

# 2074 Console Support Controller Configuration Guide

SC28-6806-02







@server

# 2074 Console Support Controller Configuration Guide

SC28-6806-02

**Notice!**

Before using this information and the products it supports, be sure to read the general information under "Notices", on page A-1.

**Third Edition (June 2003)**

This document refers to the IBM 2074 Console Support Controller.

- | This major revision replaces the second edition and makes it obsolete.

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## About This Publication

This publication describes the configuration process for the 2074 models.

**Note:** In this document, ® **S/390** refers to both **IBM S/390** and **IBM zSeries** hardware.

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## Who Should Use This Publication

This publication is intended for the technical staff who will configure the 2074.

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## What Is Included in This Publication

This publication contains the following chapters and appendixes:

- Chapter 1, “2074 System Overview”, on page 1-1 is an introduction to the 2074 configurator.
- Chapter 2, “2074 Configurator Tasks”, on page 2-1 is a description of the available 2074 configurator tasks.
- Chapter 3, “Operating the 2074 Configurator”, on page 3-1 describes the process for operating the 2074 configurator.
- Chapter 4, “2074 Programming Considerations”, on page 4-1 describes the differences between the 3174 and the 2074.
- Chapter 5, “Optical Media Attach (OMA/2) Feature”, on page 5-1 is a description of the Optical Media Attach (OMA/2) feature.
- “Notices”, on page A-1 contains the trademarks, and services marks, the electronic emission notices, and information about the use of online books.

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## Related Publications

### Important

Please ensure that you are using the most recent version of all related documentation.

Other IBM publications that you will find helpful and that you should use along with this publication include:

- 2074 Overview Document
- *2074 Console Support Controller Installation and Maintenance Information*, G229-9028.
- *xSeries™ 340 Hardware Management Manual*, part number 19K6113 (for the 2074-001).
- *xSeries 342 Hardware Management Manual*, part number 24P2922 (for the 2074-002).
- *xSeries 235 Type 8671 Hardware Management Manual*, part number 59P6524 (for the 2074 Model 003).

**Note:** The 2074 Overview Document (Overview.pdf) can be sourced from the following locations:

- C:\present
- 2074 Load CD in the PRESENT subdirectory

- ftp:\P390.IBM.COM\doc\2074
- ftp:\s390is.pok.ibm.com\doc\2074

**Note:** The Hardware Management Manuals (HMMs) can also be found on the CD-ROM in the HMM subdirectory.

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## Summary of Changes

Summary of Changes for SC28-6806.

2074 Console Support Controller Configuration Guide

Release Level	Date	Changes in Level
00	07/00	Initial Release
01	01/02	Miscellaneous corrections and clarifications, and includes addition of the model 002.
02	06/03	Miscellaneous corrections and clarifications. Addition of Model 003 information.

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## Chapter 1. 2074 System Overview

The IBM® 2074 Console Support Controller is the replacement for local, non-SNA 3174 Control Units. Its primary application is to provide 3270 sessions for the System Operator Consoles for OS/390® or z/OS™, z/VM™, VSE, etc., but these sessions can also be used for TSO, VM, or VSE users. The 2074 is a shared control unit that can be used simultaneously by multiple LPARs, using EMIF-capable ESCON® channels. When it is connected to an ESCON Director, the 2074's 3270 sessions can be assigned individually to multiple S/390 systems.

A 2074 can contain one or two ESCON Channel Adapters. Each adapter is an independent control unit that is configured, cabled, started, and stopped separately. However, because there is no hardware redundancy within a 2074 box, you are urged to use two separate 2074 boxes to provide redundancy for each of the two control units.

Each Channel Adapter is capable of handling 48 TN3270E sessions for a total of 96 sessions per box (2074-003), 32 TN3270E sessions for a total of 64 sessions per box (2074-002) or 16 sessions per adapter for a total of 32 sessions per box (2074-001). These are not "real" 3270 devices using coax and 3278 terminals. Instead, the 2074 uses TCP/IP connections over Token Ring and/or Ethernet LAN to attach to PCs which are running TN3270E emulators, such as IBM eNetwork Personal Communications.

Another function supplied by the 2074 is Optical Media Attach (OMA/2) emulation. This allows S/390 Operating System installation and service CDs (for example, z/VM) in OMA/2 format to be loaded onto the S/390 mainframe from the CD-ROM drive in the 2074 by using one or more of its device addresses defined to be a 3422 tape drive. The OMA/2 function is only available on the 2074-003, 2074-002 or after installing driver 1.0.8 on a 2074-001.

This book contains detailed descriptions of the 2074 Configurator program and how to use the Configurator menus to define and customize 3278, 3287, and 3422 devices on each control unit. It also introduces you to the control icons which are used to operate the 2074. More thorough examples and planning information, especially for OS/390 or z/OS, are available in the "Red Book" publication SG24-5966, *Introducing the 2074 Control Unit*.

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### 2074 Configurator Introduction

The 2074 Configurator allows you, the system programmer, to customize each of the two Channel Adapters that may be present in your 2074.

A 2074 can have either one or two ESCON Channel Adapters. These are referred to as Channel Adapter 0 (CA0) and Channel Adapter 1 (CA1). There are two folders on the OS/2® desktop, one for each Channel Adapter. If you only have one ESCON card, then only Channel Adapter 0's set of action icons should be used. If you have both ESCON cards, then the Channel Adapter 1 folder and icons should also be used.

Before you can use the 2074 as a 3270 control unit, you must configure each Channel Adapter (0 and 1) that is present. This chapter will describe what is on each of the 2074 Configurator menus. The next chapter will show you how to perform tasks using each menu.

The examples and sample menus will always be referring to CA0, but everything also applies to CA1, if the second ESCON card is installed.

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## Device Maps (DEVMAP)

All the configuration information for a 2074 is stored in a special file called the Device Map (DEVMAP) file. At any point in time there is only one DEVMAP active in the system for each of the two ESCON Channel Adapters. This is the DEVMAP that was used for the Initial Microcode Load (IML) of a Channel Adapter. On the 2074 Configurator entrance menu it is shown as the *Currently Active Device Map*.

You are allowed to have up to four DEVMAPs (DEVMAP0, DEVMAP1, DEVMAP2, and DEVMAP3) per Channel Adapter (.CA0 and .CA1), so you can store different configurations for use at different times, if you desire.

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## 2074 Configurator Conventions

Throughout the Configurator, these conventions are observed:

- Only the information in unprotected fields can be changed. The information in these fields is red. If you cannot write in a field, you are not required to supply that information.
- You move from unprotected field to unprotected field on a Configurator menu by using **Tab**. You can also use the arrow keys to move anywhere on the menu, but you can type only in an unprotected field.
- Most of the messages produced by the Configurator pop up in the middle of the screen. Some messages appear in the message area of the menu, which is either just below the menu title or at the very bottom of the menu. Messages always appear in yellow.
- Each menu has a name printed in the lower right corner. This helps to identify the menu both in this book and in discussions with system support people.
- The following key assignments are consistent from menu to menu:

Table 1-1. Consistent function key assignments

<b>F1</b>	Online help information.
<b>F7</b> or <b>PageUp</b>	Move all or part of a menu backward.
<b>F8</b> or <b>PageDown</b>	Move all or part of a menu forward.
<b>F9</b>	Delete entry.
<b>F10</b>	Return to the <b>FUNCTIONS</b> main menu.
<b>ESC</b>	Return to the previous menu in the hierarchy, discarding any changes unless <b>ENTER</b> or a scroll key were pressed.
<b>Insert</b> and <b>Delete</b>	These keys operate in all data entry fields.
<b>ENTER</b>	Accept data that has been typed in. <b>ESC</b> will <i>not</i> discard this data after you have pressed <b>ENTER</b> or a scroll key.

- When the name of a function key appears twice on a menu, the set of names on the left represents choices; the set of names on the right describes these choices. More help is always available by pressing **F1**.

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## Starting the 2074 Configurator

**Note:** The OS/2 desktop is visible when the 2074 display is used, but is otherwise transparent to the user and system administrator.

This section describes how to start the Configurator and select a DEVMAP from the **DEVICE MAP SELECTION** menu. After performing the steps that follow, you should be able to do useful work with the Configurator from its **FUNCTIONS** main menu.

1. To start the Configurator, click on the “Configure CA0” or “Configure CA1” icon in the 2074 Channel Adapter 0 or 2074 Channel Adapter 1 folder.

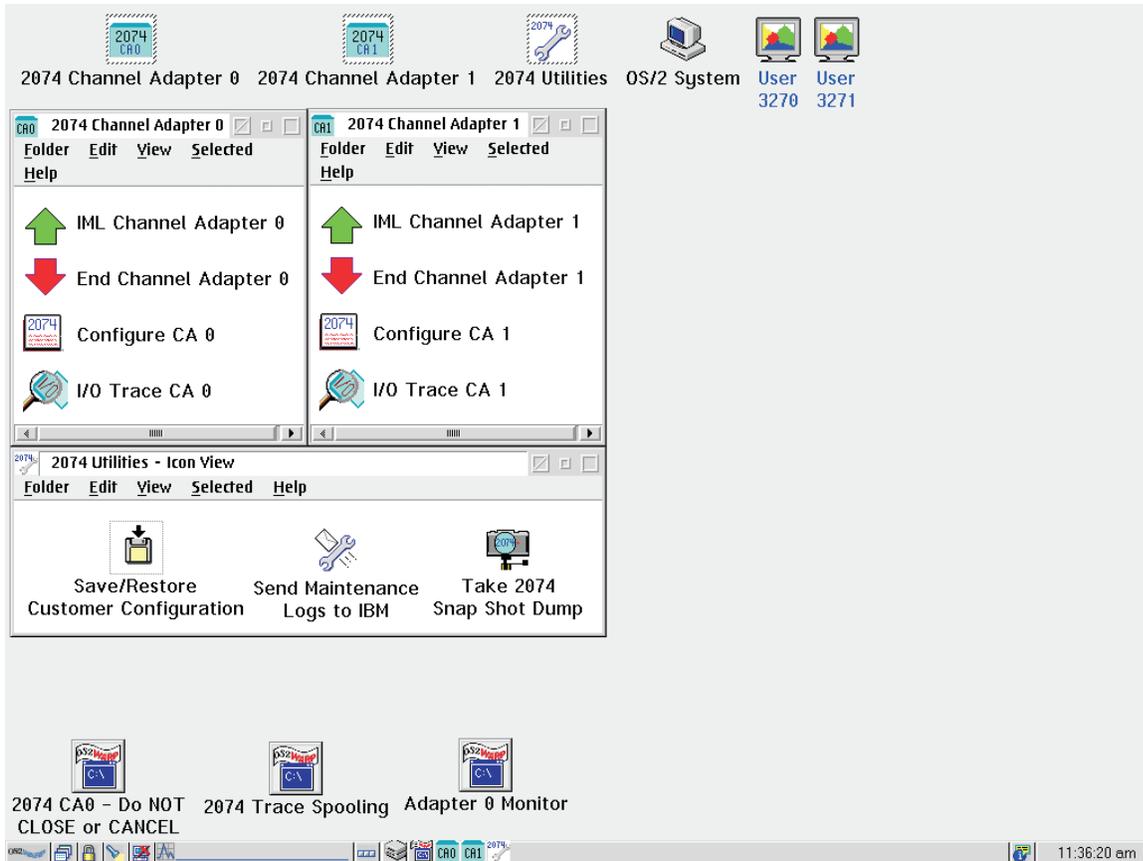


Figure 1-1. OS/2 Desktop displaying 2074 icons.

