories, the ownership must be changed on the files in the directories also. Change to the directory and execute chown and chgrp:

   ```
   cd directory name<cr>
   ```

```
chown user *<cr>
chgrp group *<cr>
```

9. Move the files to the appropriate directory under the user's home directory. If, for example, the user had Q-OFFICE text files, then move the files to the directory:

   ```
   /usr/user name/asw_dir/Qoff_dir
   ```

   Or, if the user had Multiplan files:

   ```
   /usr/user name/idis_dir/ss_dir
   ```

   The user's files must be in the correct workarea (directory) with the correct ownership in order for the user to access them. It is a good practice for the user to then back up his files after the iDIS conversion.

A.5 Recovering from Unsuccessful iDIS™ Installation

The following instructions describe the removal of the iDIS software in case of unsuccessful installation. This would occur if the OpenNET connection was destroyed during the installation.

This procedure assumes you were performing one of the following installations:

- Installing a sub-network node from a sub-network master node.
- Installing a sub-network master node from the logical network master node.
- Installing a public server node from the logical network master node.

In order to install iDIS in either of these three cases, be sure each of these conditions is true:

- The network file consumer must be enabled on the master (sub-network master or logical network master) node (execute **nfc on** < **cr** >).
- Include a description for the new node in the /net/data and /net/cdf file on the new node as described in the installation procedures in Chapter 3.
- The /net/self file must exist on the new node as described in the installation procedures in Chapter 3.

Follow these procedures:

1. Log in as idis on the master node (sub-network master if you were installing a sub-network node or logical network master node if you were installing a sub-network master node or a public

server node). Enter **s n** <**cr**> from the Top menu to enter the Anettop menu. Select **disp** to view the configuration of the network.

If the node on which the installation failed is present, continue to step 2; if it is not, continue to step 3.

2. **If you are removing a sub-network node**, remove the new node from the sub-network master by selecting **xdel** from the Anettop menu.

   If you are removing a sub-network master node or public server node installed from the logical network master node, perform the following instructions:

   a. Log into the logical network master node as root.

   b. Edit the local /net/data and /net/cdf files to remove the entry for the new sub-network master node or public server node.

   c. Edit the /etc/drm/subnet file to remove the entry describing the new node.

   d. If you are installing a public server node, edit the local /etc/drm/finder.rsrc and /etc/drm/finder.assign files to remove references to the new node.

   e. Remove *node_name*.apply in /usr/iDIS/synch by entering:

   ```
   cd /usr/iDIS/synch<cr>
   rm -r node_name.apply<cr>
   ```

3. Determine if the file /usr/iDIS/iBASE/.rmidis.ss was installed on the new node. If it is present on the new node, continue to step 4. If it is not, try to re-establish the OpenNET connection and copy this file to the new node. If the OpenNET connection cannot be re-established, copy the shellscript onto a diskette from the master node by entering:

   ```
   cd /usr/iDIS/iBASE<cr>
   tar cvf /dev/dvfl .rmidis.ss<cr>
   ```

   Enter maintenance mode on the node from which iDIS is to be removed. Enter the following commands to copy the .rmidis.ss shellscript from the diskette:

   ```
   cd /<cr>
   tar xvf dev/dvfl<cr>
   ```

4. Enter the following to run the shellscript:

   ```
   sh .rmidis.ss<cr>
   ```

The shellscript removes all the iDIS files.

You will be instructed to remove all iDIS users from the /etc/passwd file using the vi editor. Since no new users have been added yet, enter **:q** to exit vi.

Similarly, you will be instructed to remove all iDIS groups from the /etc/group file using the vi editor. Again, enter **:q** < **cr** > to exit the vi editor. You will then be returned to XENIX.

5. Remove the /net/cdf file by entering:

```
rm /net/cdf<cr>
```

6. Edit the /net/data file. Remove all entries except for the local node.

7. Verify that the system is in maintenance mode and that /net/data, /net/cdf, and /net/self are configured as described in the installation instructions, then retry the installation instructions in Chapter 3.