The first screen you will see is the **DEVICE MAP SELECTION** menu:

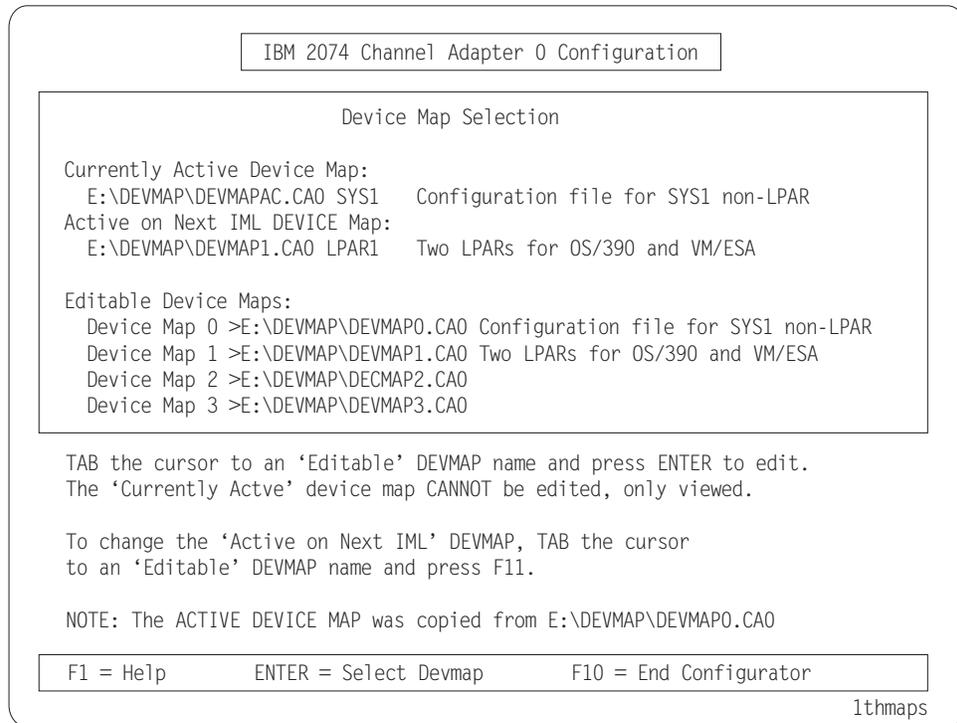


Figure 1-2. DEVICE MAP SELECTION menu

2. Notice the menu name **lthmaps** in the lower right corner of the menu. Each menu used in the Configurator is identified by a unique menu name that appears in this location.
3. This menu displays the location and names of the four I/O Device Maps (DEVMAPs) that are available for customization in the system.
4. Also displayed is the *Currently Active Device Map* that was used for the last IML that was performed. The Active DEVMAP is a copy of one of the DEVMAPs listed below it. At IML time the copy is made based on the *Active on Next IML Device Map* field, below. The Active DEVMAP can only be viewed, not changed, but if selected on this menu it also allows you to activate and deactivate I/O tracing for the devices shown.
5. TAB the cursor to the DEVMAP you wish to edit or view, and press ENTER.
6. To edit the original copy of the Active DEVMAP, read the NOTE displayed below the filenames box. Then place the cursor on the corresponding DEVMAP line and press ENTER.
7. Any of the DEVMAPS in yellow can be edited, but you must IML the control unit for any of the changes to take effect.
8. To select which DEVMAP will become the next active device map during the next IML, TAB the cursor to one of the four editable DEVMAP names and press F11.

To make any changes take effect you must END this 2074 Channel Adapter (use **End Channel Adapter 0** icon) and then IML this Channel Adapter (use **IML Channel Adapter 0** icon).

**Note:** This action will disrupt all users attached to this Channel Adapter. To find out which Channel Adapters are currently IMLed, press and hold the CTRL key, then press the ESC key, then release both keys. This will bring up the OS/2

Window List. An entry in this list for *2074 CA0 "Do Not Close or Cancel"* means Channel Adapter 0 is IMLed; An entry in this list for *2074 CA1 "Do Not Close or Cancel"* means Channel Adapter 1 is IMLed; Do **not** close either of these windows, as that will END the Channel Adapter support program

## Structure of the 2074 Configurator

Figure 1-3 on page 1-5 shows the menu relationship of the menus in the 2074 Configurator.

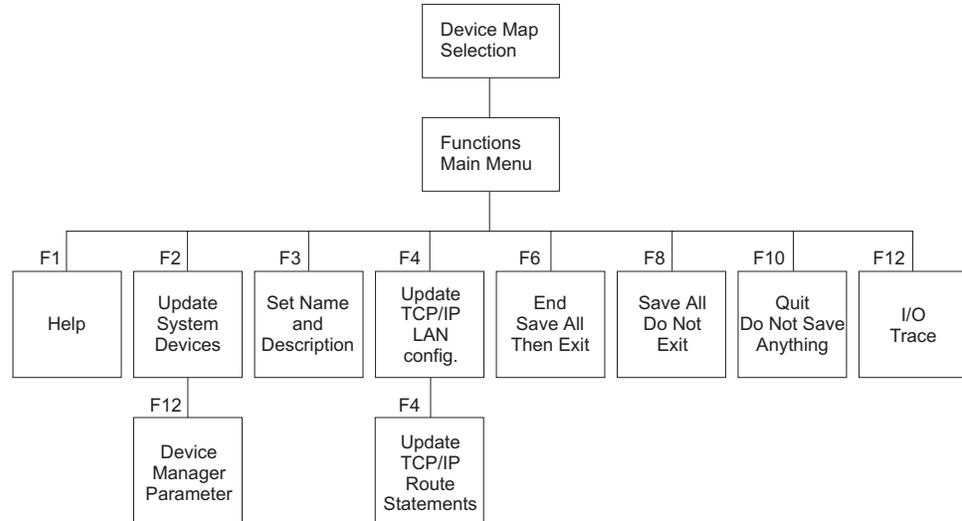


Figure 1-3. The Structure of the 2074 Configurator Menus

The following is information that will be requested by the 2074 Configurator.

Table 1-2. Information requested by the 2074 Configurator

Screen Name	Information	Description
cnlthenv	Configuration description	"Set 2074 Name and Description Menu" on page 1-11
cnlthenv	2074 Channel Adapter	"Set 2074 Name and Description Menu" on page 1-11
cndevprm	Device Manager Parameters such as Channel Adapter TCP/IP telnet port address	"Device Manager Parameter Menu" on page 1-10
cnupdlan	LAN card definitions. For each LAN card: 1. IP Address 2. Subnet Mask 3. Enabled 4. Other Parameters	"Update LAN Configuration Menu" on page 1-13
cnroute	Route Statements	"Update Route Statements Menu" on page 1-14

Table 1-2. Information requested by the 2074 Configurator (continued)

Screen Name	Information	Description
cnsys174	2074 Device definitions For each 3270 Device: 1. Console device type 2. LPAR assigned 3. ESCD port address 4. Device address 5. EMIO manager code 6. Parameters for security or specific console assignment for 3270 devices	“Update System Devices Menu” on page 1-7

All Configurator operations are selected from the **FUNCTIONS** main menu, which looks like this:

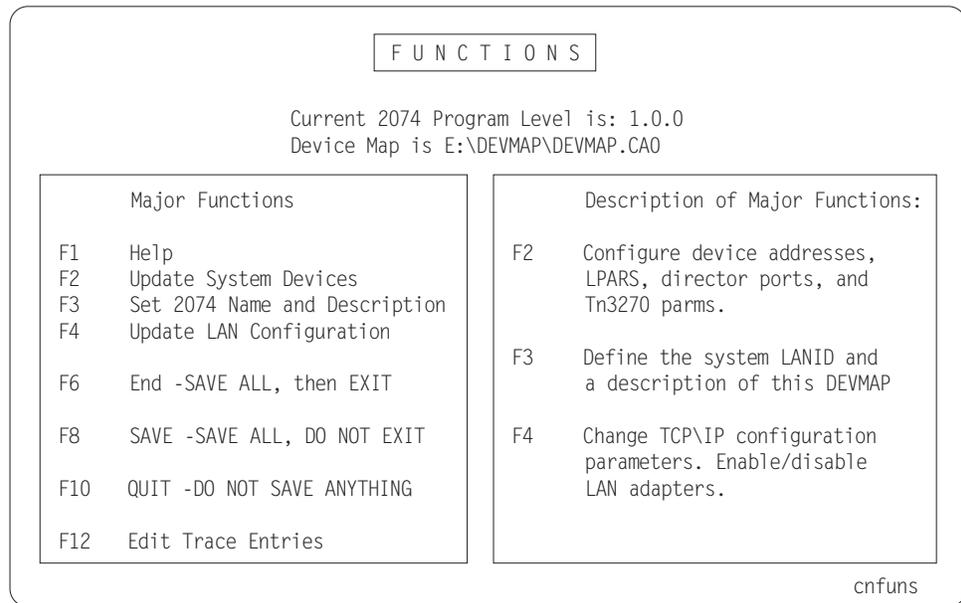


Figure 1-4. Functions main menu

The following is a brief explanation of what tasks you can perform from each of these menus:

<b>F2, UPDATE SYSTEM DEVICES</b>	This menu allows you to configure 3270 device addresses. This information is kept in the DEVMAP file. From F2 submenu F12, you can display and modify device manager startup parameters, such as the TCP/IP Telnet port address for each channel adapter.
<b>F3, Set 2074 Name and Description</b>	This menu allows you to define the 2074 name for this channel adapter and also to define some descriptive text for this particular DEVMAP configuration.