B iWORD ADMINISTRATION

B.1 iWORD Printer Configuration

Within the iWORD software package there is an administrative program that users must invoke to perform printer configuration and other administrative options. This procedure must be performed for every node that is loaded with the iWORD software. It is necessary to log on to a different node within the same sub-network as the node that is loaded with the iWORD software to ensure the node name is included in the full pathname of the LATITUDE Base Directory. It is easiest to log onto one of the nodes in the sub-network and configure all the other nodes on which iWORD resides in the sub-network. Then log onto another node to configure the first node.

1. Log in as root. When the operating system prompt appears, enter:

   ```
   cd /node-name/usr/iDIS/wp<cr>
   sh manager<cr>
   ```

   where *node-name* is the node on which the iWORD software resides.

   ```
   The current directory is 'node-name/usr/iDIS/wp'.
   Is this your LATITUDE Base Directory (y/n)?
   ```

   Enter **y** < **cr** >

2. The first menu will appear:

   ```
   LATITUDE MANAGER PROGRAM.
   Select by number:
   ```

   Enter **3** to configure printers. The printer configuration menu will appear.

   If there is a previous configuration in place, the following menu will display:

   ```
   a) add printer to current configuration
   D) delete printer from current configuration
   M) make another configuration, ERASING current one
   q) quit printer configuration

   Enter a, D, M, or q:
   ```

   Select **M** < **cr** > to make a configuration.

3. A screen describing printer configuration will appear. Press <cr> to see a list of supported printers. You must press <cr> once more to complete the display of the list. The prompt will appear:

   ```
   Enter printer ABBREVIATION (from above list):
   ```

   Enter the abbreviation for your printer and press <cr>. If your printer is not supported, you may want to try a similar printer, or the 'dumb' entry.

4. Next you will be asked for a 50 character or less printer description. This entry will show up when users are going to select a printer. It should be descriptive of the printer type and location.

5. Next you will be asked:

   ```
   Is the printer connected to the terminal (y/n)?
   ```

   Enter **n** <cr>.

   ```
   Use a spooling program to print, like lpr or other (y/n)?
   ```

   Enter **y** <cr>

   ```
   Do you wish to print to the default printer (y/n)?
   ```

   Enter **y** <cr> to allow users to print iWORD documents on the printer that is currently selected in iDIS.

   Enter **n** <cr> to configure additional printers. It is best to configure all available printers for iWORD. That way, users may select the desired printer while in iWORD, rather than having to exit iWORD, select the desired printer, then re-enter iWORD to print. Enter the appropriate command to print on the additional printers.

   ```
   /bin/lpr -Pprinter type -Nnode name
   ```

   where

printer-type	matches the printer entry in the printcap file at the node to which the printer is attached
node-name	is the node to which the printer is attached.

6. You will be asked:

   ```
   Proceed with NEW configuration (y/n)?
   ```

   If you entered the information correctly, enter **y** <cr>.

7. The next question is:

   ```
   Add another printer (y/n)?
   ```

   Enter the appropriate response. If you answer yes, repeat steps 3 through 5. If you answered no, the new printer configuration

will be displayed, showing the printer you just entered. If correct, enter:

```
q<cr>
```

When the Latitude Manager Program menu appears, enter:

```
q<cr>
```

to exit the program.

The printer should now be functional for the iWORD word processor. You may want to perform a print test before allowing users to print in order to verify operability.

B.2 1.6 to 2.0 iWORD Conversion Utility

The "Convert" utility converts files created in the Horizon (iWORD R1.6) word processor to Latitude 3.7 (iWORD R2.0 files).

NOTE

If this system was converted from iDIS R1.6 to iDIS R2.0, the iWORD files have already been converted. If you are copying archived iWORD 1.6 files onto a new system, copy them into the /usr/*user-name*/idis_dir/wp_dir directory with the tar command. Then proceed with the instructions.

WARNING

Do NOT run the "Convert" utility on iWORD R2.0 files.

1. Log in as root.
2. Back up the existing iWORD R1.6 files (if not already done). The Convert utility will not save the original Horizon files; therefore, back up the files in case of error in converting.
3. Move to the iWORD directory by typing:

   ```
   cd /usr/iDIS/wp
   ```

4. Enter:

   ```
   sh Convert<cr>
   ```

5. Answer the prompts as follows:

   ```
   The current directory is '/usr/iDIS/wp'
   Is this your LATITUDE Base Directory (y/n)? y<cr>
   Enter the pathname of the 3.4 wordprocessing directory.
   pathname:
   //node_name/usr/userID/idis_dir/wp_dir<cr>
   ```

```
Enter the login name of the owner of this directory:
userID<cr>
Changing to /usr/userID/idis_dir/wp_dir
A list of directories will be given, respond with:
        y   RETURN -- to select the directory for
                      conversion
            RETURN -- not to select the directory
        q   RETURN -- to end selection and convert the
                      selected directories

drawer1? y<cr>
drawer2? y<cr>
drawer3? y<cr>
moving drawers to FileCabinet
drawer1
drawer2
drawer3
removing format files
converting files:
setting ownership
```

6. After all the indicated drawers have been converted, the following prompt will display:

   ```
   Do you wish to convert more files (y/n)?
   ```

   If yes, the prompts in step 5 will be repeated; if no, you will be returned to the operating system.

   You must repeat this procedure for each user who has iWORD Release 1.6 documents.

   Note that this utility does not convert format specifications made with the Release 1.6 iWORD dot commands.

C PLANNING AN iDIS™ NETWORK

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C.1 Structure of an iDIS™ Network

To plan an iDIS network, you must understand the structure of an iDIS network and the different types of nodes that comprise the network. The iDIS network makes up one logical network. A logical network is a group of commonly administered nodes (systems) within the physical network. All user and group IDs must be unique within a logical network. Nodes outside of an iDIS Logical network can not access any of the resources of the iDIS network; the users of the iDIS network cannot access any of the resources outside of the logical network.

Each logical network is divided into one or more sub-networks. A sub-network is a group of one or more nodes that share a common set of user and group definitions. A sub-network appears to the user as a single system, regardless of the number of physical nodes it incorporates. Connections between nodes within a sub-network are established automatically; no explicit user action is required. Users may access the same set of resources regardless of their physical location within the sub-network.

The nodes may act in one of several functions. One node may act as a focal point of administration providing network synchronization, while another devotes all its resources to executing software features and storing user files. Other nodes may hold resources for all network users to access. See the descriptions of each type of node below.

Logical Network Master Node: This is the node used by the network administrator to create and maintain the sub-networks and public nodes within the logical network.

Sub-network Master Node: The sub-network master node contains the definitive (master) versions of the sub-network's administrative files. The master files ensure synchronization between all the nodes of the sub-network. This node may also contain all the iDIS software.

Public Server Node: A public server node holds resources available to every user on the logical network. Install common printers, modems, and certain host communication software as resources of a

public server node. User accounts may not reside on public server nodes.

iDIS Execution Node: The iDIS iBASE software, iDIS features, and non-Intel software features are installed on an iDIS execution node. Users are initialized on the iDIS execution node and should primarily use the applications installed on that node to maximize system performance.

iDIS User Node: iDIS software and features are not installed on iDIS user nodes thereby saving disk space. Users are initialized on this type of node and configured to use the iDIS software installed on a remote iDIS execution node. Although this saves disk space, additional resources (system processes and network buffers) from both the user node and the execution node are required for this configuration.

PC Node: PC nodes are personal computers included in a sub-network.

After you understand the structure of the network and the function of the network nodes specified in this section, continue through this appendix for more specific information.

C.2 iDIS Network Constraints

Note the following constraints when planning and installing the iDIS network.

1. File access between sub-networks is not supported through the iDIS user interface. If file access between sub-networks is needed, the network configuration must be enhanced to allow communication between the nodes. These updates cannot be made with the iDIS administration interface, but require the XENIX administrative interface. File access between sub-networks cannot be made through the normal iDIS menu selections. The user must first escape to the XENIX shell and then use XENIX commands to access the desired files.

   The network administrator should be familiar with both the XENIX Networking Software and iDIS administrative structures before attempting such enhancements.

   This restriction does not affect the scope of the PCs file access.