<b>F4, Update LAN Configuration</b>	This menu allows you to change the TCP/IP configuration parameters for each of the four LAN adapters in the system.
<b>F12, Edit Trace Entries</b>	This menu allows you to view or change I/O device tracing for future IMLs.

For a complete description of the Configurator menus and the meaning of their entry fields, see “2074 Configurator Menus”.

## 2074 Configurator Menus

This section describes the following 2074 Configurator menus:

- Update System Devices, see “Update System Devices Menu” on page 1-7.
- Device Manager Parameters, see “Device Manager Parameter Menu” on page 1-10.
- Set 2074 Name and Description, see “Set 2074 Name and Description Menu” on page 1-11.
- Update LAN Configuration, see “Update LAN Configuration Menu” on page 1-13.
- Update Route Statements, see “Update Route Statements Menu” on page 1-14.
- Edit Trace Entries, see “Edit Trace Entries Menu” on page 1-15.

## Update System Devices Menu

Using the Configurator, you will define each 3270 device for this particular 2074 Control Unit and create a DEVMAP file based on this mapping. This function is performed by the **UPDATE SYSTEM DEVICES** menu of the Configurator. An example of this menu is shown below:

Channel Adapter 0 Device Configuration							
Active Devices:7				MAX allowable device index is hex 20			
Index	Device	LPAR#	Port	CU UA	Mgr	Parameters	
01	3278	3	C0	0 00	1	10.10.0.2	
02	3278	3	C0	0 01	1	10.10.1.2	
03	3278	3	C0	0 02	2	10.10.2.2	
04	3278	3	C0	0 03	2	10.10.3.2	
05	3278	B	C5	2 45	2	/R=USER	
05	3278	B	C5	2 45	2	/R=USER	
06	3278	C	C4	1 00	2	/RE=OP	
07	3287	C	C4	1 10	2		
08	3422	3	C0	0 81	3	H:\*.TDF	
09							
0A							
0B							
0C							

Mgr Codes: 1=AWS3274 2=LAN3274 3=AWSOMA

F1=Help Alt+F1=Function Key Definitions F10=Main Menu ESC=Cancel Input

cnsys174

Figure 1-5. UPDATE SYSTEM DEVICES menu

The **UPDATE SYSTEM DEVICES** menu allows the user to maintain the device configuration of a 2074 Channel Adapter in a chosen DEVMAP (0,1,2,3) file. You can use this menu to:

- Configure 3270 devices for particular LPARS and ESCON director ports at desired device addresses (CU UA)
- Specify parameters for device managers
- Delete devices from DEVMAP

## Menu Elements

This menu has five main areas:

1. The title area at the top of the menu.
2. The message area immediately below the title. All error or warning messages produced by the Configurator appear here.
3. The main parameter input/data display area in the center of the screen. This area is composed of a display area for existing and new DEVMAP entries. The *Active devices* field specifies the number of active device addresses in DEVMAP.

### Important

You **must** have a copy of the mainframe's IOCDS file (not just the HCD) to properly fill out this menu. If you are using ESCON Directors, you also need to know the "Link In" Port addresses that the S/390 ESCON Channels are plugged into. This is a new requirement for the 2074.

The display area for DEVMAP entries has the following fields:

- *Index* is the 2-digit table index number for the device. This number is for reference purposes only and does not affect device configuration. If the rest of the fields on a line are blank, then that device is not configured.
- *Device* is the S/390 device type for the device. In general, it will be either:
  - 3278 for all 3270 Terminal emulation
  - 3287 for emulated 3270 printers  
See the **C:/2074/LAN3274.DOC** and the PCOMM online help for information about configuring a client PC attached printer.
  - 3422 for Optical Media Attach (OMA/2) emulation. See **C:\2074\AWSOMA.DOC** for information about configuring OMA devices.
- *LPAR#* is the 1-digit identifier for the system LPAR. It should match the S/390 "Resource Partition" number in the IOCDS. If no LPAR is involved, or the channel is dedicated to a single LPAR, then this field **must** be 0.
- *Port* is the 2-digit Port/Link address on the ESCON Director that the S/390 ESCON channel is plugged into. If the 2074 is directly connected to the S/390 channel without a Director, then this field **must** be 01.

Once you have configured the Port field, you cannot replug the S/390 channel at the Director without editing this menu and re-IMLing the 2074.

- *CU*: This field is a single hexadecimal digit which represents the logical control unit address (CNTUNIT CUADD=x in IOCDS).  
Note that CUADD defaults to 0 if not coded in the IOCDS. Do not confuse this with the CHPID or channel address. If you have not explicitly coded CUADD in the IOCDS, then **always** specify a CU value of 0.
- *UA*: This field is two hexadecimal digits which represent the device unit address (IODEVICE UNITADD=yy in IOCDS). Do not confuse this with the IODEVICE ADDRESS that is used by the S/390 operating system.
- *Mgr* is the code that identifies which device manager controls the device. Value 1 (meaning the AWS3274 emulated I/O device manager) specifies that the 3270 session will be through the 2074 loopback address. That is, the terminal session will be on the 2074's display. Value 2 (meaning LAN3274

emulated I/O device manager) means the session will be from a client on one of the LANs (It could use any of the four LAN adapters). Value 3 (meaning the AWSOMA emulated I/O device manager) assigns this device for use as an Optical Media Attach (OMA/2) feature. It is a required entry field, although if left blank, the manager code will default to LAN3274.

- *Parameters* allows access security or specific console assignment for 3270 devices. The Parameter value can be one of these formats:
  - The form /R=xxx means that a client TN3270E session must present a matching LU name to connect to this session. If multiple sessions have the same /R parameter, a TN3270E client will be connected to the first unused session with a matching /R parameter.
  - The xxx.xxx.xxx.xxx format means that only a TN3270E client with this IP address can use this session. If no /R operand is used, then the client has no way to select among several sessions with his IP address. Several 2074 sessions could specify the same IP address.
  - Using /R=xxx plus an IP address means that only a TN3270E client with this IP address can use this session. Furthermore, this specific session can be selected by the client by using a matching LU name.

For detailed information about these parameters, place the cursor under the device line and press **F1**.

4. The 2074 device manager codes display area near the bottom of the screen.
5. The bottom line of the menu, which lists some of the valid function keys. Pressing **ALT+F1** will display a pop-up box of all valid function keys.

## Function Keys

<b>F1</b>	<i>Online help information.</i> Placing the cursor under a particular device address or manager name and then pressing this key will display the help for that device manager. If the cursor is anywhere else on the screen when <b>F1</b> is pressed, general help for this menu is displayed.
<b>F7</b> or <b>PageUp</b>	<i>Scroll Back.</i> <b>F7</b> scrolls by line, while <b>PageUp</b> scrolls by screen.
<b>F8</b> or <b>PageDown</b>	<i>Scroll Forward.</i> <b>F8</b> scrolls by line, while <b>PageDown</b> scrolls by screen.
<b>F9</b>	<i>Delete.</i> Deletes the DEVMAP entry at the cursor position.
<b>F10</b>	Returns you to the <b>FUNCTIONS</b> main menu. All changes are accepted.
<b>ESC</b>	Returns you to the <b>FUNCTIONS</b> main menu. Any changes you made without pressing <b>ENTER</b> or a scroll key are discarded.
<b>F11</b>	<i>Repeat.</i> This will duplicate the DEVMAP line at the current cursor position and push down all following entries.
<b>F12</b>	Displays a screen that shows startup parameters for each device manager. You can edit this screen to change startup parameters for any device manager. See “Device Manager Parameter Menu” on page 1-10 for information on this screen.
<b>Alt+T</b>	Toggle on or off I/O tracing for a device. This can only be done on the “Active DEVMAP” while the 2074 control unit is running <b>AND AFTER</b> some I/O has been done to that device. Tracing is ON when the device address is YELLOW. Tracing is OFF when the device address is CYAN (normal color).

<b>ENTER</b>	Accept data that has been typed in. <b>ESC</b> does <i>not</i> discard this data after you have pressed <b>ENTER</b> or a scroll key.
--------------	---

## Device Manager Parameter Menu

This menu is used to display and modify the startup parameters for each of the 2074 device managers that are listed at the bottom of the **UPDATE SYSTEM DEVICES** menu.

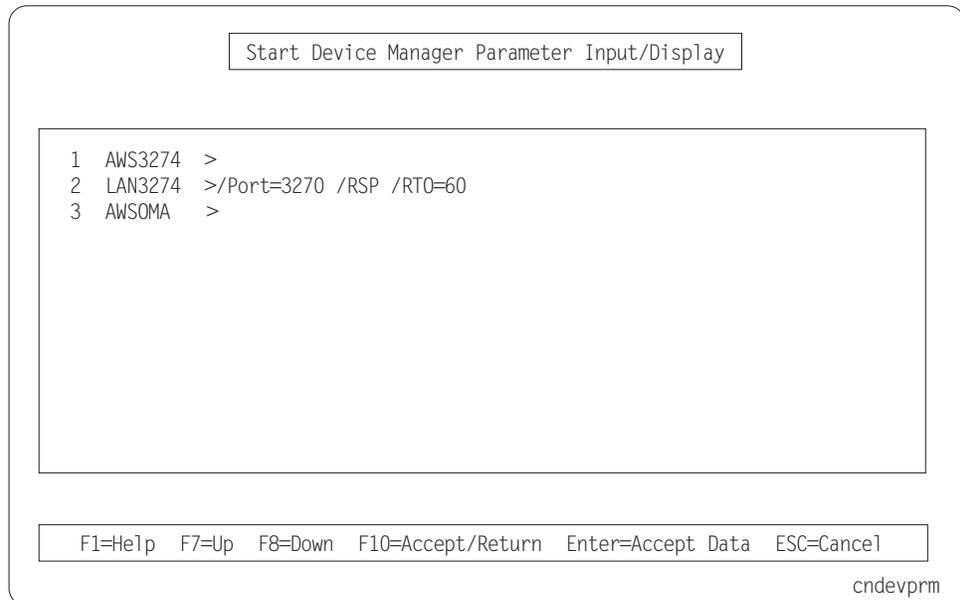


Figure 1-6. UPDATE SYSTEMS DEVICES menu

The **Device Manager Parameter** menu displays the parameters that are passed to each 2074 device manager when it is started.

## Menu Elements

Each line on the menu has three parts:

1. The Device Manager Code  
On the far left of the line is the device manager code that is used on the **UPDATE SYSTEM DEVICES** menu.
2. The Device Manager Name.  
Note that the color of the name means the same thing as on the **UPDATE SYSTEM DEVICES** menu:
  - Yellow — manager has devices assigned to it.
  - Cyan (light blue) — manager has no devices assigned to it.
3. The main parameter input/data display area  
This entry field is 54 characters long and begins with the > sign. The format of the parameters is manager dependent and is described in the \*.DOC files for each manager. To view a particular manager's DOC file, move the cursor onto the manager's line and press F1.  
The defaults are taken from the file AWSCPARAM.MGR. If a manager has no parameters, then the field will be blank. If you want to revert back to the default

parameters for any manager, blank out the line and press **ENTER**. If a manager has default parameters, but you want to pass *no* parameters, type in the word none.

After modifying any of the manager parameters, press **ENTER** to make them accepted. They are saved in the DEVMAP file when you select *END — SAVE ALL, then EXIT* from the Configurator main menu.

You can have different device manager parameters in different DEVMAPs, for example, for multiple operating systems or different I/O configurations.

## Function Keys

<b>F1</b>	<i>Online help information.</i>  Placing the cursor on the line for a particular manager and then pressing this key will display the help for that device manager. If the cursor is anywhere else on the screen when <b>F1</b> is pressed, general help for this menu is displayed
<b>F7</b> or <b>PageUp</b>	<i>Scroll Back.</i>  Lets you scroll the data in the display area backward.
<b>F8</b> or <b>PageDown</b>	<i>Scroll Forward.</i>  Lets you scroll the data in the display area forward.
<b>F10</b>	<i>Accept/Return.</i>  Returns you to the <b>UPDATE SYSTEM DEVICES</b> menu. All changes are accepted.
<b>ESC</b>	<i>Cancel.</i>  Returns you to the <b>UPDATE SYSTEM DEVICES</b> menu. Any changes you made without pressing <b>ENTER</b> or a scroll key are discarded.
<b>ENTER</b>	Accept data that has been typed in. <b>ESC</b> does <i>not</i> discard this data after you have pressed <b>ENTER</b> or a scroll key.

---

## Set 2074 Name and Description Menu

The **SET 2074 NAME AND DESCRIPTION** menu of the Configurator defines the 2074 name and descriptive text that is stored in the DEVMAP.

An example is shown below:

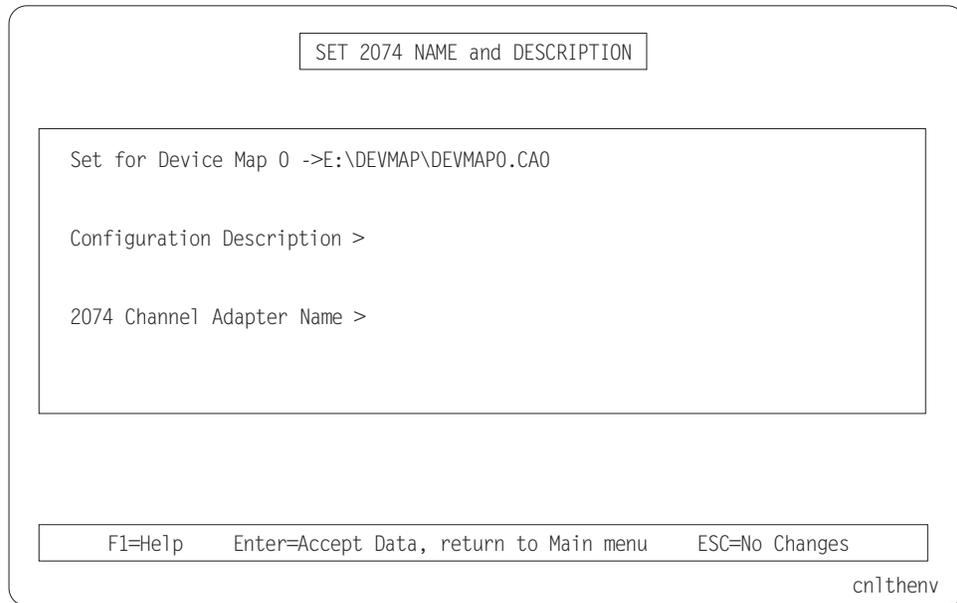


Figure 1-7. SET 2074 NAME AND DESCRIPTION menu

The **SET 2074 NAME AND DESCRIPTION** menu allows you to set a 38 character descriptive title for this DEVMAP. This is displayed on the initial “Device Map Selection” screen to help you distinguish different configurations you may have set up.

You should also make the 2074 Name (eight characters) something that is meaningful to you and your users for debug purposes. When a client PC establishes a TN3270E session over the LAN via TCP/IP into this 2074, the 2074 Name that you set here is displayed on their screen before the S/390 Operating System writes any data to the screen. See “2074 Client Connection Messages” on page 3-4.

## Menu Elements

This menu has three fields:

1. Device Map filename where this information will be stored.
2. Descriptive title for this configuration. It can be up to 38 alphabetic and/or numerical characters.
3. 2074 name. It can be up to eight alphabetic and/or numerical characters.

## Function Keys

<b>F1</b>	Online help information.
<b>ENTER</b>	Accept data that has been typed in, and return to the <b>FUNCTIONS</b> main menu.
<b>ESC</b>	Discard changes, and return to the <b>FUNCTIONS</b> main menu.

---

## Update LAN Configuration Menu

The **UPDATE LAN CONFIGURATION** menu allows you to enable/disable and configure the TCP/IP addresses and parameters for the four LAN cards in the 2074 system. Note that these four LAN cards are shared by both Channel Adapters 0 and 1.

Here is a sample menu:

```
Update LAN Configuration for CA0 and CA1

LAN0 (ETHER) Ipaddress>10.10.0.1      Mask> 255.255.255.0
Enabled?(y/n)>Y  Parms>metric 1 mtu 1500
IEEE 802.3 enabled?(y/n)>N

LAN1 (ETHER) IPaddress>10.10.1.1      Mask> 255.255.255.0
Enabled?(y/n)>Y  Parms>metric 1 mtu 1500
IEEE 802.3 enabled?(y/n)>N

LAN2 (TOKEN) IPaddress>10.10.2.1      Mask> 255.255.255.0
Enabled?(y/n)>Y  Parms>metric 1 mtu 1500

LAN3 (TOKEN) IPaddress>10.10.3.1      Mask> 255.255.255.0
Enabled?(y/n)>Y  Parms>metric 1 mtu 1500

Input file is  C:\MPTN\BIN\SETUP.CMD      Press F4 for Route Statements
Output file is C:\MPTN\BIN\|setup.CMD

F1=Help  F6=Save  F10=Save/return  ENTER=Check Syntax  ESC=No Changes

cnuapl an
```

Figure 1-8. UPDATE LAN CONFIGURATION menu

You will have to change most everything on this menu to suit your company's TCP/IP environment. Contact your LAN Administrator for the proper values.

## Menu Elements

The fields on this menu describe each of the four LAN cards in this 2074 system. You may not be using them all.

- LAN 0 is the on-planar Ethernet.
- LAN 1 is the Ethernet PCI Adapter in slot 4.
- LAN 2 is the Token Ring PCI Adapter in slot 5.
- LAN 3 is the second Token Ring PCI Adapter in slot 6.

All cards are configured to OS/2 MPTS. On this menu you decide which LAN cards are enabled in TCP/IP. Initially, all cards are disabled.

Once a card is enabled, you must specify a valid IP address and Subnet Mask. The other parameters are optional, but the initial ones are fairly standard.

For Ethernet cards, you must select whether to run them in IEEE 802.3 mode or Dix mode. The default (N) is Dix mode.

## Function Keys

The Function Keys are:

<b>F1</b>	Help
<b>F6</b>	Immediately save the LAN Configuration to the output file shown at the bottom of this menu in white (usually...) This file will be changed <b>even</b> if you QUIT from the Configurator FUNCTIONS main menu. <b>Note:</b> You <b>must</b> reboot OS/2 for the changes to take effect.
<b>F10</b>	Save and return to the Main Menu.
<b>ENTER</b>	Check syntax of what you have typed in
<b>ESC</b>	Discard all changes made on this screen
<b>F4</b>	Update TCP/IP Route statements. Pressing this key brings you to a submenu that allows TCP/IP Routing statements to be added to SETUP.CMD.

**Note:** If you are unsure of the format of your ROUTE statement(s), refer to the OS/2 TCP/IP configuration utility.

If an IP address field shows "nil", that means that the card was disabled, and no address was provided. If you enable the card, you must overtype this with a valid address.

**Attention:** The LAN might be connected to the Internet, although this would create security issues that would require very careful thought. There are no security issues unique to the 2074. However, given that MVS™ consoles are often used with no security controls whatsoever, it is recommended that a LAN containing these not be connected to the Internet. If you must connect the 2074 to the Internet, consider using a Virtual Private Network (VPN).

---

## Update Route Statements Menu

This submenu of the **UPDATE LAN CONFIGURATION** menu allows you to type in TCP/IP "route" statements that will be run from SETUP.CMD at TCP/IP startup time.