2. Overlapping User and Group IDs between sub-networks are not permitted. The user and group IDs assigned must be unique throughout the logical network, not just the sub-network. This is accomplished and maintained automatically when initializing sub-networks via iDIS.

The network administrator must assign the permissible user ID and group ID ranges for each sub-network. There are 32,767 unique user IDs and 32,767 unique group IDs. The iDIS network feature, by default, allocates 200 user and group ID numbers to each sub-network. The Logical Network Master uses the User ID and Group ID range of 300–499.

3. Node names are limited to seven characters for iDIS networks.

4. The iDIS interface must always be used when adding or removing users, groups, or nodes within the network. Use the XENIX interface for customizing the network using functions not available through the iDIS interface.

   The network administrator should exercise great caution in making changes to an iDIS environment through the XENIX interface. He should understand the structures that are affected by the change, and should know how to test the change and remove it if it fails.

C.3 iDIS Network Recommendations

The following procedure gives some general guidelines to follow when planning a network.

1. Determine the number of sub-networks required.

   To identify the sub-networks, determine which users share resources, application packages, and data and group them into sub-networks accordingly. Users within a sub-network may have access to all the resources in the sub-network according to the standard XENIX permissions. Users outside of that sub-network must log into a node in the sub-network to access its resources. This provides a level of security to the sub-network beyond standard XENIX security.

   A network may consist of only one sub-network; this configuration allows all users access to the resources available. The only file security is that imposed by standard XENIX permissions.

   A network consisting of more than one sub-network requires a Logical Network Master node; each sub-network requires a sub-network master node.

   Determine the number of public server nodes needed in the network. Public server nodes are configured as individual sub-networks; the master network administrative files for the public server node reside on the public server node. This ensures that all the users of the logical network may access the resources on the public server node. Note that if your logical network consists

of only one sub-network, a public server node would not be necessary; resources installed on any given node of the sub-network would be accessible by all users on the sub-network.

2. Determine the node configuration of each sub-network. Individual sub-networks may consist of iDIS execution nodes, iDIS user nodes, and PC nodes as previously defined.

3. Determine which systems will serve as each type of node. Notice in Table C-1 (in step 4) that the iBASE software on the Logical Network Master Node and the Sub-Network Master Nodes require more space than the iBASE software installed on an iDIS Execution Node. Also follow these additional guidelines when choosing the system's function.

   iDIS Execution Nodes—calculate the amount of disk space needed with the numbers given in step 4. Users initialized on an execution node should use the iDIS residing on that node, rather than from a remote node.

   Public Server Nodes—no user accounts may reside on public server nodes. Consider installing 3274 SNA or 3270 BSC (Release 2.1) Host Communication software packages, modems, and printers on the public server nodes so that they may be accessed by all network users.

   iDIS User Nodes—assign no more than one user node to any given execution node. Even so, understand that the use of user nodes may cause the sub-network to reach default resource limits. To increase these defaults, tune the system variables as described in the *XENIX Installation and Configuration Guide* and the *XENIX Networking Software User's Guide.* Call your Intel Service Representative for assistance if necessary.

4. You must consider the available disk space and the number of system processes when determining the number of users to be initialized on any given node. The following points must be considered:

   Disk Space Considerations

   - It is recommended that 15% of the root partition and 15% of the user partition remain free for temporary files. Note the sizes of the partitions for the various sized hard disks.

Drive	User Partition	Root Partition
40 MByte	22 MByte	9 MByte
85 MByte	52 MByte	9 MByte
140 MByte	93 MByte	9 MByte

   - Table C-1 lists the required disk space for each Intel software package. Most of the software packages (except for XENIX) reside on the user partition.