**Note:** If you are unsure of the format of your ROUTE statement(s), refer to the OS/2 TCP/IP configuration utility.

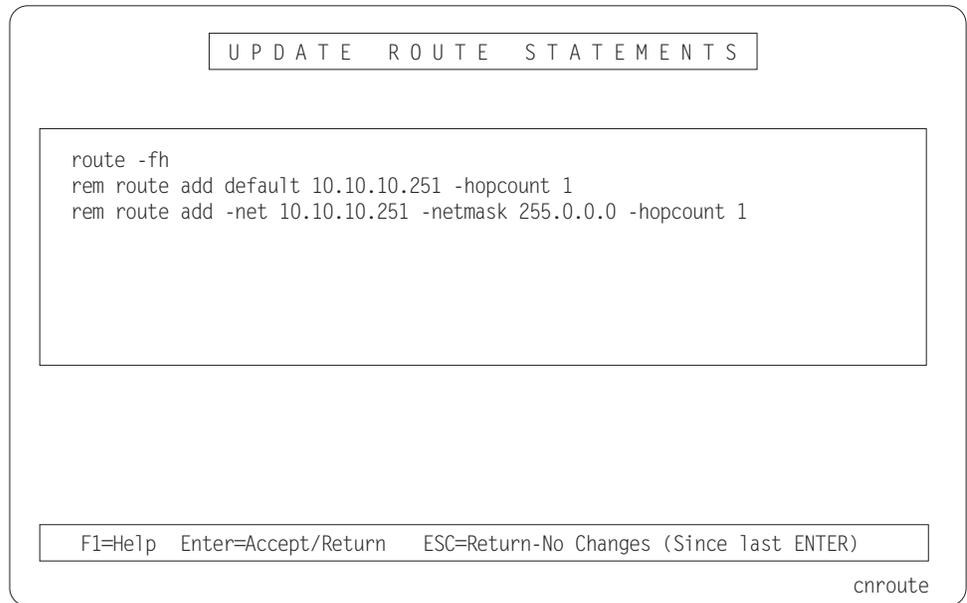


Figure 1-9. Submenu of the UPDATE LAN CONFIGURATION menu

## Function Keys

<b>F1</b>	Online help information.
ESC	Discard changes (if <b>ENTER</b> was not pressed) and then return to the <b>UPDATE LAN CONFIGURATION</b> menu.
ENTER	Accept data that has been typed in. ESC does <i>not</i> discard this data after you have pressed <b>ENTER</b> . It just returns to the <b>UPDATE LAN CONFIGURATION</b> menu.

---

## Edit Trace Entries Menu

This menu allows you to view or change which 2074 devices are being traced, or to view or change the Trace Spooling parameters.

An example of this menu is shown below:

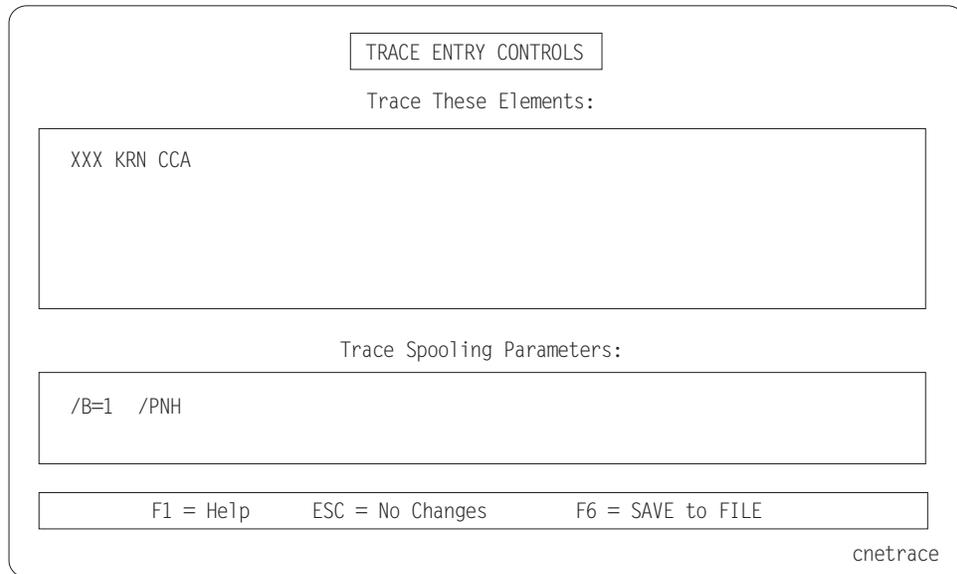


Figure 1-10. TRACE ENTRIES menu

The **TRACE ENTRY CONTROLS** menu should only be used under the direction of IBM support personnel.

## Menu Elements

This menu has two areas:

1. Trace These Elements This area contains the Index number of the 2074 devices that will be traced. You can add to this list by typing in new numbers or subtract from this list by deleting existing numbers. The numbers must be three hexadecimal digits, separated by a blank, and the first digit **MUST** be 0, e.g.  
001 014 026

There are also two special purpose entries:

XXX meaning trace ALL addresses  
KRN meaning turn on kernel tracing

2. Trace Spooling Parameters This area contains optional parameters for the Trace Spooling function. These parameters are described completely in the file C:\2074\AWSTRCSP.DOC.

## Function Keys

<b>F1</b>	<i>Online help information.</i> This will display additional help for this menu.
<b>F6</b>	<i>Save to File.</i> Save to trace control file and return to the <b>FUNCTIONS</b> main menu. After you have added or deleted the addresses and/or parameters that you want to change, press F6 to save these changes.
<b>ESC</b>	Discard any changes made on this menu and return to the <b>FUNCTIONS</b> main menu.

- If you are editing the *Currently Active DEVMAP* and the 2074 Control Unit is running, then no changes are allowed on this menu. Use the ALT+T trace toggle key on the Update System Devices menu to turn on or off tracing on individual devices for a running system. See “Activating and Deactivating 2074 Device Tracing” on page 2-5.

- If you are editing “Device Map 0, 1, 2, or 3”, then any changes made are written to the trace control file (CHAN.TRC). They will not take effect until the next IML is performed.

**Note:** There is only one CHAN.TRC trace control file shared by **all** DEVMAPs and **both** Channel Adapters in the system.

Changes to I/O tracing made on this menu will not take effect until the next IML is performed, and can only be altered while editing an *inactive* DEVMAP.



## Chapter 2. 2074 Configurator Tasks

The following table lists these tasks:

Table 2-1. 2074 Configurator Tasks Roadmap

To perform the Configurator Task	See this Section	Page
<b>General Tasks</b>		
Starting the 2074 Configurator	Starting the 2074 Configurator	2-1
<b>Updating System Devices</b>		
Adding new I/O devices	Allocating new I/O devices	2-2
Deleting I/O devices	Deleting I/O devices	2-4
Displaying/Modifying the Telnet Port Address	Displaying/Modifying the Telnet Port Address	2-4
Activate/Deactivate Device Tracing	Activating and Deactivating 2074 Device Tracing	2-5

### Starting the 2074 Configurator

This section shows how to start the Configurator to view or edit DEVMAPS.

1. To start the Configurator, click the Configure CA0 or Configure CA1 icon in the 2074 Channel Adapter 0 or 1 folder. The Configurator DEVMAPS menu displays:

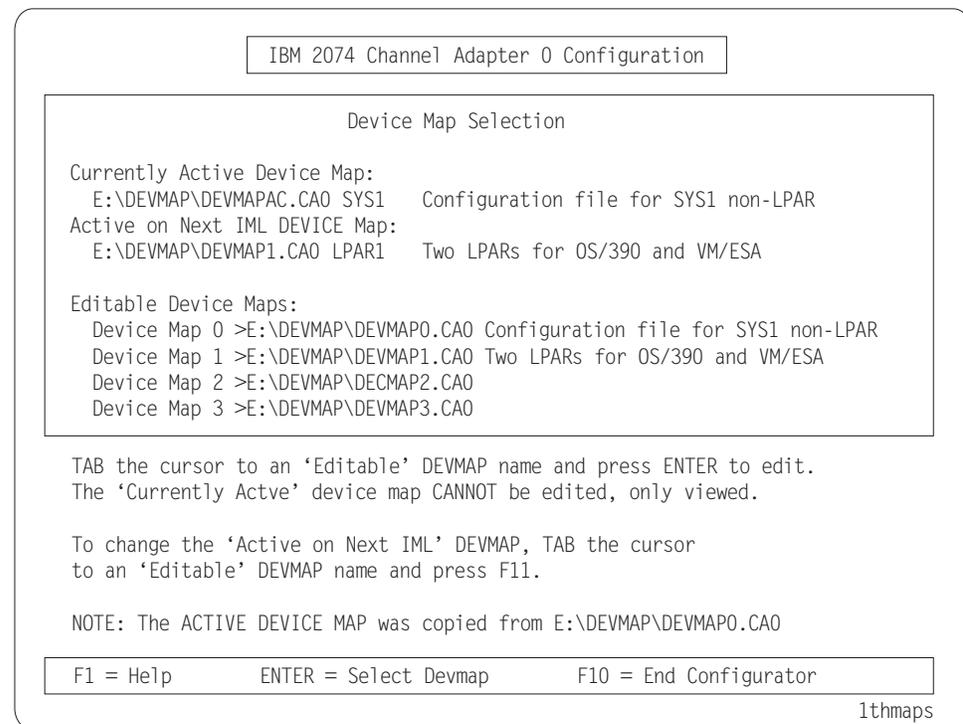


Figure 2-1. Configurator DEVMAPS menu

2. Choose the DEVMAP you wish to edit or view by placing the cursor on that line and pressing **ENTER**. The **FUNCTIONS** main menu is displayed.

- Press **F2** to display the **UPDATE SYSTEM DEVICES** menu: Following is a sample menu.

Channel Adapter 0 Device Configuration

Active Devices:7 ———— MAX allowable device index is hex 20 ————

Index	Device	LPAR#	Port	CU	UA	Mgr	Parameters
01	3278	3	C0	0	00	1	10.10.0.2
02	3278	3	C0	0	01	1	10.10.1.2
03	3278	3	C0	0	02	2	10.10.2.2
04	3278	3	C0	0	03	2	10.10.3.2
05	3278	B	C5	2	45	2	/R=USER
05	3278	B	C5	2	45	2	/R=USER
06	3278	C	C4	1	00	2	/RE=OP
07	3287	C	C4	1	10	2	
08	3422	3	C0	0	81	3	H:\*.TDF
09							
0A							
0B							
0C							

Mgr Codes: 1=AWS3274 2=LAN3274 3=AWSOMA

F1=Help Alt+F1=Function Key Definitions F10=Main Menu ESC=Cancel Input

cnsys174

Figure 2-2. UPDATE SYSTEM DEVICES menu

## Allocating New Devices

The UPDATE SYSTEM DEVICES (F2) menu is used to add devices at specific real S/390 addresses or to specify parameters to the device manager that is handling the I/O for a device.