Table C-1. Intel Software Disk Space Requirements

Software Package	Disk Space Requirement	
	User Partition	Root Partition
XENIX 3.4	6.0 MBytes*	5.0 MBytes
9 Track Tape Driver		0.2 MBytes
VPM 188		0.2 MBytes
3270 BSC		0.2 MBytes
HASP 188	0.8 MBytes (shared with RBJE)	
RBJE 188	0.8 MBytes (shared with HASP)	
3274 SNA	0.5 MBytes	
XENIX Networking Software		1.4 MBytes
Virtual Terminal		0.2 MBytes
iBASE on:		
Logical Network Master	8.1 MBytes	0.3 MBytes
Sub-network Master	8.1 MBytes	0.3 MBytes
Execution Node	3.9 MBytes	0.3 MBytes
Public Server Node		0.3 MBytes
iWORD	1.0 MByte	
iDB	3.0 MBytes	
iPLAN	0.2 MBytes	
iDESK	0.6 MBytes	
iMENU	0.4 MBytes	
iBPC	0.3 MBytes	
iDIS S2K Extract	0.8 MBytes	

*Note that 1 MByte = 1000 Blocks

- Determine how much disk space each non-Intel software feature consumes.
- Note that each user's empty workarea consumes 50 KBytes of disk space.
- Host communication users download large amounts of data from a mainframe and may require more than the average amount of disk space; users of host communications should be initialized on a system with as large a disk space as possible.
- Nodes holding large databases decrease available user disk space.
- Nodes with text processing users may require more disk space per user.

System Processes Considerations

- The default number of available system processes is 80 per node. (This may be modified; see the *XENIX Installation and Configuration Guide* or call your Intel Service Representative.)

- Each enabled port requires 1 system process.
- The operating system uses 7–10 processes.
- Each idle logged on user requires 2 processes.
- The average logged on user requires 6 processes.

Using the numbers obtained above, choose a number of users that allows enough storage space for user files and allows enough system processes to accomplish work. If you calculate a shortage of system processes, reduce the number of users to initialize on the system. If you calculate a shortage of disk space, reduce the number of users or consider upgrading the node with a larger hard disk or an additional hard disk.

5. Determine where to place each resource. Resources to be considered in the planning stage are printers, modems, application software, and backup devices.

   Printers—Determine the number of printers needed within the sub-network. Printers may not be needed at every node, since users may print across the sub-network, but enough printers must exist to keep up with the needs of the users.

   Modems—Terminals must be attached to serial I/O ports on each system. Additionally, modems and serial printers may be attached to the system's serial ports. Be sure that enough serial ports exist for each device included on the node.

   Additional software—Consider additional software disk space requirements and licensing agreements. If licensed to install the software on a limited number of nodes, install the software within the sub-network of those users who use it most often.

   Backup Devices—Provide enough backup capability for users within each sub-network. Again, users may access backup devices across the sub-network.

6. Determine the number of administrators needed. The iDIS iBASE software provides a menu driven interface for the following administrative users:

   Network Manager—uses the ilna login. The network manager plans the network, installs the public server nodes and sub-network master nodes, and manages the public server nodes. Often, the network manager has the expertise to guide the sub-network administrators when troubleshooting or administration is necessary. Refer to the *iDIS System Administration Reference* manual for information about administration and iDIS administration menus.

   NOTE

   Do not use the ilna login if the network consists of only one sub-network; use the idis login.

Sub-network Administrator—uses the idis login. The sub-network administrator manages a sub-network. It is helpful for the sub-network administrator to know the root password for the sub-network master node that he administers. The idis login provides the sub-network administrator the ability to initialize users, groups, and public workareas; control resources; perform software feature installations; and perform sub-network node administration through menu selections. Refer to the *iDIS System Administration Reference* manual for information on how to use the iDIS software to assist in administration.

Key Operator—provides the routine administrative functions that must be performed on an individual node through menu selections. Selections include backup and restore operations, print queue control, and process termination. The sub-network administrator may authorize a key operator to perform the key operator functions on one or more nodes. Refer to the *Key Operator Tutorial* and the *Key Operator User's Reference* for information on how to use the iDIS menus to perform key operator's tasks.

After planning the network as described in this chapter, install the appropriate software on each node. Refer to the *System Administrator's Installation Guide* for XENIX, XENIX Networking Software, Host Communications, and Virtual Terminal installation instructions. Refer to Chapter 3 of this manual to install the iDIS software.

For futher information refer to the *OpenNET Planning and Design Guide.*

For further assistance in planning your network, contact the Intel Service Representative.

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