- Start at the 2074 Configurator **FUNCTIONS** main menu. See “Starting the 2074 Configurator” on page 1-2 for instructions on how to get to the Configurator’s main menu (cnfuns).
- Choose the option *Update System Devices* by pressing **F2**. An **UPDATE SYSTEM DEVICES** menu similar to the following appears:

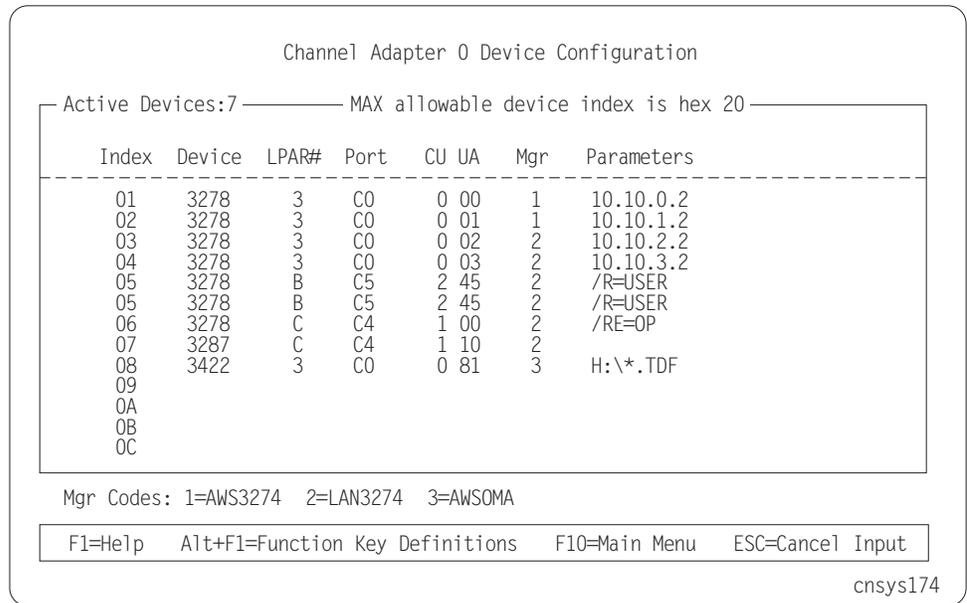


Figure 2-3. UPDATE SYSTEM DEVICES menu

3. Move the cursor to an empty line and fill in:
  - a. *Device* with the S/390 device type. You can specify 3278 or 3287.
  - b. *LPAR#* with the S/390 LPAR number to which this device will connect. If no LPAR is involved, or the channel is dedicated to a single LPAR, then this field must be 0.
  - c. *Port* with the ESCON Director port/link address of the S/390 channel to which this device will connect. If the 2074 is directly connected to the S/390 channel without a Director, then specify 01.
  - d. *CU UA* with the S/390 logical Control Unit and Unit Address of this device. Do not confuse these with the CHPID or channel address and the S/390 Operating System's IODEVICE ADDRESS. CU **must** match the CUADD=x in the IOCDS (almost always 0) and UA **must** match the UNITADD=yy in the IOCDS.
  - e. Type the specific manager code (*Mgr* code). AWS3274 is for local 3270 sessions on this control unit console (limited to 2 active sessions). LAN3274 is the usual choice for most other devices (remote TN3270E clients).
  - f. *Parameters* with device parameters, if any. These parameters are optional. Parameters can also be added after the device is allocated.  
For AWSOMA devices you must specify the location of the Tape Descriptor File (TDF). Usually you can just put **d:\\*.TDF** (where **d:** is the drive letter of the CD-ROM).

Move the cursor down to the desired device address, TAB over to the field, add or change parameters, as required, and press **ENTER**. You can specify parameters for each LAN3274 or AWS3274 device to allow access security or specific console assignment of the 3270 device. For detailed information about these parameters, place the cursor under the device line (or the Mgr code name at the bottom of the screen) and press **F1**.
4. To save your work and exit from the Configurator, press **F10** to return to the **FUNCTIONS** main menu.
5. Then press **F6** (*END - SAVE ALL, then EXIT*) to save the updates that you made.

**Note:** None of the changes that you have specified are saved until you exit from the Configurator.

---

## Deleting I/O Devices

This section shows you how to delete device entries from DEVMAP.

1. Start at the 2074 Configurator **FUNCTIONS** main menu. See “Starting the 2074 Configurator” on page 1-2 for instructions on how to get to the Configurator’s main menu (cnfuns).
2. Choose the option *Update System Devices* by pressing **F2**.

Channel Adapter 0 Device Configuration

Active Devices:7 ———— MAX allowable device index is hex 20 ————

Index	Device	LPAR#	Port	CU	UA	Mgr	Parameters
01	3278	3	C0	0	00	1	10.10.0.2
02	3278	3	C0	0	01	1	10.10.1.2
03	3278	3	C0	0	02	2	10.10.2.2
04	3278	3	C0	0	03	2	10.10.3.2
05	3278	B	C5	2	45	2	/R=USER
05	3278	B	C5	2	45	2	/R=USER
06	3278	C	C4	1	00	2	/RE=OP
07	3287	C	C4	1	10	2	
08	3422	3	C0	0	81	3	H:\*.TDF
09							
0A							
0B							
0C							

Mgr Codes: 1=AWS3274 2=LAN3274 3=AWSOMA

F1=Help Alt+F1=Function Key Definitions F10=Main Menu ESC=Cancel Input

cnsys174

Figure 2-4. UPDATE SYSTEM DEVICES menu

3. Move the cursor down into the body of the menu under the device line that you would like to delete and press **F9 Delete**. The data on that line will be deleted and replaced by blanks.
4. If you made a mistake and want to discard your changes, press **ESC** without first pressing **ENTER**.
5. To save your work and from exit the Configurator, press **F10** to go back to the **FUNCTIONS** main menu.
6. Then press **F6** (*END — SAVE ALL, then EXIT*) to save the updates that you made.

**Note:** None of the changes that you have specified are saved until you exit from the Configurator.

---

## Displaying/Modifying the Telnet Port Address

One of the parameters that can be entered on the **Device Manager Parameter Menu** for the LAN3274 device manager is the TCP/IP Telnet port address. This address must be different for Channel Adapter 0 and Channel Adapter 1 (if present).

1. Start at the 2074 Configurator **FUNCTIONS** main menu. See “Starting the 2074 Configurator” on page 2-1 for instructions on how to get to the Configurator’s main menu (cnfuns).
2. Choose the option **Update System Devices** by pressing **F2**. The **Channel Adapter 0 Device Configuration** menu will be displayed.
3. Press the **F12** key to go to the **Start Device Manager Parameter Input/Display**:

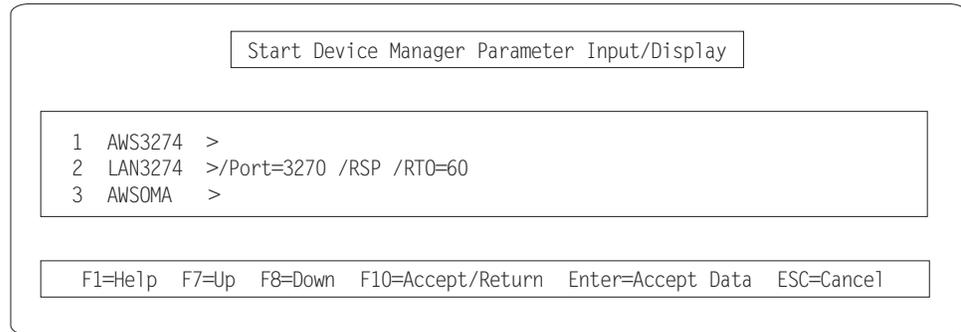


Figure 2-5. Start Device Manager Parameter Input/Display

4. Use the **TAB** key to move the cursor to the field following **LAN3274**.
5. Type in the desired Telnet port address in the form **/Port=nnnn**. The default port numbers are:
  - Channel Adapter 0: /Port=3270
  - Channel Adapter 1: /Port=3271

The port number must be one to four decimal digits. If there are two Channel Adapters in a 2074, then each must have a different port address; but other 2074s can also use the same pair of addresses, if desired. Clients will connect into a particular 2074 by specifying one of the 2074’s LAN IP Addresses (to get to this particular box) and then one of the two Port Numbers (chosen above) to select Channel Adapter 0 or 1.

6. To save these changes, press **F10** to return to the previous menu, then **F10** again to return to the **FUNCTIONS** main menu.
7. Then press **F6** (*END — SAVE ALL, then EXIT*) to save the updates that you made.

**Note:** None of the changes that you have specified are saved until you exit from the Configurator.

---

## Activating and Deactivating 2074 Device Tracing

If you are having problems with any I/O devices, you may be instructed by IBM support personnel to take a trace of those devices. This section gives examples of how to activate and deactivate the trace on individual device addresses on a *running* system. To control tracing *before* the system is up and running (that is, before IML) use the 2074 Configurator menu described in “Edit Trace Entries Menu” on page 1-15.

1. Start at the 2074 Configurator **FUNCTIONS** main menu.
2. Choose the option *Update System Devices* by pressing **F2**. An *UPDATE SYSTEM DEVICES* menu similar to the following appears:

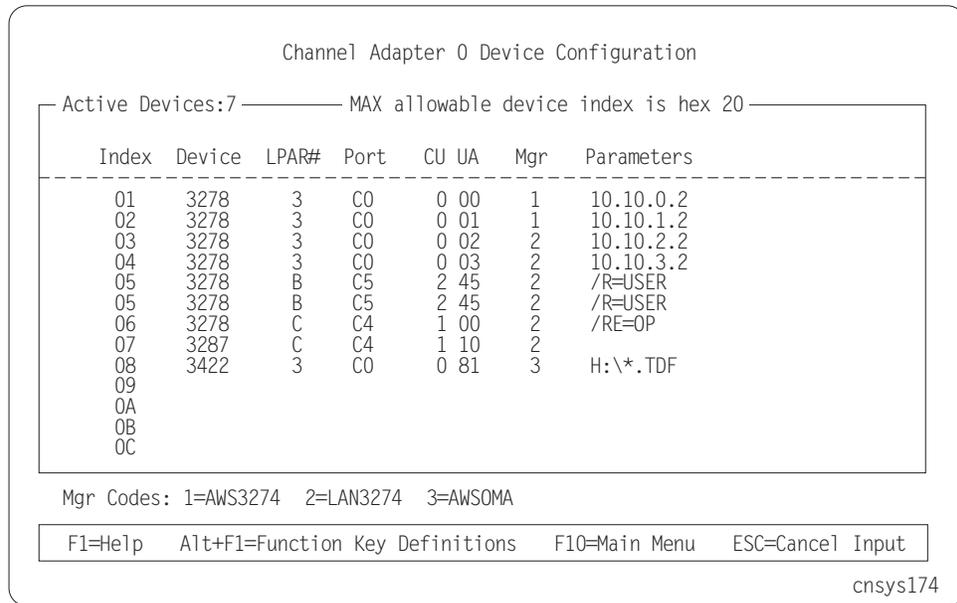


Figure 2-6. UPDATE SYSTEM DEVICES menu

You can tell if tracing is on or off by observing the color of the Index number on this screen. If an Index number is the normal cyan color (light blue), then tracing is off. If it is yellow, then tracing is on, but if no I/O has ever been done to a device, then the index number color remains cyan until the first I/O is done.

3. Move the cursor down into the body of the menu under the index for which you want to activate (turn on) or deactivate (turn off) tracing and press **ALT+T**. If tracing was off for that device, then it will be turned on (yellow). If tracing was on for that device, then it will be turned off (cyan). In other words, the key acts like a toggle.

**Note:** Trace control of devices on a running system can only be done from the *Currently Active DEVMAP*. This is the top DEVMAP listed on the entry menu “Starting the 2074 Configurator” on page 1-2. This action takes place immediately; you do not need to exit the 2074 Configurator.

---

## Chapter 3. Operating the 2074 Configurator

You control the 2074 from the OS/2 desktop by double-clicking on either the “2074 Channel Adapter 0” (**CA0**) or “2074 Channel Adapter 1” (**CA1**) icons. The CA0 or CA1 “Icon View” window appears. This example will show only the CA0 icons.

If you have both Channel Adapters installed, then you will be using both sets of icons. If you have only one Channel Adapter installed, then you should only use the CA0 icons, even though the CA1 icons are present on the desktop.

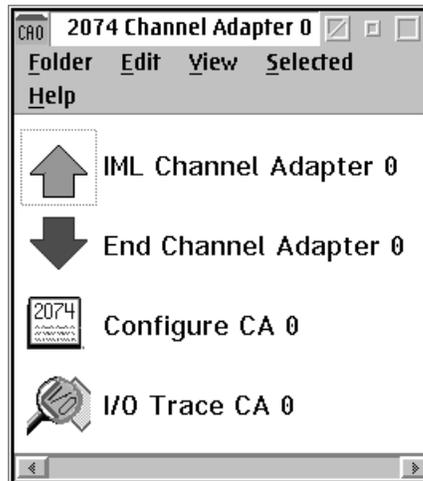


Figure 3-1. 2074 Channel Adapter 0 Icon View Window

From this window, you can select one of the following four functions:

**IML Channel Adapter 0**

Use this selection to start 2074 CA0 and its I/O subsystem.

**End Channel Adapter 0**

Use this selection to stop 2074 CA0 and unload its I/O subsystem.

**Configure CA 0**

Use this selection to configure 2074 CA0 devices. Chapter 1, “2074 System Overview”, on page 1-1 tells how to use the 2074 Configurator.

**I/O Trace CA 0**

Use this selection to view the contents of the I/O trace buffer and create an I/O trace file. The information contained in the I/O trace file is created for use by personnel in the IBM Support Center. See the **2074 Console Support Controller: Installation and Maintenance Information** (G229-9028) for information about how to set up an I/O trace.

---

### Utility Icons

Utilities for the 2074 are available on the OS/2 desktop by double-clicking on the “2074 Utilities” icon. The “2074 Utilities Icon View” window appears:

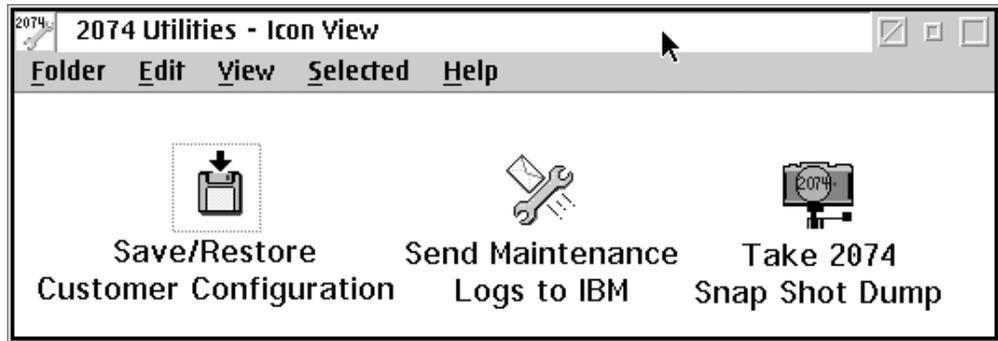


Figure 3-2. 2074 Utilities Icon View Window

From this window, you can select one of the following three functions:

#### **Save/Restore Customer Configuration**

Use this selection to save to diskette your 2074 customization data. This includes files from the C: drive such as CONFIG.SYS, PCOMM workstation profiles, TCP/IP LAN adapter configuration, and copies of your 2074 device configuration files (DEVMAPs) from the E: drive.

**Save/Restore Customer Configuration** should be used:

1. After a new install to save the 2074 initial customer configuration.
2. After changing the 2074 device configuration (e.g. Configure CA 0 or 1), PCOMM session defaults, or TCP/IP addresses.
3. Before the IBM CE reloads the hard disk from the 2074 Load CD-ROM to solve a program problem or exchange the hard disk for analysis.

To be safe, you should insure that you always have a back-up of the 2074's current configuration on diskette so you do not have to completely reconfigure it if there is a hard disk failure.

#### **Send Maintenance Logs to IBM**

Use this selection when instructed by the IBM Support Center to copy logs and traces to diskette for transmittal to IBM for analysis.

#### **Take Snap Shot Dump**

Use this selection to create a dump file.

**Note:** The 2074 Snap Shot Dump facility creates a dump of the 2074 I/O subsystem, including control blocks and device manager data. This information is created for use by personnel in the IBM 2074 Support Center during problem determination. Use this selection only when directed to do so by IBM Support personnel.

---

## **Starting and Stopping the 2074**

You start and stop a 2074 Channel Adapter by making selections from either the Channel Adapter 0 or Channel Adapter 1 Icon View windows. The two Channel Adapters (if you have more than one) are independently controlled from their own set of icons.

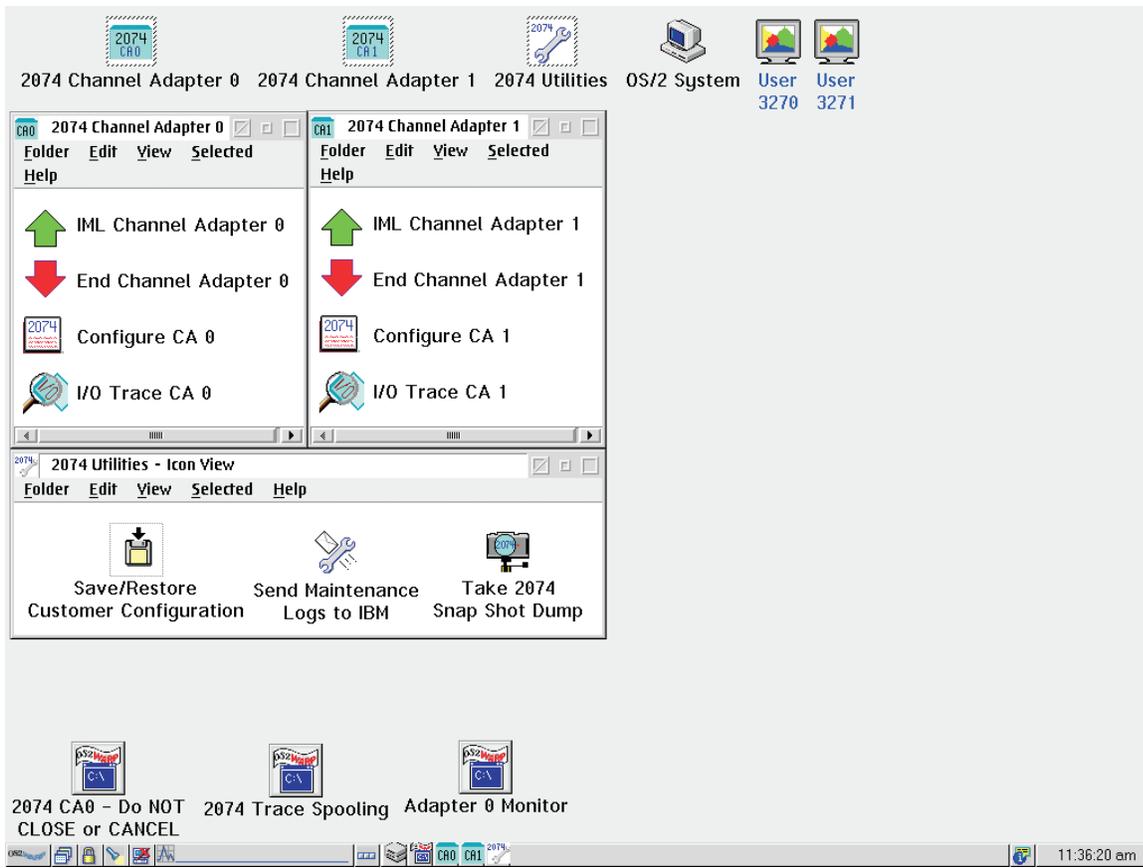


Figure 3-3. OS/2 Desktop Displaying 2074 Icons

## Starting the 2074

To start Channel Adapter 0, double-click on the IML Channel Adapter 0 icon. As the IML of the 2074 progresses, the following indicators are displayed on the OS/2 desktop:

### IML Channel Adapter 0

A minimized OS/2 window that shows progress and error messages for the IML process. It will disappear when IML is complete.

### 2074 CA0 "Do Not Close or Cancel"

This window displays information about the level of the 2074 programs and DEVMAP. This window is for information only. You do not need to view it during normal operation of the 2074. However, if you report a problem to the IBM 2074 Support Center, you may be asked to supply the information displayed in the 2074 CA0 "Do Not Close or Cancel" window.

**Note:** Do not close this window. Closing the 2074 CA0 "Do Not Close or Cancel" window ends the 2074 and is the same as selecting the End Channel Adapter 0 icon.

### 2074 Trace Spooling

This minimized OS/2 window contains an I/O trace program. Do not close this window either.

### Adapter 0 Monitor

This minimized OS/2 window runs a monitoring program that will restart the 2074 in case of a failure. Do not close this window.

## Shutting Down the 2074

There are times when you need to shut down a 2074 Channel Adapter; for example, changes made in the 2074 Configurator *require* that you do an End Channel Adapter, and then an IML Channel Adapter before updates can take effect. Or, you may want to shut down the entire 2074 for maintenance.

You should *always* make sure that the S/390 users who are connected to this control unit have been notified before terminating the 2074 I/O subsystem with the End Channel Adapter icon.

---

## 2074 Client Connection Messages

When a client PC establishes a TN3270E session over the LAN via TCP/IP into this 2074, a three line connection message will be displayed at the top of the client's 3270 screen. Figure 3-4 shows an example of this.

```
** 2074 Index 06 connected to XXXXXXXX via IP Address 10.10.0.1:3270 **
**          CA=0 Index=06 LPAR=C Port=C4 CU=1 UA=00 LUName=OP **
** Type=009033-001 SN=000000010179 Tag=00C1 Link=00 Status=Active **
```

Figure 3-4. TN3270E session connection message

The data in this message is defined as:

- **XXXXXXXX** = 2074 Channel Adapter Name, as set on the **Set 2074 Name and Description** menu. See “Set 2074 Name and Description Menu” on page 1-11.
- **IP Address** = the IP address of the specific LAN adapter they are connected to (10.10.0.1), and the Telnet Port address (3270).
- **CA** = the Channel Adapter (0)
- **Index** = line number on *Update System Devices* menu. This defines the exact device entry the client session is connected to (06).
- **LPAR** = for this device, the value of the *LPAR* field, showing the mainframe LPAR the client session is connected to (C).
- **Port** = for this device, the value of the *PORT* field, showing the ESCON Director port the mainframe channel is connected to (C4).
- **CU** = value of the CUADD field for this device (1).
- **UA** = value of the UNITADD field for this device (00).
- **LUName** = value of the /R=groupname in the *Parameters* field for this device (/R=OP).

This would correspond to this device entry in DEVMAP:

Channel Adapter 0 Device Configuration							
Active Devices:7				MAX allowable device index is hex 20			
Index	Device	LPAR#	Port	CU UA	Mgr	Parameters	
06	3278	C	C4	1 00	2	/R=OP	

Figure 3-5. Device entry in DEVMAP

The third line of the TCP/IP connection screen reflects the ESCON Channel Adapter (CA0 or CA1) link status (last field), and what machine it is connected to (first 5 fields). Different values will be displayed, depending on whether the 2074 CA is connected to an ESCON Director or an S/390 mainframe Channel. If connected to a Channel, then **Tag** will be the CHPID number. If connected to a Director, then **Tag** will be the director port number that *this* 2074 CA is connected to. On some directors, **Link** will show the logical director port, and **Tag** will show the physical director port. You should use the value of **Link** in the mainframe IOCDs unless it is 00. In that case, use the value of **Tag**.

For a given physical cabling, only the **Status** value will ever change. When Status=**Active**, there is a valid ESCON connection between the 2074 and the S/390 mainframe or director. Status=**Inactive**, denotes a previous ESCON connection that has gone down. This old information will remain on the screen until a new ESCON connection is established, or the 2074 unit is rebooted or the session is disconnected/reconnected.

If a valid ESCON connection has not yet been established, then the third line will display:

-- No Escon Connection Detected --

---

## Planning Considerations

Depending on how you connect your TN3270E client systems, you may or may not have a security concerns. An alternative to physically local LANs is the use of one or more Virtual Private Networks (VPNs).

The 2074 offers significant consolidation of console support. Consequently, it is **STRONGLY RECOMMENDED** that production environments use redundant configurations where **OS/390 or z/OS** consoles are defined through two different 2074 units (and ESCON Switches as appropriate) to prevent the loss of console control in the unlikely event of a failure. The 2074 documentation and support material assumes this is the case and shows appropriate configuration information.

---

## eNetwork Personal Communications Configuration

When using IBM eNetwork Personal Communications (PCOMM) for client TN3270E display sessions, the following statement must be present in the PCOMM profile files (xxx.WS) to ensure that printer WCC controls are ignored if sent by the host:

```
[LT]
IgnoreWCCStartPrint=Y
```

If you have copied one of the sample PCOMM profile files supplied with the 2074 (for PCOMM version 4.3 under OS/2) such as C:\PCOMOS2\PRIVATE\USER0.WS, this statement will already be present. Otherwise, you will have to edit the xxx.WS file(s) on the client PC with a PC text editor to add the statement lines.

---

## Chapter 4. 2074 Programming Considerations

---

### Differences Between 3174 and 2074

The IBM 2074 is an entirely new implementation of a 3270 terminal control unit. Its purpose is to provide IPL and control consoles for the S/390 Operating System (e.g. the System Operator console for VM/ESA<sup>®</sup>, or the Master Console for OS/390 or z/OS). An older 3174 control unit, such as the 3174-12L which the 2074 replaces, has more capabilities in some areas, and less capabilities in other areas.

### 3270 Client Support

The **2074** only supports TCP/IP attached clients which are running a Telnet TN3270E emulator program, such as *IBM eNetwork Personal Communications*. These clients appear to the S/390 Operating System as non-SNA, DFT terminals. It does **not** support COAX attached clients. The 2074 is essentially TWO independent ESCON control units in a single box, each controlling 16 (2074-001), 32 (2074-002), or 48 (2074-003) 3270 devices for a total of 32 (2074-001), 64 (2074-002), or 96 (2074-003). In this book, they are referred to as Channel Adapter 0 (CA0) and Channel Adapter 1 (CA1). If a 2074 ESCON Channel Adapter is connected to the S/390 mainframe via an ESCON Director unit, then each of the devices can be assigned *individually* to different LPARs on different mainframes. The 2074 Configurator menu "Update System Devices" allows you to specify this degree of selectivity, using the LPAR, PORT, CU and UA fields on each device line. Note that the Port field is a new requirement for the 2074. You must know the ESCON Director "Link In" port address that the S/390 ESCON channel is plugged into.

The **3174** supports both COAX and LAN-attached, SNA and non-SNA, CUT and DFT mode terminals. It does **not** support TCP/IP attached clients. When configured in non-SNA, DFT mode, the 3174's 32 devices must all be assigned to a single LPAR on one specific S/390 mainframe.

### CCW Processing

There are some differences in the way that a 2074 processes some CCWs than the way a 3174 does. Part of the reason for these differences is that a 2074 maps the datastream into TN3270E protocol, which does not support all aspects of 3174 protocol. In particular, TN3270E does not support command chaining so CCWs may be processed differently.

IBM has tested the 2074 with the major IBM S/390 Operating Systems and does not believe that these differences have any impact. Specific customer applications may be impacted, if they rely on these features.

1. Read Configuration Data

The control unit type reported by Read Configuration Data (CCW X'72') returns 2074 instead of 3174. Sense ID (CCW X'E4') returns 3174 for compatibility.

2. Command-Chained Write (CCW X'01') commands

In the 3174, it was *recommended* that Write CCWs begin with an SBA, rather than rely on the fact that a chained Write will begin at the buffer location where the preceding command left off.

In the 2074 **this is a requirement**. Writes that do not begin with an SBA will write at an unpredictable location.

3. Command Chained Read CCWs

Data transferred from a Read CCW chained from a Write, Erase/Write, or Erase/Write Alternate CCW begins at the buffer address where the Write finished. This is the same in both the 3174 and the 2074.

Read CCWs chained from a Read Buffer, Read Modified or Read Modified All CCW are not supported by the 2074.

4. Select commands treated as no-ops

The 3174 enforces various rules for chaining commands from Select CCWs. Violating these rules may result in a unit check on a 3174. The 2074 treats these CCWs as no-ops, and violating the 3174 rules on chaining (for example, chaining a Write from a Select Read CCW) will **not** result in a unit check on a 2074.

5. Write Control Character - keyboard unlock

On a 3174, a keyboard unlock WCC doesn't take effect until the end of a CCW chain. On a 2074, it takes effect when the CCW is executed by the client's 3270 emulator (e.g. IBM eNetwork Personal Communications). Since the 2074 has no concept of chaining, the keyboard may unlock before the last CCW of the chain has been sent to the client emulator.

---

## Chapter 5. Optical Media Attach (OMA/2) Feature

AWSOMA is an emulated I/O device manager that reads a CD-ROM in OMA/2 format. You can define the OMA/2 device as a 3270 in IOCP and dedicate the device to the VM LPAR. **VM will figure out when it IPLs that it is an OMA/2 device and configure itself properly to read from the device.** IBM uses this format to ship program products, fixes, publications, etc. OMA/2 is only applicable to VM/ESA and z/VM operating systems. AWSOMA reads a "Tape Descriptor File" (TDF) which describes the format and location of files on the CD-ROM and the logical organization of those files on the "3422 tape". Because AWSOMA answers that it is a 3422, some operating systems can't tolerate a 3422 (which was a parallel channel device only), on an ESCON channel.

For more information on the TDF and Optical Media Attach, see the following publications:

SC52-1201-00, *Optical Media Attach/2 Technical Reference*  
SC52-1200-00, *Optical Media Attach/2 User's Guide*

See the file C:\2074\AWSOMA.DOC for complete 2074 configuration information.

An OS/2 utility program, AWSMOUNT, is provided that allows you, from an OS/2 prompt on the 2074 desktop, to change the filename that is associated with an OMA tape device or to issue a *Rewind* command. You will need to do this after changing from one OMA CD to another. For example, when loading a second tape volume. See AWSOMA.DOC for details.

OMA performance may be severely impacted by heavy 3270 traffic from other devices on the same channel. The effect is most noticeable when reading large numbers of short records - for example, IPLing ICKDSF. If you are having OMA performance problems, try quiescing any devices that are transferring heavy datastreams.



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